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By

Prof. Yuh-Shan Ho

Last data updates: 29/05/15

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# Title: Sadhana-Academy Proceedings in Engineering Sciences

Full Journal Title: Sadhana-Academy Proceedings in Engineering Sciences

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Arya, C. (2013), *Sadhana-Academy Proceedings in Engineering Sciences*: A scientometric analysis. *Sadhana-Academy Proceedings in Engineering Sciences*, **38** (4), 761-771.

Full Text: [2013\Sadhana38, 761.pdf](2013/Sadhana38,%20761.pdf)

Abstract: This study presents a scientometric analysis of 253 articles published in Sadhana during the year 2005-2009. Five volumes of the journal are taken up to observe the distribution of contribution, authorship pattern, institution-wise distribution, geographical distribution of contribution, average length of paper, tables and illustrations used and citation pattern in each volume. Results indicate that highest number of papers have been written by two authors. The contributions received in this journal are more from India than from the other countries. Foreign documents show their more representation in references cited. Journals are referred more frequently than other documents.The average number of references per article is 23.72 and 200.602 per volume.

Keywords: Analysis, Authors, Authorship, Authorship Pattern, Citation, Distribution, Engineering, Engineering Sciences, India, Journal, Journals, Length, Papers, Pattern, References, Representation, Results, Scientometric, Scientometric Analysis, Volume

# Title: Salud Colectiva

Full Journal Title: Salud Colectiva

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Gonzalez, P.U. (2011), Information systems in health: A conversation with Pedro Urra Gonzalez. *Salud Colectiva*, **7** (1), 99-111.

Abstract: In this conversation, which took place in Havana in October 2010, Pedro Urra Gonzalez recounts the creation of Cuba’s Sistema Nacional de Informacion en Ciencias de la Salud (National Information System in Health Sciences) during the 1960s and the founding of the Infomed project in the beginning of the 1990s. He describes the epistemological frameworks which supported the development of Infomed as a cultural and social process and as a place of confluence of different types of thought, based on a theory of knowledge oriented to respond to the needs of practice and transformation. Grounding himself in a conception of information systems as human, social and historical constructions which cannot be treated as artifacts disconnected from the reality that embeds them, he analyzes bibliometric indicators, the Open Access movement and such regional projects as the Scientific Electronic Library Online (SciELO) and the Red de Revistas Cientificas de America Latina y el Caribe, Espana y Portugal (Redalyc).

Keywords: Access to Information, Bibliometric, Bibliometric Indicators, Cuba, Development, Information, Information Management, Information Science, Information Systems

# Title: Salud Mental

Full Journal Title: Salud Mental

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0185-3325

Issues/Year:

Journal Country

Language:

Publisher: Interperiodica, Birmingham

Publisher Address:

Subject Categories:

Impact Factor

? Agudelo, D., Breton-Lopez, J. and Buela-Casal, G. (2004), Bibliometric analysis of journals related to health psychology published in Spanish. *Salud Mental*, **27** (2), 70-85.

Full Text: [2004\Sal Men27, 70.pdf](2004/Sal%20Men27,%2070.pdf)

Abstract: Nowadays, scientific production has been given, in enormous importance, and, as a consequence interest has been focused also on journals and works itself as mere instruments of knowledge divulgation that contribute to the development of Science. Thus, bibliometric studies have great relevance within the scope of evaluation and assessment of the scientific contents. At the same time, they are most useful to allow a detailed approximation to the object of analysis and, in addition, to the data offered in regard to a given area of knowledge. A bibliometric analysis is achieved in the present work. Moreover, it is made oil the basis of four journals which are directly related to Health Psychology and Mental Health published in Spanish (Rerista Internacional de Psicologia Clinical de la Salud, International Journal of Clinical and Health Psychology, Clinina y Salud, Salud Mental, y Psiciologia y Salud) during 2001 -2002. Several factors have been taken into account when dealing with the detailed study of these journals. In these journals, first of all, it has been analysed, the number of articles which have been published in the selected and previously specified period of time; secondly, the nationality of the authors who have written the different articles, and after, the number of authors who have taken part in each of the works and the area to which their contents belong according to the classification achieved by the authors, and hearing in mind the type of examined articles. Different sections are included Under this classification; so it’s worth mentioning Mental Health, to begin with. Under this heading should be included all those articles focused on psychiatric or psychological interventions related to the mental processes, their attention, pervention and promotion. The second place of the classification is occupied by the heading of physical Health. In this area are grouped all those written articles regarding psychiatric and psychological interventions focused oil physical alteration. In the third place, and under the category of Neurosciences, have been classified the articles focussed on the neuropsychology, experimental pschiatry, neuro and psychophysiology, prescribed drugs and all those areas concerned with the basic processes of the functioning of the brain. Finally, another category was added up. It was the so-called Inter-Area that included all those works that clue to their characteristics, could not be considered as proper or specific of a single area of knowledge. Information obtained after the analysis, reflects the fact that there are substantial differences between the journals, in regard to the number of articles being published. In such a way it is worth mentioning the detached journals of Salud Mental with a total of 85 articles published in these two years. We are lead to think that a having a larger number of annual editions implies to publish larger number of written articles, though this is not necessarily the case. It is, rather, a consequence of other priorities and characteristics pertaining to different journals. On the other hand, as a result of the analysis of different journals, substantial differences can be found in regard to the interventions of authors whose nationalities are not the same as that of the journal’s. In this way, it is worth mentioning the Revista Internacional de Psicologia Clinica y de la Salud, International Journal of Clinical and Healh Psychology, with a contribution of ten different countries -in addition, to the Spanish authors- stressing the contributions of South and Central American Countries and, questioning, as with the other journals, the scarce representation from other European Countries. In contrast to this statement it is important to mention the relevance of the scientific collaboration between the different countries that may be observed in the shared scientific production. This fact also indicates the need to make known the different publications in order to increase the number of contributions from countries other than the journal’s. In this same way, consideration is given to the influence of the diversity of languages in which each journal is published, in order to obtain some contributions from different countries. The index of authorship or the number of signers in each work also reflects different patterns among the journals; however, the great majority of them are oriented towards the so-called multiple, tutorship in, wich the works are signed by several authors, mostly two of them. The analysis of the contents shows the variety of areas of knowledge represented in the works which have been published in the analysed journals. So, in the journal Psicologia y Salud, we call observe a high degree of representation of articles of the area of Physical Health; however, in the Revista Internacional de Psicologia Clinica y de la Salud, International of Clinical and Health Psychology and in Salud Mental the contents are shared among various areas, a fact possibly due to the interests and profile of these journals. Any way, in the three above mentioned journals there is a larger number of written articles related to Mental Health. In addition to this, it is important to indicate that the varied richness of their contents shows the interdisciplinarity that exists in the treatment of Mental Health and also the difficulty in classifying the different treatments in the general and specific categories themselves. Focusing our attention in Salud Mental, it is convenient to point out how among the analysed journals this is the one that Publishes more contributions pertaining to different areas of knowledge, there is a greater number of articles in each of the marked categories; data in the area of Neurosciences is outstanding in comparisson to the rest of the analysed journals. Several final reflections may be made bearing in mind the information provided by this data, its usefulness and implications. Besides, we may point out their practical value for authors, readers and editors of the journals. As far as authorship is concerned, not only do they offer relevant information, in the face of the charcteristics of different journals -dealing with the thematic blocks preferably treated in their publications- but also, they illustrate the rules for publication suggested by each of the journals. Making known these rules, is a useful and valuable contribution, because sometimes the difficulties for publishing arise from to the author’s lack of knowledge regarding publising requirements or even, to and, consequently, they make the wrong selection when sending their works. Taking into account the readers’ positions, these works have a special interest as they orientate the bibliographic search offering a more concrete panorama of the type of available thematic blocks in the different publications. The journals acquire special importance for editors because they produce relevant information about the general characteristics showed in their publications. This could be very useful to implement strategies to give space to a determined type of articles that fit into the journal’s profile.

Keywords: Analysis, Assessment, Authors, Authorship, Bibliographic Search, Bibliometric, Bibliometric Analysis, Bibliometric Studies, Classification, Collaboration, Countries, Depressed-Patients, Descriptive Study Though Data Analysis, Development, Diversity, Evaluation, Health, Health Psychology, Index of Authorship, Interdisciplinarity, Journal, Journals, Knowledge, Languages, Long-Term Potentiation, Memory-Systems, Mental Health, Mental-Health, Mexico-City, Neurobiological Mechanisms, Neuropsychology, Neurosciences, Part Iii, Posttraumatic-Stress-Disorder, Psychophysiology, Publication, Publications, Publishing, Relevance, Risk Eating Behaviors, Science, Scientific Collaboration, Scientific Production, Spanish, Synaptic Plasticity, Treatment, Usefulness

? Garcia-Silberman, S., Arana, D., Martinez, R., Infante, R. and Jimenez, A. (2004), Research of epidemiological and psychosocial aspects of mental health: A bibliometric 8 analysis. *Salud Mental*, **27** (5), 8-22.

Full Text: [2004\Sal Men27, 8.pdf](2004/Sal%20Men27,%208.pdf)

Abstract: the main objective of this paper is to describe the most important characteristics of the scientific work developed at the Direccion de Investigaciones Epidemiologicas y Psicosociales (DIEP) from the Instituto Nacional de Psiquiatria Ramon de la Fuente (INPRF), using printed material as an indicator to evaluate productivity. We consider important to make a descriptive and critical analysis of the development of knowledge generated and disseminated with the purpose of having it as a base for planning future activities after twenty-five years of scientific activity in epidemiological and psychosocial research. Bibliometric analysis is a tool developed to perform quantitative studies of printed matter; it seeks to show numbers related to research activities through description of printed publications in a particular field. On this paper, we are trying to give a panoramic view of the different topics, the specific population groups studied, the methods used, as well as the different pathways and tendencies in these twenty-five years. This allows for the identification of particular fields that have been underestimated and which can be considered as starting point for the development of future research. The analysis of each document has been defined in three basic aspects: content, authors, and dissemination media used. This strategy made it possible for us to know the amount of the production and its quantitative and qualitative characteristics in terms of type of publication, the country where it was published, the assignment and nationality of the authors, the number of authors by article, the type of research and its subject matter, the population studied, and the amount of publications per year. All the material used in this study belongs to a bibliographic database (BIBLISMAD), which is permanently updated and which gathers more than 5000 references of research reports published in Mexico or by Mexican researchers, among them all those who are or were part of the DIEP. All the references corresponding to documents that had been published were considered, including articles in journals, book chapters, complete books, manuals and reasearch instruments. References corresponding to unpublished works, summaries in memories and communications presented in congresses were excluded. The selection of the material was carried out considering the fact that at least one of the authors was assigned to the DIET when the paper was published or during the period when the research was performed. The bibliographic material was analyzed considering different aspects of each one in the manner of variables. This way we registered the type of publication (full book, manual, article in journal, book chapter, instrument, and report), The type of article (empiric research, review, and essay), The country of the journal or book, the number of authors by paper, articles where the main author was part of the DIEP, assignment of the authors (researcher form the DIEP, external national researcher, and external foreign researcher), The type of empirical research performed (quantitative or qualitative), The field of research (mental health or addictions), and the population under study (children, adolescents, adults, and elderly people). Apart from mere quantification and the kind of papers published, we considered a qualitative analysis as a very important aspect. In this case, we worked with the contents of each manuscript to identify general areas, particular topics, methods applied, populations researched, and the media chosen to publish. With this, we attempted to obtain indicators of the relative weight of each item. for this study, we analyzed an overall of 1457 works published between 1978 and 2003. Results are presented according to the type of publication, the authorship, and the main topic. The analysis allowed building a map of the research performed by the DIEP in the last twenty-five years. We found that most of the material corresponded to articles in scientific journals, most of them Mexican, almost a third American, and a fifth European. Regarding language, more than a half of the articles are in Spanish, nearly 40% are in English and small percentages are in French and Portuguese. As for the specialty of the publications, most of them were published in psychology, psychiatry, mental health, and addiction journals. Nevertheless, due to the characteristics of psychosocial research, 24% of the papers were published in different medic magazines (general practice, public health, epidemiology, pediatrics, geriatrics, AIDS treatment, biomedical sciences, gynecology, cancerology, neurology, nutrition, perinatology, sexuality and reproductive health), 17% in social sciences and humanities journals (culture, education, adolescence, anthropology, social work, family), and 3% in science and technology magazines. Tendencies in productivity were satisfactory, with variations related to the nature of research, which is devoted to data collection and analysis in some periods and in others to the publication of results. Broadly speaking, there was an increase in productivity. This increase was more obvious between 1984 and 1994, which may be explained by an institutional growth in terms of financial and human resources. This growth tended to stabitize in the last decade, in spite of which productivity has not stopped growing. When we analyzed data related to authorship, there was a marked leadership on the side of the DIEP researchers: 90% of the articles published had a researcher from the DIEP as the main author. In the other hand, there were 286 co-authors from Mexico and 204 from other countries, which is a sign of the great interest to work with different groups from institutions all over the country and overseas. Although the production average level seems to be low, this is explained by the fact that many authors have collaborated temporally as post-graduate students, students writing their dissertation, and students in social service. One indicator of the important role of the DIEP as a generator of original knowledge in mental health and addiction fields is the high percentage of papers reporting results of researches developed by this area of the institute. The frequency of quantitative methods is a reflex of the predominance of this perspective in science, and in health sciences particularly. However, the growing development that qualitative and mixed methods have had during this last decade is noteworthy. This implies an enrichment of the amount and out reach of the knowledge generated in our field of work. The diversity of topics allows for a thought about the great advance experienced by mental health in recent years, especially in epidemiologic and psicosocial regards. However, it must be said that there are still many challenges to face.

Keywords: Addiction, Adolescence, Adolescents, Advance, AID, AIDS, Analysis, Anthropology, Authorship, Bibliometric, Bibliometric Analysis, Biomedical, Building, Characteristics, Children, Co-Authors, Collection, Communications, Country, Culture, Data, Data Collection, Database, Development, Diet, Diversity, Education, Elderly, Enrichment, Epidemiology, Family, Field, General, General Practice, Geriatrics, Growth, Gynecology, Health, Health Sciences, Human, Humanities, Identification, Indicator, Indicators, Institutions, Journal, Journals, Knowledge, Leadership, Media, Mental Health, Methods, Mexico, Neurology, Nutrition, Papers, Pathways, Pediatrics, Perinatology, Planning, Population, Populations, Practice, Productivity, Psychiatry, Psychology, Psychosocial, Public, Public Health, Publication, Publications, Purpose, Qualitative, Qualitative Analysis, Quantification, Quantitative Methods, Reporting, Reproductive Health, Research, Review, Role, Science, Science and Technology, Sciences, Scientific Journals, Service, Sexuality, Small, Social, Social Sciences, Specialty, Students, Technology, Treatment, Work

Notes: IInstitute

? Godoy, M.E.R., Navarro, E. and Escoto, A.S.D. (2008), Editorial productivity impact of the National Institute of Psychiatry Ramon de la Fuente, between the years 1995-2005, accoding to the Institute of Science Information Web of Science. *Salud Mental*, **31** (1), 3-17.

Full Text: [2008\Sal Men31, 3.pdf](2008/Sal%20Men31,%203.pdf)

Abstract: the immediate expression of the scientific activity is very well reflected through the serial journals, due to the fact that they are the main means of information that scientists have chosen to communicate to their peers and society as a whole the advances and recent contributions of research that is being done. Thus explaining in this manner the reason why bibliometric studies are of great utility to highlight the evolution of the scientific research, also, this allows scientists, institutions and, editors of scientific journals to be aware of a series of indicators to analyze science productivity from different angles. In this study, the editorial productivity of the National Institute of Psychiatry Ramon de la Fuente (NIPRF), and its journal Solud Mental included in two indexes of the ISI Web of Science: 1) the Social Science Citation Index (SSCI), 2) the Science Citation Index (SCI) and the Journal Citation Reports (JCR), by Thompson Scientific, between the years 1995 - 2006. The objective of the study is to make public the editorial productivity of the institution, research staff and their journal Solud Mental, according to the mentioned information sources. These databases were selected for this study because of the prestige that Thompson Scientific has not only in the scientific community, but also, in the information media, due to its rigorous methods to select the journals in order to maintain updated journal titles that are included in their indexes. This study shows the productivity of different countries of the world in the SSCI in the period analyzed to place Mexico in the international context. Then, it is shown all the productivity of Mexico in the SSCI by author, subject, institution, publication, type of document and language, with the purpose of knowing the position of productivity of the NIPRF in the national context. After this, all the productivity of the NIPRF contained in the SCI is presented with the total productivity of the institute in both Indexes. Afterwards, a chart is shown of the productivity of the authors belonging to the institute that appear in both Indexes, showing the number of articles as single authors and as first authors, as well as identifying the type of documents published. The study follows with a series of data of the productivity of three Mexican journals indexed in the SSCI related to subjects such as psychology and psychiatry, they are: Salud Publica de Mexico, Solud Mental and, Revista Mexicana, de Psicologia, with the purpose of identifying the institutions journal Salud Mental in the national and international context. The impact factor of the three Mexican journals was obtained from the Journal Citation Reports Edition. All the productivity of the three journals was analyzed by author, institution, type of document and language. The Mexican scientific productivity in social sciences, according to the SSCI, is very low compared with the other countries that were analyzed; in the case of Latin America, only Brazil exceeds Mexico in editorial production in this subject. According to the SSCI, the recurrent subjects in the editorial production in the social sciences are related with subjects such as psychology and psychiatry and the authors that stand out in this study are from the NIPRF. It is worth pointing out the fact that most of the editorial production of Mexico in this field according to the SSCI is generated in public institutions, first of all, the National Autonomous University of Mexico followed by the National Institute of Psychiatry Ramon de la Fuente.

Keywords: Advances, Bibliometric, Bibliometric Studies, Bibliometrics, Brazil, Community, Context, Data, Databases, Evolution, Expression, Field, First, Health, Impact, Impact Factor, Indicators, Information, Institutions, International, ISI, ISI Web of Science, Journal, Journal Citation Reports, Journals, Latin America, Media, Methods, Mexico, National Institute of Psychiatry Ramon de la Fuente (NIPRF), Productivity, Psychiatry, Psychology, Public, Publication, Purpose, Research, SCI, Science, Science Citation Index, Sciences, Scientific Journals, Scientific Productivity, Scientific Research, Social, Social Science Citation Index, Social Sciences, Society, Sources, SSCI, Utility, Web of Science, World

? Rojas, E., Real, T., Garcia-Silberman, S. and Medina-Mora, M.E. (2011), A systematic review of addiction treatment in Mexico. *Salud Mental*, **34** (4), 351-365.

Full Text: [2011\Sal Men34, 351.pdf](2011/Sal%20Men34,%20351.pdf)

Abstract: the consumption of substances with addictive potential is a relevant health problem. In Mexico, the abuse is spreading and the use of services is unfrequent. To extend the offer and accessibility to treatment means to increase the coverage and to guarantee that efficient and effective models are used to treat the patients. The aim of the paper was to learn what has been investigated in this respect; a systematic review of the studies was undertaken to evaluate the treatment research through clinical trials. Methods A review of the published literature from 1980 to 2010 in databases and specialized documentation centers was undertaken. Reports of clinical trials to evaluate interventions for the consumption of alcohol, tobacco and drugs were included. The criteria proposed by CONSORT were used as indicators. Results Two hundred and twenty publications were located on treatment in Mexico, of which only 26 (11.8 %) corresponded to clinical trials to evaluate the impact of different interventions. The most used type of treatment was the cognitive-behavioral brief one, followed by its combination with therapy of replacement, pharmacological therapy and individual psychotherapy or group therapy. Trials also included evaluation of motivational brief therapy, the program “La familia ensenante” (teaching family) and psychotherapy, as well as the therapy centered on solutions. Discussion Most of the clinical trials localized do not comply with the criteria or do it partially. Additionally they have short scopes due to the limited size of the samples. The results reveal that the reports published of investigations are very scanty to evaluate programs of treatment. There is a need to implement programs of treatment directed to specific populations and to the use of different types of drugs, and to evaluate the interventions.

Keywords: Addiction, Addictions, Alcohol, Bibliometric Analysis, Clinical Trials, Clinical-Trials, Consort, Countries, Coverage, Databases, Delay, Disorders, Documentation, Drugs, Evaluation, Family, Group Therapy, Impact, Interventions, Literature, Mental-Health-Services, Methods, Mexico, Patients, Psychotherapy, Publications, Reports, Research, Review, Systematic, Systematic Review, Teaching, Therapy, Tobacco, Treatment

Notes: IInstitute

? Gonzalez-Forteza, C., Echeagaray, F.A.W. and Tapia, A.J. (2012), Center of Epidemiological Studies Depression Scale (CES-D) in Mexico: Bibliometric analysis. *Salud Mental*, **35** (1), 11-18.

Full Text: [2012\Sal Men35, 11.pdf](2012/Sal%20Men35,%2011.pdf)

Abstract: the CES-D is a screening instrument to measure depressive symptoms during the last week: It is useful and easy to use because no trained staff is heeded to administer and Score it Interest in depression has been consistent in Mexico in recent years, and the CES-D is One of the most used scales. The goal of this paper is to present a bibliometric analysis of scientific papers reporting data obtained with the scale; the papers field to be published in a scientific journal with a reviewing board, a group of peer reviewers and be ISNN registered. Material were found in EBSCOhost and Google Scholar databases. 80 papers Weed published between 1986 and 2011. An average of three papers wee published every eat Most of the studies were developed in Mexico City and nationwide; there was a bi-national study, a multinational one; and four in several states combined: the journals With the highest number of papers were; SALUD MENTAL, Salud Publica de Mexico, and Revista Mexicana de Psicologia; There were 17 institutions involved in coordinating the studies; six of them Were international; 41% of the studies were conducted With adolescents, 32%,with women; and 90% in urban contexts : There are some areas which need further study to build a More comprehensive understanding about the distribution cod characteristics of depressive symptoms and hence new Studies must be designed to include understudied groups and populations.

Keywords: Adolescents, Analysis, Bibliometric, Bibliometric Analysis, Ces-D, Characteristics, City, College-Students, Data, Databases, Depression, Depressive Symptoms, Distribution, Epidemiology, Field, Google Scholar, Institutions, International, Journal, Journals, Measure, Mexico, Papers, Populations, Recent, Reporting, Sample, Scale, Scales, Scientific Journal, Screening, Screening Instruments, Symptoms, Understanding, Urban, Women

? Schneider, D.R., Vidal-Infer, A., Bolanos-Pizarro, M., Aleixandre-Benavent, R., Canigral, F.J.B. and Valderrama-Zurian, J.C. (2014), Scientific cooperation on drug abuse between Latin American and the European Union (2001-2010) from the ISI Web of Science. *Salud Mental*, **37** (3), 205-216.

Full Text: [2014\Sal Men37, 205.pdf](2014/Sal%20Men37,%20205.pdf)

Abstract: Background The importance of collaboration among research groups in the drug abuse field has been increasingly reinforced. These collaborations consolidate the scientific activity and guarantee the improvement of methods and outcomes. This study aims at analyzing the collaboration networks on drug abuse between Latin American and European countries by means of applying bibliometric methods and collaboration networks analysis. Methods The search was conducted through the Science Citation Index Expanded and Social Sciences Citation Index from ISI Web of Science data base. A total of 228 articles were found by using a specific drug abuse search strategy during the period 2001-2010. Articles belonging to WOS categories non-related to health sciences were excluded. Results The European country with the higher amount of collaborative articles was Spain (n=69) and Brazil was the Latin American country (n=73). United States of America had an active role in the collaboration networks (n=85). The most productive institution and author were from Mexico. The collaborative work between Latin America and Europe has increased from 2001 (n=4) to 2010 (n=50). The collaboration networks analysis showed that Spain and Brazil (n=27) as well as Spain and Colombia (n=23) were the countries with the highest joint production. Conclusions The last decade has seen a significant increase in the scientific collaboration between Latin American and European in drug addiction studies, where Brazil and Mexico stand out in Latin American countries, as well as Spain and Italy in Europe. The role of the United States leadership in international research networks is emphazided and identified, occupying an intermediary role in the collaboration between different countries and continents.

Keywords: Abuse, Activity, Addiction, Analysis, Articles, Bibliometric, Bibliometric Methods, Bibliometrics, Brazil, Citation, Collaboration, Collaboration Networks, Collaborations, Colombia, Cooperation, Country, Data, Data Base, Data-Base, Drug, Drug Abuse, Drug Addiction, Europe, European Union, Field, Groups, Growth, Health, Health Sciences, Improvement, International, Isi, Isi Web of Science, Italy, Latin America, Latin American Countries, Leadership, Methods, Mexico, Networks, Outcomes, Patterns, Psychology, Research, Research Collaboration, Results, Role, Science, Science Citation Index, Science Citation Index Expanded, Sciences, Scientific Collaboration, Scientific Collaboration Networks, Scientific Cooperation, Search Strategy, Social Sciences, Social Sciences Citation Index, Spain, Strategy, Trends, United States, Web of Science, Work, Wos

# Title: Salud Publica de Mexico

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Publisher Address:

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? Villasis-Keever, M.A., Pineda-Cruz, R.A., Halley-Castillo, E. and Alva-Espinosa, C. (2001), Frequency and risk factors associated with malnutrition among children with congenital heart disease in a cardiology hospital. *Salud Pública de México*, **43** (4), 313-323.

Full Text: [2001\Sal Pub Mex43, 313.pdf](2001/Sal%20Pub%20Mex43,%20313.pdf)

Abstract: Objectives. To assess the frequency and risk factors of malnutrition among children with congenital heart disease (CHID). Material and methods. Between August 1997 and May 1998, a cross-sectional survey was conducted among 244 children, at the congenital heart disease ward of the Cardiology Hospital, National Medical Center “Siglo XXI”, Mexican Institute of Social Security, in Mexico City. Study subjects were male and female children younger than 17 years, diagnosed with CHID and without any other congenital malformation. Weight/Age (W/A), Height/Age (H/A) and Weight/Height (W/H) were used to measure nutritional status; Z scores greater than -2 was the case definition of malnutrition. Risk factors investigated were age, sex, perinatal history, dietary factors and nutritional supplementation, socioeconomic status, and family composition and functionality. Four CHID groups were studied: acyanotic with and without pulmonary hypertension (APH, AWPH) and, cyanotic with and without pulmonary hypertension (CPH, CWPH). Statistical analysis consisted of the chi-squared, Mann Whitney’s U, and Kruskal-Wallis tests. Confounding variables were controlled for with a logistic regression model; odds ratios (OR) and 95% confidence intervals (95%CI) were calculated. Results. APH was the most frequent CHID (62.7%), followed by CWPH (15.6%), AWPH (11.5%), and CPH (10.2%). Malnutrition was identified in 40.9% children with the W/A index, in 24.6% with the H/A index; and in 31.1% with the W/h Index. Infants and the CPH group had the worst nutritional status Risk factors associated with malnutrition were: having a cyanotic CHID (OR 2.54; 95%CI, 0.98-6.58), lack of nutritional supplementation (OR 2.38; 95%CI, 1.06-5.34), and a greater number of family members (OR, 1.42; 95%CI, 0.99-2.05). Older children were more likely to be well-nourished (OR 0.92; 95%CI, 0.89-0.96). Conclusions. Malnutrition is frequent among children with CHD; it is more common in younger children and in those with cyanotic CHID. Educational programs directed to the families of these children are needed to prevent and decrease the frequency of malnutrition. The English version of this paper is available at: http://www.insp.mx/salud/index.html.

Keywords: Age, Analysis, Birth-Weight, Cardiology, Child, Children, Composition, Confidence, Confidence Intervals, Congenital, Congenital Heart Disease, Cross Sectional Survey, Disease, Energy, Families, Family, Family Members, Female, Groups, Growth Failure, Heart, Heart Defects Congenital, History, Hospital, Hypertension, Index, Infants, Intervals, Logistic Regression, Male, Malformation, Malnutrition, Management, Measure, Medical, Methods, Mexico, Model, Nutrition, Nutritional Status, Perinatal, Pulmonary Hypertension, Regression, Regression Model, Results, Risk, Risk Factors, Sex, Socioeconomic Status, Statistical Analysis, Survey, U, Version, Z Scores

? Macías-Chapula, C.A. (2012), Design of a conceptual model on the transference of public health research results in Honduras. *Salud Pública de México*, **54** (6), 624-631.

Full Text: [2012\Sal Pub Mex54, 624.pdf](2012/Sal%20Pub%20Mex54,%20624.pdf)

Abstract: Objective. To design a conceptual model on the transference of public health research results at the local, context level. Materials and methods. Using systems thinking concepts, a soft systems approach (SSM) was used to analyse and solve what was perceived as a problem situation related to the transference of research results within Honduras public health system. A bibliometric analysis was also conducted to enrich the problem situation. Results. Six root definitions were defined and modeled as relevant to the expressed problem situation. This led to the development of the conceptual model. The model obtained identified four levels of resolution as derived from the human activities involved in the transference of research results: 1) those of the researchers; 2) the information/documentation professionals; 3) health staff; and 4) the population/society. These actors/clients and their activities were essential to the functioning of the model since they represent what the model is and does. Conclusions. SSM helped to design the conceptual model. The bibliometric analysis was relevant to construct the rich image of the problem situation.

Keywords: Analysis, Approach, Bibliometric, Bibliometric Analysis, Conceptual Model, Context, Design, Development, Health, Health Research, Health System, Honduras, Human, Human Activities, Knowledge Management, Latin-America, Local, Materials, Methods, Model, Models, Policy, Public, Public Health, Public Health Research, Research, Research Results, Systems, Systems Analysis, Systems Approach, Theoretical

? Navarrete-Navarro, S., Gómez-Delgado, A., Riebeling-Navarro, C., López-García, G.A. and Nava-Zavala, A. (2013), Research on quality of health care from the Mexican Social Security Institute. A bibliometric study. *Salud Pública de México*, **55** (6), 564-571.

Full Text: [2013\Sal Pub Mex55, 564.pdf](2013/Sal%20Pub%20Mex55,%20564.pdf)

Abstract: Objective. To identify studies on quality of health care in the IMSS. Materials and methods. A bibliometric, descriptive cross-sectional and retrospective study was conducted, from 1992 to 2011. Results. We identified 881 research studies related to the issue of quality (CI95% 10.6-12.0) of 7 762 studies presented at the annual research meetings. 10 521 articles were published in this period of time and only 946 (CI95% 8.4-9.5) were linked to the issue of quality. Conclusions. The results of this study allowed us to identify the interest about research on quality. Further research is needed to establish what has been the impact on the improvement of quality in health care.

Keywords: Bibliometric, Bibliometric Study, Care, Health, Health Care, Impact, Improvement, Materials, Methods, Mexico, Quality, Quality In Health Care, Quality Of, Quality of Health Care, Research, Results

? Urquia-Osorio, H., Henríquez-Marquez, K.I., Vásquez-Bonilla, W.O., Estrada-Mendoza, A.J. and Rodríguez-Morales, A.J. (2014), Scientific production of deans of medicine and health of Central American Universities. *Salud Pública de México*, **56** (3), 243-244.

Full Text: [2014\Sal Pub Mex56, 243.pdf](2014/Sal%20Pub%20Mex56,%20243.pdf)

# Title: Sao Paulo Medical Journal

Full Journal Title: [Sao Paulo Medical Journal](http://www.scielo.br/scielo.php?script=sci_issues&pid=1516-3180&lng=en&nrm=iso)

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JCR Abbreviated Title:

ISSN: 1516-3180

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Language:

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Publisher Address:

Subject Categories:

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? Grieger, M.C.A. (2005), Authorship: An ethical dilemma of science. *Sao Paulo Medical Journal*, **123** (5), 242-246.

Full Text: [2005\Sao Pau Med J123, 242.pdf](2005/Sao%20Pau%20Med%20J123,%20242.pdf)

Abstract: CONTEXT and OBJECTIVE: the scientific and technological progress that has taken place since the 1960s has brought an ever-growing volume of scientific research, and inflation in co-authorship. Over this period, it has been observed that an increasing number of publications have listed authors or co-authors whose participation in the published research was minimal or even nonexistent. The objective of this work was to analyze reports in the literature regarding misconduct in authorship: its types, chief causes, consequences and ethical guidelines; and to outline proposals for greater ethical commitment in scientific publication. DESIGN and SETTING: Narrative review undertaken at Faculdade de Medicina de Itajubá, Minas Gerais, Brazil. METHODS: Analysis of publications about authorship using the MEDLINE, Lilacs and SciELO databases. RESULTS and CONCLUSIONS: Frequent types of misconduct were gift authorship and divided and redundant publications. The chief causes of these practices seem to be the pressure exerted by academia and the desire for social and professional development. Such factors have brought an increase in unethical behavior. This bias in science continues despite the criteria defined by the International Committee of Medical Journal Editors, the Vancouver group. RECOMMENDATIONS: Various actions are proposed for educational institutions, research development agencies, regulatory agencies and professional associations. The aim is to establish an evaluation policy that gives primacy to the quality of publications and sets ethical principles for scientific research.

Keywords: Authorship, Ethics, Science, Scientific Misconduct, Publications

? Sass, N., Itamoto, C.H., Silva, M.P., Torloni, M.R. and Atallah, A.N. (2007), Does sodium nitroprusside kill babies? A systematic review. *Sao Paulo Medical Journal*, **125** (2), 108-111.

Full Text: 2007\Sao Pau Med J125, 108.pdf

Abstract: OBJECTIVE: To determine whether sodium nitroprusside causes fetal death in pregnancies complicated with hypertension. DATA SOURCES: Medical Literature Analysis and Retrieval System Online (MEDLINE; 1996 to 2003), Excerpta Medica (EMBASE; 1970 to 2003), Web of Science/Institute for Scientific Information (ISI; 1945 to 2003), Literatura Latino-Americana e do Caribe em Ciencias da Saude (LILACS; 1982 to 2003) and the Cochrane Library. REVIEW METHODS: the medical subject headings used were “nitroprusside and pregnancy”, “hypertension or eclampsia or preeclampsia” and “nitroprusside and pregnancy and hypertensive emergencies”. The search was limited to humans and female gender, in all fields, publication types, languages and subsets. Articles were also identified by reviewing the references of articles and textbooks on hypertension and pregnancy. RESULTS: the search located nine studies. The sum of all the publications yielded a total of 22 patients and 24 exposed fetuses (two pairs of twins). There were no randomized clinical trials and no prospective cohorts. All of the studies were observational in nature. CONCLUSIONS: At present, there is insufficient evidence for definitive conclusions about any direct association between sodium nitroprusside use and fetal demise.

Keywords: Articles, Clinical Trials, Cochrane, Embase, Fetal Death, Fetal Mortality, Gender, High-Risk Pregnancy, Humans, Hypertension, ISI, Literature, Medical, MEDLINE, Nitroprusside, Observational, Pregnancy, Publication, Publications, Randomized Clinical Trials, Review, Reviewing, Scientific Information, Systematic, Systematic Review, Textbooks, Twins

? Riera, R., de Soarez, P.C., Puga, M.E.D. and Ferraz, M.B. (2009), Lapatinib for treatment of advanced or metastasized breast cancer: Systematic review. *Sao Paulo Medical Journal*, **127** (5), 295-301.

Full Text: 2009\Sao Pau Med J127, 295.pdf

Abstract: Context and objective: Around 16% to 20% of women with breast cancer have advanced, metastasized breast cancer. At this stage, the disease is treatable, but not curable. The objective here was to assess the effectiveness of lapatinib for treating patients with advanced or metastasized breast cancer. Design and setting: Systematic review of the literature, developed at centro paulista de economia da saude (Cpes), Universidade federal de sao paulo (Unifesp). Method: Systematic review with searches in virtual databases (PUBMED, lilacs [Literatura latino-americana e do caribe em ciencias da saude], Cochrane library, scirus and Web of Science) and manual search. Results: Only one clinical trial that met the selection criteria was found. This study showed that lapatinib in association with capecitabine reduced the risk of cancer progression by 51% (95% Confidence interval, ci: 0.34-0.71; P < 0.001), Compared with capecitabine alone, without any increase in severe adverse effects. Conclusion: the combination of lapatinib plus capecitabine was more effective than capecitabine alone for reducing the risk of cancer progression. Further randomized clinical trials need to be carried out with the aim of assessing the effectiveness of lapatinib as monotherapy or in association for first-line or second-line treatment of advanced breast cancer.

Keywords: Adverse Effects, Antineoplastic Agents, Antineoplastic Protocols, Breast Cancer, Breast Neoplasms, Cancer, Chemotherapy, Clinical Trial, Clinical Trials, Cochrane, Databases, Disease, Effectiveness, Egfr Family, Gw572016, Inhibitor, Literature, Monotherapy, Progression, Randomized Clinical Trials, Receptor,Erbb-2, Review, Risk, Safety, Science, Single-Agent, Systematic, Systematic Review, Teach, Therapy, Trastuzumab, Treatment, Tykerb Evaluation, Web of Science, Women

? Riera, R. (2009), Designs of studies published in two Brazilian journals of orthopedics and sports medicine, recently indexed in the ISI Web of Science. *Sao Paulo Medical Journal*, **127** (6), 355-358.

Full Text: 2009\Sao Pau Med J127, 355.pdf

Abstract: CONTEXT and OBJECTIVE: the methodology and relevance of articles are among the keystones for promoting their citation and increasing journals’ impact factors. Study designs appropriate for answering the questions and adequate sample sizes have the aim of reducing the risk of bias. This study evaluated the articles published in two Brazilian journals of orthopedics and sports medicine that were recently indexed in the ISI Web of Science, regarding study design, sample size calculation, randomization and blinding. DESIGN and SETTING: Descriptive study at Brazilian Cochrane Center, METHODS: Through a manual search, all original manuscripts published in 2007 in Acta Ortopedica Brasileira and Revista Brasileira tie Medicine do Esporte were selected and evaluated. RESULTS: All the 60 articles published in Acta Ortopedica Brasileira and the 87 articles in Revista Brasileira de Medicine do Esporte were included and evaluated. The commonest design in Acta Ortopedica Brasileira was experimental studies (n = 19) and in Revista Brasileira de Medicine do Esporte, update or review articles (n = 14). Sample calculations were seen in a minority of the articles. None of the eight clinical trials published presented sample calculations or adequate randomization processes. Three were described as blinded, but none described the measures taken to prevent disclosure of the allocation concealment. CONCLUSIONS: Publication of studies of good methodological quality other than review and experimental studies should be strongly encouraged among Brazilian journals, with the aim of increasing their citation and therefore their impact factor.

Keywords: Bias, Citation, Clinical Trials, Cochrane, Context, Design, Disclosure, Impact, Impact Factor, Impact Factors, ISI, ISI Web of Science, Journal Impact Factor, Journals, Medicine, Methodology, Methods, Periodicals As Topic, Publications, Research Design, Review, Risk, Science, Sports, Web of Science

? Macedo, C.R., da Silva, D.L. and Puga, M.E. (2010), Methodological adequacy of articles published in two open-access Brazilian cardiology periodicals. *Sao Paulo Medical Journal*, **128** (2), 85-89.

Full Text: [2010\Sao Pau Med J128, 85.pdf](2010/Sao%20Pau%20Med%20J128,%2085.pdf)

Abstract: CONTEXT and OBJECTIVE: the use of rigorous scientific methods has contributed towards developing scientific articles of excellent methodological quality. This has made it possible to promote their citation and increase the impact factor. Brazilian periodicals have had to adapt to certain quality standards demanded by these indexing organizations, such as the content and the number of original articles published in each issue. This study aimed to evaluate the methodological adequacy of two Brazilian periodicals within the field of cardiology that are indexed in several databases and freely accessible through the Scientific Electronic Library Online (SciELO), and which are now indexed by the Web of Science (Institute for Scientific Information, ISI). DESIGN and SETTING: Descriptive study at Brazilian Cochrane Center. METHODS: All the published articles were evaluated according to merit assessment (content) and form assessment (performance). RESULTS: Ninety-six percent of the articles analyzed presented study designs that were adequate for answering the objectives. CONCLUSIONS: These two Brazilian periodicals within the field of cardiology published methodologically adequate articles, since they followed the quality standards. Thus, these periodicals can be considered both for consultation and as vehicles for publishing future articles. for further analyses, it is essential to apply other indicators of scientific activity such as bibliometrics, which evaluates quantitative aspects of the production. dissemination and use of information, and scientometrics, which is also concerned with the development of science policies, within which it is often superimposed on bibliometrics.

Keywords: Access to Information, Bibliometrics, Cardiology, Disease, Epidemiologic Research Design, Heart, Impact Factor, Index, Individuals, Life, Methods, Publications, Risk, Scientometrics, Stenosis, Web, Web of Science

? Grimberg, A., Shigueoka, D.C., Atallah, A.N., Ajzen, S. and Iared, W. (2010), Diagnostic accuracy of sonography for pleural effusion: Systematic review. *Sao Paulo Medical Journal*, **128** (2), 90-95.

Full Text: 2010\Sao Pau Med J128, 90.pdf

Abstract: CONTEXT and OBJECTIVE: the initial method for evaluating the presence of pleural effusion was chest radiography. Isolated studies have shown that sonography has greater accuracy than radiography for this diagnosis; however, no systematic reviews on this matter are available in the literature. Thus, the aim of this study was to evaluate the accuracy of sonography in detecting pleural effusion, by means of a systematic review of the literature. DESIGN and SETTING: This was a systematic review with meta-analysis on accuracy studies. This study was conducted in the Department of Diagnostic Imaging and in the Brazilian Cochrane Center, Discipline of Emergency Medicine and Evidence-Based Medicine, Department of Medicine, Universidade Federal de Sao Paulo (Unifesp), Sao Paulo, Brazil. METHOD: the following databases were searched: Cochrane Library, MEDLINE, Web of Science, EMBASE and Literatura Latino-Americana e do Carte em Ciencias da Saude (Lilacs). The references of relevant studies were also screened for additional citations of interest. Studies in which the accuracy of sonography for detecting pleural effusion was tested, with an acceptable reference standard (computed tomography or thoracic drainage), were included. RESULTS: Four studies were included. All of them showed that sonography had high sensitivity, specificity and accuracy for detecting pleural effusions. The mean sensitivity was 93% (95% confidence interval, CI: 89% to 96%), and specificity was 96% (95% CI: 95% to 98%). CONCLUSIONS: In different populations and clinical settings, sonography showed consistently high sensitivity, specificity and accuracy for detecting fluid in the pleural space.

Keywords: Accuracy, Brazil, Chest Radiography, Citations, Cochrane, Computed Tomography, Context, Critically-Ill Patients, Databases, Design, Diagnosis, Diagnostic Imaging, Interest, Literature, Meta-Analysis, Meta-Analysis [Publication Type], Pleural Effusion, Radiography, Rapid Detection, Review, Review [Publication Type], Science, Sensitivity, Sensitivity and Specificity, Specificity, Surgeon-Performed Ultrasonography, Systematic, Systematic Review, Systematic Reviews, Trauma Ultrasound Examination, Ultrasonography, Web of Science

? Torloni, M.R. and Riera, R. (2010), Design and level of evidence of studies published in two Brazilian medical journals recently indexed in the ISI Web of Science database. *Sao Paulo Medical Journal*, **128** (4), 202-205.

Full Text: 2010\Sao Pau Med J128, 202.pdf

Abstract: Context and objectives: the level of evidence and methodological quality of articles published in medical journals are important aids for clinicians in decision-making and also affect journals’ impact factor. Although systematic reviews (Sr) Are considered to represent the highest level of evidence, their methodological quality is not homogeneous and they need to be as carefully assessed as other types of study. This study aimed to assess the design and level of evidence of articles published in 2007, in two recently indexed brazilian journals (Clinics and revista da associacao medica brasileira), and to evaluate the methodological quality of the srs. Design and setting: Descriptive study developed in the brazilian cochrane center, universidade federal de sao paulo. Methods: All 289 published articles were classified according to types of study design and level of evidence. The srs were critically appraised by two evaluators using the amstar tool. Results: the most frequent design types were cross-sectional studies (39.9%), Case reports (15.8%), Experimental studies (10.8%) and narrative reviews (7.4%). According to the oxford criteria, 25.6% of the articles were classified as level 4 or 5 evidence, while 2.8% Were level 1. Srs represented only 2% of the published articles and their methodological quality scores were low. Conclusions: the main design types among the published papers were observational and experimental studies and narrative reviews. Srs accounted for a small proportion of the articles and had low methodological scores. Brazilian medical journals need to encourage publication of greater numbers of clinically relevant papers of high methodological quality.

Keywords: Anterior Cruciate Ligament, Care, Case Reports, Decision Making, Decision-Making, Design, Impact, Impact Factor, ISI, ISI Web of Science, Journal Article [Publication Type], Journal Impact Factor, Journals, Medical, Medical Journals, Metaanalysis, Methods, Observational, Papers, Periodicals As Topic, Publication, Reconstruction, Research Design, Review [Publication Type], Risk, Science, Systematic, Systematic Reviews, Web of Science

? Cabello, J.B., Burls, A., Emparanza, J.I., Bayliss, S. and Quinn, T. (2010), Oxygen therapy for acute myocardial infarction. *Sao Paulo Medical Journal*, **128** (6), 378.

Full Text: 2010\Sao Pau Med J128, 378.pdf

Abstract: BACKGROUND: Oxygen (O2) is widely recommended for patients with myocardial infarction yet a narrative review has suggested it may do more harm than good. Systematic reviews have concluded that there was insufficient evidence to know whether oxygen reduced, increased or had no effect on the heart ischaemia or infarct size. OBJECTIVE: To review the evidence from randomized controlled trials to establish whether routine use of inhaled oxygen in acute myocardial infarction (AMI) improves patient-centered outcomes, in particular pain and death. CRITERIA for CONSIDERING STUDIES for THIS REVIEW: the following bibliographic databases were searched (to the end of February 2010): Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library), MEDLINE, MEDLINE In-Process, EMBASE, CINAHL, Lilacs and PASCAL, British Library ZETOC, Web of Science ISI Proceedings. Experts were also contacted to identify any studies. No language restrictions were applied. SELECTION CRITERIA: Randomized controlled trials of people with suspected or proven AMI, less than 24 hours after onset, in which the intervention was inhaled oxygen (at normal pressure) compared to air and regardless of co-therapies provided these were the same in both arms of the trial. DATA COLLECTION and ANALYSIS: Two review authors independently reviewed the titles and abstracts of identified studies to see if they met the inclusion criteria and independently undertook the data extraction. The quality of studies and the risk of bias were assessed according to guidance in the Cochrane Handbook. The primary outcomes were death, pain and complications. The measure of effect used was the relative risk (RR). MAIN RESULTS: Three trials involving 387 patients were included and 14 deaths occurred. The pooled RR of death was 2.88 (95% CI 0.88 to 9.39) in an intention-to-treat analysis and 3.03 (95% CI 0.93 to 9.83) in patients with confirmed AMI. While suggestive of harm, the small number of deaths recorded meant that this could be a chance occurrence. Pain was measured by analgesic use. The pooled RR for the use of analgesics was 0.97 (95% CI 0.78 to 1.20). AUTHORS’ CONCLUSIONS: There is no conclusive evidence from randomized controlled trials to support the routine use of inhaled oxygen in patients with acute AMI. A definitive randomized controlled trial is urgently required given the mismatch between trial evidence suggestive of possible harm from routine oxygen use and recommendations for its use in clinical practice guidelines.

Keywords: Acute, Acute Myocardial Infarction, Analysis, Authors, Bias, Bibliographic, Bibliographic Databases, Cochrane, Collection, Criteria, Databases, Guidelines, Intervention, Ischaemia, ISI, Myocardial Infarction, Normal, Outcomes, Pain, Practice, Practice Guidelines, Pressure, Primary, Randomized Controlled Trial, Randomized Controlled Trials, Relative Risk, Review, Risk, Science, Selection, Systematic, Therapy, Web of Science

? Lustosa, L.A., Chalco, M.E.P., Borba, C.D., Higa, A.E. and Almeida, R.M.V.R. (2012), Citation distribution profile in Brazilian journals of general medicine. *Sao Paulo Medical Journal*, **130** (5), 314-317.

Full Text: [2012\Sao Pau Med J130, 314.pdf](2012/Sao%20Pau%20Med%20J130,%20314.pdf)

Abstract: CONTEXT and OBJECTIVE: Impact factors are currently the bibliometric index most used for evaluating scientific journals. However, the way in which they are used, for instance concerning the study or journal types analyzed, can markedly interfere with estimate reliability. This study aimed to analyze the citation distribution pattern in three Brazilian journals of general medicine. DESIGN and SETTING: This was a descriptive study based on numbers of citations of scientific studies published by three Brazilian journals of general medicine. METHODS: the journals analyzed were Sao Paulo Medical Journal, Clinics and Revista da Associacao Medica Brasileira. This survey used data available from the Institute for Scientific Information (ISI) platform, from which the total number of papers published in each journal in 2007-2008 and the number of citations of these papers in 2009 were obtained. From these data, the citation distribution was derived and journal impact factors (average number of citations) were estimated. These factors were then compared with those directly available from the ISI Journal of Citation Reports (JCR). RESULTS: Respectively, 134, 203 and 192 papers were published by these journals during the period analyzed. The observed citation distributions were highly skewed, such that many papers had few citations and a small percentage had many citations. It was not possible to identify any specific pattern for the most cited papers or to exactly reproduce the JCR impact factors. CONCLUSION: Use of measures like “impact factors”, which characterize citations through averages, does not adequately represent the citation distribution in the journals analyzed.

Keywords: Bibliometric, Bibliometrics, Citation, Citation Distribution, Citations, Context, Data, Design, Distribution, General, Health Research Evaluation, Impact, Impact Factor, Impact Factors, Index, Institute for Scientific Information, ISI, Jcr, Journal, Journal Impact, Journal Impact Factor, Journal Impact Factors, Journals, Medical, Medicine, Methods, Papers, Pattern, Peer Review, Reliability, Scientific Journals, Small, Survey, Systems for Evaluation of Publications

# Title: Saude e Sociedade

Full Journal Title: Saúde e Sociedade

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Santos, D.B., dos Santos, M.A. and Vieira, E.M. (2014), Sexuality and breast cancer: A systematic literature review. *Saúde e Sociedade*, **23** (4), 1342-1355.

Full Text: [2014\Sau Soc23, 1342.pdf](2014/Sau%20Soc23,%201342.pdf)

Abstract: This study aimed to analyze how breast cancer and its treatments affect women’s sexuality. We conducted a qualitative systematic review of articles published between 2000 and 2010 and available in the databases PubMed, Web of Science, LILACS, and SciELO. We obtained 50 articles whose texts were categorized according to thematic content analysis. Six thematic categories were identified: the breast surgery and the other treatments for breast cancer; the experience of a woman with breast cancer; the sexual and affective relationship; studies on the relation between sexuality and specific characteristics of cancer; the health professionals and sexuality care; and proposals to minimize the negative consequences of treatments on sexuality. There is a need for further studies addressing the cultural aspects of sexuality, sexual diversity, relationship with the partner, education for health professionals, and interventions on sexuality in the breast cancer context.

Keywords: Affect, Affective, Analysis, Articles, Body-Image, Breast Cancer, Breast Neoplasms: Sexuality, Cancer, Care, Characteristics, Content, Content Analysis, Context, Cultural, Databases, Diagnosis, Diversity, Education, Experience, Health, Health Professionals, Impact, Interventions, Intimacy, Issues, Life, Literature, Literature Review, Negative, Partner, Perspectives, Pubmed, Qualitative, Review, Scielo, Science, Sexuality, Surgery, Survivors, Systematic, Systematic Literature Review, Systematic Review, Web, Web Of Science, Women

# Title: Saudi Medical Journal

Full Journal Title: [Saudi Medical Journal](http://www.smj.org.sa/Contents_Next.asp)

ISO Abbreviated Title: Saudi Med. J.

JCR Abbreviated Title: Saudi Med J

ISSN: 0379-5284

Issues/Year:

Journal Country Saudi Arabia

Language: English

Publisher: Saudi Med J, Riyadh

Publisher Address:

Subject Categories:

Impact Factor

? Tadmouri, G.O. and Bissar-Tadmouri, N. (2004), A major pitfall in the search strategy on PubMed. *Saudi Medical Journal*, **25** (1), 7-10.

Full Text: [2004\Sau Med J25, 7.pdf](2004/Sau%20Med%20J25,%207.pdf)

Notes: CCountry

? Bissar-Tadmouri, N. and Tadmouri, G.O. (2009), Bibliometric analyses of biomedical research outputs in Lebanon and the United Arab Emirates (1988-2007). *Saudi Medical Journal*, **30** (1), 130-139.

Full Text: [2009\Sau Med J30, 130.pdf](2009/Sau%20Med%20J30,%20130.pdf)

Abstract: Objective: We assessed the role of bibliometric methods in representing quantitative and qualitative differences in biomedical research outputs in Lebanon and the United Arab Emirates (UAE). Methods: Data on biomedical research productivity for years 1988-2007 were obtained from PubMed then imported into a specifically designed local database system and normalized to the population size for each Country. Results: Data reveal a continuous increase in research production in Lebanon, whereas a plateau phase is observed in the UAE between 1998 and 2007. In Lebanon, most of the citations originated from the capital city of Beirut, mainly the American University of Beirut. Detailed analysis of biomedical research objectives in Lebanon indicate a focus on internal medicine, anesthesiology, surgery, transplantation, medical genetics, pediatrics, obstetrics, neoplasms, and pain management. In the UAE, most of the biomedical publications originate from Al-Ain University Detailed analysis of biomedical research objectives in the UAE indicate developed interest in pediatrics, obstetrics, clinical dysmorphologies, transplantation, dermatology, diabetes, and consanguinity. Conclusion: Biomedical research outputs quickly recovered in Lebanon following a long war (1974-1992) mainly supported by uninterrupted activities in private higher education institutes. In the UAE, the plateau phase for biomedical research output size could be due to the limitation of most of the research in the country to Al-Ain University. This situation may only improve when other institutes offering biomedical programs engage also in research activities.

Keywords: Al-Ain, American, Analyses, Analysis, Anesthesiology, Arab, Beirut, Bibliometric, Bibliometric Methods, Biomedical, Biomedical Research, Capital, Citations, Clinical, Consanguinity, Corporation-Council Countries, Country, Database, Databases, Developed, Diabetes, Education, Genetics, Geography, Higher Education, Information, Lebanon, Limitation, Local, Management, Medical, Medicine, Methods, Neoplasms, Obstetrics, Pain, Pain Management, Pediatrics, Population, Production, Productivity, Publications, Pubmed, Qualitative, Research, Research Productivity, Role, Science, Size, Surgery, Transplantation, United Arab Emirates, University, War, World

? Alghanim, S.A. and Alhamali, R.M. (2012), Research productivity among faculty members at medical and health schools in Saudi Arabia Prevalence, obstacles, and associated factors. *Saudi Medical Journal*, **32** (12), 1297-1303.

Full Text: 2012\Sau Med J32, 1297.pdf

Abstract: Objectives: To identify the prevalence, factors and obstacles affecting research productivity among academic staff at medical and health colleges in the Kingdom of Saudi Arabia. Methods: This cross-sectional survey employed self-administered questionnaires to collect data on faculty members’ profile, research activities, and obstacles impeding research productivity. The questionnaires were distributed randomly to 500 faculty members, of which 389 (77.8%) completed the questionnaire at 10 medical and health colleges during January to April 2011. The data were analyzed and presented in a descriptive fashion. Results: Only 150 (38.6%) respondents reported published work in the past 2 years. of these, 80% indicated sole-authors research and around a quarter (26%) reported co-authors work. Males and young faculty members were more likely to publish research than their counterparts. Faculty members who reported involvement in administrative activities were less likely to publish. Those who reported supervising postgraduate students or had attained training on research methods were more likely to produce research. Respondents perceived that lack of time, lack of research assistants, lack of funds for research, and being busy with teaching load were the most cited obstacles impeding research productivity. Conclusion: Understanding factors and barriers impeding research productivity is a prerequisite for interventions that are directed to promote health services research among faculty members in medical schools.

Keywords: Activities, Attitudes, Barriers, Faculty, Health, Health Services, Health Services Research, Impact, Institutions, Interventions, Involvement, Medical, Methods, Output, Prevalence, Productivity, Profile, Publications, Questionnaire, Questionnaires, Research, Research Performance, Research Productivity, Saudi Arabia, Schools, Scientific-Research, Students, Survey, Taiwan, Teaching, Training, Universities

? Jamjoom, B.A., Jamjoom, A.A. and Jamjoom, A.B. (2012), The most cited articles in the Saudi medical literature. *Saudi Medical Journal*, **33** (1), 93-95.

Full Text: 2012\Sau Med J33, 93.pdf

Keywords: Citation-Classics

? Liu, Q.Q., Li, W.Z., Li, D.D., Feng, Y.L. and Tao, C.M. (2015), The association of interleukin-10-1082,-819,-592 polymorphisms and tuberculosis risk. *Saudi Medical Journal*, **36** (4), 407-417.

Full Text: [2015\Sau Med J36, 407.pdf](2015/Sau%20Med%20J36,%20407.pdf)

Abstract: Objectives: To assess the association between interleukin (IL)-10 -1082, -819, -592 polymorphisms and tuberculosis (TB) risk. Methods: This study was conducted between July and October 2014 in West China Hospital, Chengdu, Sichuan, China. We searched and collected data from PUBMED, EMBASE, Web of Science, China National Knowledge Infrastructure, VIP, and WANGFANG up to October 2014. Results: A total of 37 studies were enrolled, including 8625 TB cases, and 9928 healthy controls. The IL-10-1082G/A polymorphism was found to be associated with TB susceptibility in Caucasian (GG versus GA+AA, odds ratio [OR] - 1.83, 95% confidence interval [CI] - 1.03-3.24). The IL-10-819C/T polymorphism was related to TB susceptibility among Asians (C versus T, OR - 0.88, 95% CI - 0.810.97; CC versus TT: OR -0.79, 95% CI - 0.64-0.97; CC+CT versus TT: OR - 0.87, 95% CI - 0.77-0.98; CC versus CT+TT: OR - 0.82, 95% CI - 0.68-0.98). The IL-10-592C/A polymorphism was in association with TB susceptibility in Asians (C versus A: OR 0.74, 95% CI - 0.65-0.85; CC versus AA: OR - 0.55, 95% CI - 0.41-0.75; CA versus AA: OR - 0.73, 95% CI - 0.60-0.89; CC+ CA versus AA: OR - 0.69, 95% CI 0.58-0.83; CA versus AA: OR - 0.66, 95% CI 0.51-0.86), Caucasian (C versus A: OR - 1.25, 95% CI - 1.08-1.45; CC versus CA+ AA: OR-1.48, 95% CI - 1.16-1.89), and Europeans (C versus A: OR - 1.31, 95% CI - 1.02-1.67; CC versus AA: OR - 1.88, 95% CI - 1.05-3.37). Conclusion: This meta-analysis suggests that IL-10-1082G/A, IL-819C/T, and IL-592C/A polymorphisms might be associated with TB susceptibility in certain ethnicities.

Keywords: Association, Caucasian, China, Confidence, Cytokine Gene Polymorphisms, Data, Il-10, Interferon-Gamma, Interleukin-10 Polymorphisms, Interval, Meta-Analysis, Metaanalysis, Mycobacterium-Tuberculosis, Necrosis-Factor-Alpha, Odds Ratio, Polymorphism, Polymorphisms, Pulmonary Tuberculosis, Risk, Science, Single Nucleotide Polymorphisms, Susceptibility, Tnf-Alpha, Tuberculosis, Web Of Science

# Title: Scandinavian Journal of Caring Sciences

Full Journal Title: Scandinavian Journal of Caring Sciences

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Jacobsen, R., Moldrup, C., Christrup, L. and Sjogren, P. (2009), Patient-related barriers to cancer pain management: A systematic exploratory review. *Scandinavian Journal of Caring Sciences*, **23** (1), 190-208.

Abstract: the aim of this review was to systemically explore the current evidence regarding patient-related barriers to cancer pain management to find new areas that might be important for better understanding of patient barriers’ phenomenon. The method used in this study was a computerised literature search, carried out in Cochrane Library, MEDLINE (through PUBMED), Web of Science and EMBASE databases for the period 1994-2005. Thirty-seven studies, dealing with cognitive, sensory and affective patient-related barriers, as well as studies, describing patients’ pain communication and their adherence to analgesic regimen were included and analysed. The dominant part of articles studied cognitive patient-related barriers to cancer pain management, while affective, sensory barriers, as well as pain communication and pain medication adherence were studied in much less extend. However, the findings from different studies regarding relationships between cognitive barriers and pain intensity were not consistent. On the contrary, the quality of pain communication was consistently found to be not satisfactory in some key areas. The associations between more expressed attitudinal as well as sensory barriers and less optimal adherence were also consistent. In conclusions suggestion for the new research areas on patient-related barriers to cancer pain management are made. Firstly, further research is needed to differentiate the role of cognitive, affective and sensory factors with respect to their impact on pain relief, pain communication and medication adherence. Besides that, validated instruments to assess patients’ pain communication and adherence to analgesic regimen are lacking.

Keywords: Adherence, Adherence, Analgesic Regimen, Attitudes, Barriers, Cancer, Cancer Pain, Cochrane, Communication, Databases, Embase, Experience, Family Caregivers, Guidelines, Hong-Kong, Impact, Literature, Literature Review, Management, Medication, Medication Adherence, Opioids, Pain, Pain Communication, Palliative Care, Patients, Patients Beliefs, Pubmed, Research, Review, Science, Self-Report, Side Effects, Systematic, Web of Science

# Title: Scandinavian Journal of Economics

Full Journal Title: [Scandinavian Journal of Economics](http://www.blackwell-synergy.com/servlet/useragent?func=showIssues&code=sjoe)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

Paul, T., Almas, K. and Maktabi, A. (2003), Findlay, Ronald; Jonung, Lars and Lundahl, Mats: Bertil Ohlin-A Centennial Celebration (1899-1999). *Scandinavian Journal of Economics*, **105** (2), 311-316.

Full Text: [2003\Sca J Eco105, 311.pdf](2003/Sca%20J%20Eco105,%20311.pdf)

? Bacchiocchi, E. and Montobbio, F. (2010), International knowledge diffusion and home-bias effect: Do USPTO and EPO patent citations tell the same story?\*. *Scandinavian Journal of Economics*, **112** (3), 441-470.

Full Text: [2010\Sca J Eco112, 441.pdf](2010/Sca%20J%20Eco112,%20441.pdf)

Abstract: This paper estimates the international diffusion of technical knowledge using patent citations. We control for self-citations and for procedural differences between patent offices using equivalent patents. We find that (1) there are clear biases in patent examination processes that generate citations in the two offices; (2) at the EPO there is a strong localization effect at the country level, and the size is comparable to that found at the USPTO; (3) technological fields have different properties of diffusion in the two patent offices that do not depend on a patent office bias; (4) using EPO data, the US is not the leading country in terms of citations made and received, as occurs at the USPTO.

Keywords: Citations, Diffusion, Examiner Citations, Flows, Geography, Growth, Indicators, Innovation, Knowledge, Knowledge Flows, O31, O33, O34, Patent, Patent Citations, Patents, Productivity, Reassessment, Research-and-Development, Self Citations, Self-Citations, Spillovers, Spillovers, US

# Title: Scandinavian Journal of Forest Research

Full Journal Title: Scandinavian Journal of Forest Research

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Hannerz, M. (2010), Top-cited articles 2001-2009. *Scandinavian Journal of Forest Research*, **25** (1), 1-2.

Full Text: [2010\Sca J for Res25, 1.pdf](2010/Sca%20J%20For%20Res25,%201.pdf)

Keywords: Articles

# Title: Scandinavian Journal of Gastroenterology

Full Journal Title: Scandinavian Journal of Gastroenterology

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Xu, T. and Cai, Q.P. (2008), Prophylactic antibiotic treatment in acute necrotizing pancreatitis: Results from a meta-analysis. *Scandinavian Journal of Gastroenterology*, **43** (10), 1249-1258.

Full Text: [2010\Sca J Gas43, 1249.pdf](2010/Sca%20J%20Gas43,%201249.pdf)

Abstract: Objective. The effect of prophylactic antibiotic treatment on infection and survival of acute necrotizing pancreatitis (ANP) remains uncertain. The aim of this study was to assess the long-term efficacy of prophylactic antibiotic treatment for ANP. Material and methods. Searches were carried out of electronic databases including MEDLINE, EMBASE, the Cochrane Controlled Trials Register, the Science Citation Index, and PubMed (updated to December 2007), and manual bibliographical searches were also conducted. A meta-analysis of all randomized controlled trials (RCTs) comparing prophylactic antibiotic treatment with placebo or no treatment was performed. Results. Eight RCTs including 540 patients were assessed. The outcomes included infected necrosis, death, non-pancreatic infection, surgical intervention, and length of hospital stay. Prophylactic antibiotic use leads to a significant reduction of infected necrosis (relative risk (RR) 0.69, 95% CI, 0.50-0.95; p=0.02), non-pancreatic infections (RR 0.66 95% CI, 0.48-0.91; p=0.01), and length of hospital stay (p=0.004) but was not associated with a statistically significant reduction in mortality (RR 0.76 95% CI, 0.50-1.18; p=0.22) and surgical intervention (RR 0.90 95% CI, 0.66-1.23; p=0.52). In a subgroup analysis, carbapenem was associated with a significant reduction in infected necrosis (p=0.009) and non-pancreatic infections (p=0.006), whereas other antibiotics were not. Conclusions. Prophylactic antibiotic treatment is associated with a significant reduction of pancreatic or peripancreatic infection, non-pancreatic infection, and length of hospital stay, but cannot prevent death and surgical intervention in acute necrotizing pancreatitis.

Keywords: Activation Peptides Tap, Acute Necrotizing Pancreatitis, Antibiotic, Antibiotics, Bacterial Translocation, Citation, Controlled Clinical-Trial, Databases, Double-Blind, Imipenem, Intervention, Management, MEDLINE, Meta-Analysis, Methods, Mortality, Multicenter, Outcomes, Peritoneal-Fluid, Placebo, Prophylaxis, Randomized Controlled Trials, Randomized-Trials, Reduction, Risk, Science, Science Citation Index, Septic Complications, Treatment

# Title: Scandinavian Journal of Infectious Diseases

Full Journal Title: Scandinavian Journal of Infectious Diseases

ISO Abbreviated Title: Scand. J. Infect. Dis.

JCR Abbreviated Title: Scand J Infect Dis

ISSN: 0036-5548

Issues/Year: 6

Journal Country Sweden

Language: English

Publisher: Scandinavian University Press

Publisher Address: PO Box 2959 Toyen, Journal Division Customer Service, N-0608 Oslo, Norway

Subject Categories:

Infectious Diseases: Impact Factor

? Zhang, T., Zhao, N.Q., Zhang, T.J., Black, S., Xu, B. and Zhao, G.M. (2008), Meta-analysis of antibiotic susceptibility and the genotype of penicillin-binding proteins in Streptococcus pneumoniae. *Scandinavian Journal of Infectious Diseases*, **40** (10), 797-803.

Full Text: 2008\Sca J Inf Dis40, 797.pdf

Abstract: To further understanding of the mechanisms of development of resistance to penicillin in Streptococcus pneumoniae, and the role of penicillin-binding proteins (PBPs) mutations to antibiotics resistance a meta-analysis was performed. Major databases, PUBMED, Current Contents, Biosis previews, Web of Science, were searched for studies that published within 1997 through to 2007, and reported the penicillin MIC and the alteration of PBP 1a, 2b and 2x (genes or proteins) of clinical S. pneumoniae isolates. Papers were reviewed by 2 persons and used standard criteria to enroll them. Meta-analysis was performed using a random-effects model. Overall, 20 studies were included in the meta-analysis. for the included 1771 clinical S. pneumoniae isolates, the susceptibility to penicillin decreased in inverse proportion to the presence of mutated pbp genes. The mutations of the conserved amino acid motifs STMK and SRNVP of PBP 1A, STMK and LKSG of PBP2X, and SSNT of PBP2B are critical for the penicillin resistance. Those motifs can be used as markers for the penicillin susceptibility of S. pneumoniae. These results are useful in helping define the mechanism of penicillin resistance in S. pneumoniae.

Keywords: 1a, 2b, 2x, Amoxicillin, Antibiotic, Antibiotics, Children, Databases, Development, Genes, Japan, Macrolide Resistance, Mechanism, Meta Analysis, Meta-Analysis, Model, Pneumococci, Resistance, Science, Serotype, Susceptibility, Web of Science

? Tuon, F.F., Higashino, H.R., Lopes, M.I.B.F., Litvoc, M.N., Atomiya, A.N., Antonangelo, L. and Leite, O.M. (2010), Adenosine deaminase and tuberculous meningitis-A systematic review with meta-analysis. *Scandinavian Journal of Infectious Diseases*, **42** (3), 198-207.

Full Text: 2010\Sca J Inf Dis42, 198.pdf

Abstract: Tuberculous meningitis (TBM) is a severe infection of the central nervous system, particularly in developing countries. Prompt diagnosis and treatment are necessary to decrease the high rates of disability and death associated with TBM. The diagnosis is often time and labour intensive; thus, a simple, accurate and rapid diagnostic test is needed. The adenosine deaminase (ADA) activity test is a rapid test that has been used for the diagnosis of the pleural, peritoneal and pericardial forms of tuberculosis. However, the usefulness of ADA in TBM is uncertain. The aim of this study was to evaluate ADA as a diagnostic test for TBM in a systematic review. A systematic search was performed of the medical literature (MEDLINE, LILACS, Web of Science and EMBASE). The ADA values from TBM cases and controls (diagnosed with other types of meningitis) were necessary to calculate the sensitivity and specificity. Out of a total of 522 studies, 13 were included in the meta-analysis (380 patients with TBM). The sensitivity, specificity and diagnostic odds ratios (DOR) were calculated based on arbitrary ADA cut-off values from 1 to 10 U/l. ADA values from 1 to 4 U/l (sensitivity > 93% and specificity < 80%) helped to exclude TBM; values between 4 and 8 U/l were insufficient to confirm or exclude the diagnosis of TBM (p = 0.07), and values > 8 U/l (sensitivity < 59% and specificity > 96%) improved the diagnosis of TBM (p < 0.001). None of the cut-off values could be used to discriminate between TBM and bacterial meningitis. In conclusion, ADA cannot distinguish between bacterial meningitis and TBM, but using ranges of ADA values could be important to improve TBM diagnosis, particularly after bacterial meningitis has been ruled out. The different methods used to measure ADA and the heterogeneity of data do not allow standardization of this test as a routine.

Keywords: Adults, Bacterial Meningitis, Cairo, Cerebrospinal-Fluid, Children, Csf, Developing Countries, Diagnosis, Diagnostic Test, Diagnostic-Value, Disability, Effusions, Egypt, Embase, Features, Infection, Literature, Medical, MEDLINE, Meta-Analysis, Patients, Pericarditis, Review, Science, Sensitivity, Sensitivity and Specificity, Specificity, Systematic, Systematic Review, Treatment, Tuberculosis, Web of Science

? Huang, T.C., Wang, H.Q., Jing, J.Y., Jin, J.F. and Cui, W. (2011), Association between lymphotoxin-alpha intron +252 polymorphism and sepsis: A meta-analysis. *Scandinavian Journal of Infectious Diseases*, **43** (6-7), 436-447.

Full Text: 2011\Sca J Inf Dis43, 436.pdf

Abstract: Background: We evaluated the association of lymphotoxin-alpha (LTA, also known as tumour necrosis factor-beta) promoter +252 A/G polymorphism with sepsis. Methods: A systematic search was performed in MEDLINE, EMBASE, and Web of Science (for the period January 1966 to June 2010). Two reviewers independently selected studies on the genetic association of LTA +252 A/G polymorphism with sepsis and independently extracted data onto standardized forms. Results: Twenty-seven studies with 4399 septic patients were included based on predefined inclusion criteria. As compared to AG + GG, the LTA AA genotype was significantly associated with an increased development of sepsis in the overall population (odds ratio (OR) 1.33, 95% confidence interval (CI) 1.09-1.62; p = 0.006). An association between mortality from sepsis and AA genotype was also found in the overall population (OR 1.89, 95% CI 1.27-2.80; p = 0.002). Stratification by ethnicity indicated that the contribution to both sepsis susceptibility and mortality may be stronger in Caucasians (OR 1.44, 95% CI 1.08-1.91 and OR 2.47, 95% CI 1.52-4.00, respectively) than in other ethnicities. Conclusions: the LTA +252 A/G polymorphism is associated with both susceptibility to and mortality from sepsis.

Keywords: Community-Acquired Pneumonia, Contribution, Critically-Ill Patients, Development, Embase, Ethnicity, Factor Gene Polymorphisms, Genetic, Genotypic Differences, Interleukin-6 Blood-Levels, Lymphotoxin-Alpha, MEDLINE, Meta-Analysis, Methods, Mortality, Patients, Polymorphism, Ratio, Science, Sepsis, Septic Shock, Stratification, Susceptibility, Systematic, Tnf-Beta, Trauma Patients, Tumor-Necrosis-Factor, Web of Science

? He, J., Zhu, B.S., Yang, Z.J., Hu, B.B., Lin, L.B. and Zhang, Q. (2014), Molecular analysis of the *rps*L gene for rapid detection of streptomycin-resistant Mycobacterium tuberculosis: A meta-analysis. *Scandinavian Journal of Infectious Diseases*, **46** (8), 585-592.

Full Text: [2014\Sca J Inf Dis46, 585.pdf](2014/Sca%20J%20Inf%20Dis46,%20585.pdf)

Abstract: Background: Drug-resistant Mycobacterium tuberculosis (MTB) is a major threat to tuberculosis (TB) control programs and public health. Most conventional methods of drug susceptibility testing (DST) are precise but time-consuming. Molecular analysis of the rpsL gene has been used widely in diagnosing streptomycin-resistant MTB since it is rapid and specific. The aim of the present study was to perform a meta-analysis to assess the accuracy of molecular assay of the rpsL gene for the rapid detection of streptomycin-resistant MTB. Methods: We searched PubMed, Web of Science, and EBSCO databases for studies that applied a molecular assay of the rpsL gene to detect streptomycin-resistant MTB with a conventional method as the reference. The sensitivity and specificity were pooled by a random effect model using Meta-DiSc software. A summary receiver operating characteristic curve (SROC) was applied to summarize the diagnostic accuracy. Results: A total of 22 studies involving 2618 specimens with 1372 streptomycin-resistant and 1246 streptomycin-susceptible specimens met our inclusion criteria. The overall sensitivity and specificity estimates were 0.64 (95% confidence interval (CI) 0.61-0.66) and 1.00 (95% CI 0.99-1.00), respectively. The area under the SROC curve was 0.9069 and the Cochrane (Q\*) index was 0.8387. Conclusions: This meta-analysis reveals that molecular assay of the rpsL gene is a reliable and useful method for the detection of streptomycin-resistant MTB.

Keywords: Accuracy, Analysis, Association, China, Confidence, Control, Conventional, Criteria, Databases, Diagnostic, Diagnostic Accuracy, Diagnostic-Tests, Drug, Drug-Resistance, DST, Estimates, Gene, Health, Index, Interval, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Model, Molecular Analysis, Mycobacterium Tuberculosis, Prevalence, Public, Public Health, Pubmed, Receiver Operating Characteristic Curve, Reference, Results, Rifampin, Rpsl, Rrs Mutations, Science, Sensitivity, Software, Specificity, Streptomycin, Susceptibility, Systematic Reviews, Tb, Testing, Tuberculosis, Web Of Science

# Title: Scandinavian Journal of Management

Full Journal Title: [Scandinavian Journal of Management](http://www.sciencedirect.com/science?_ob=JournalURL&_cdi=6018&_auth=y&_acct=C000047720&_version=1&_urlVersion=0&_userid=2007471&md5=4262a3bf01c058b5f53560dde1616d27)

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JCR Abbreviated Title:

ISSN: 0036-5564

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Engwall, L. (1996), The Vikings versus the world: An examination of Nordic business research. *Scandinavian Journal of Management*. **12** (4), 425-436.

Full Text: [1996\Sca J Man12, 425.pdf](1996/Sca%20J%20Man12,%20425.pdf)

Abstract: This paper presents the results of an analysis of the articles published by Nordic management scholars in the 15 most important business research journals during the period 1981-1992. The analysis shows that the predominance of North American scholars in these journals is massive. However, although Nordic management researchers account for only about 1% of all the authorships, they constitute an important minority in the field. These Northerners are more successful in the European journals and tend to focus mainly on accounting and organizational problems. Their frame of reference is heavily influenced by the Carnegie-Tech tradition, that is the works of Richard M. Cyert, James G. March and Herbert A. Simon. This means that their publication behaviour in international journals is rather similar to that which appears in the *Scandinavian Journal of Management*.

Keywords: Bibliometrics, Management Research, Nordic Countries

? Macdonald, S. and Kam, J. (2010), Counting footnotes: Citability in management studies. *Scandinavian Journal of Management*, **26** (2), 189-203.

Full Text: [2010\Sca J Man26, 189.pdf](2010/Sca%20J%20Man26,%20189.pdf)

Abstract: the primary purpose of academic citation, at least in Management Studies, is citation analysis’. So much hangs on citation analysis as an indicator of academic performance - careers, funding, institutional survival - that papers are written as platforms for citation rather than to be read. To satisfy the requirements of referees, editors, and publishers, a paper must be, above all else, citable. This paper investigates the citation practices of some of the top authors of some of the top papers in some of the top journals of Management Studies. It finds citation by an elite of an elite for an elite. This is generally seen as evidence of the disciplinary strength of Management Studies. We interpret the evidence differently; we see convergence on papers that are citable. We consider what makes a paper citable. Most important of all is that the paper is cited by others. (C) 2010 Published by Elsevier Ltd.

Keywords: Bias, Careers, Citation, Citation Analysis, Convergence, Elsevier, Evolution, Funding, Impact Factor, Journals, Jun, Management, Management Studies, Performance, Prestige, Primary, Publication, Quality Journals, Research Assessment Exercise, Scholarly Communication, Science-Citation-Index, Scientific Papers

# Title: Scandinavian Journal of Medicine & Science in Sports

Full Journal Title: Scandinavian Journal of Medicine & Science in Sports

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Rehn, B., Lidstrom, J., Skoglund, J. and Lindstrom, B. (2007), Effects on leg muscular performance from whole-body vibration exercise: A systematic review. *Scandinavian Journal of Medicine & Science in Sports*, **17** (1), 2-11.

Abstract: the purpose of this study was to investigate the effects on leg muscular performance from whole-body vibration exercise. Literature search was performed on the databases PUBMED, Cinahl, ISI Web of Science (Sci-expanded, SSCI) and EMBASE (Rehab & Physical Med). Rating of 19 relevant studies was performed (14 on long-term exercise and five on short-term exercise) using a score system for the methodological quality. Several randomized-controlled trial studies of high to moderate quality show similar improvements from long-term regimen on muscular performance in the legs after a period of whole-body vibration exercise. As there were few studies on short-term exercise and as they had no control groups, the same convincing improvements regarding muscular performance were not achieved. Preliminarily, there is strong to moderate evidence that long-term whole-body vibration exercise can have positive effects on the leg muscular performance among untrained people and elderly women. There is no clear evidence for effects on muscular performance after short-term vibration stimuli.

Keywords: Back-Pain, Balance, Control, Control Groups, Cross-Over, Databases, Elderly, Exercise, Extension, ISI, Literature, Muscle Strength, PostmenopaUSAl Women, Power, Randomized Controlled Trial, Randomized Controlled-Trials, Responses, Review, Science, Skeletal-Muscle, SSCI, Strength, Systematic, Systematic Review, Vertical Jump, Vibration, Vibration Exercise, Vibration Training, Web of Science, Whole-Body Vibration, Women

# Title: Scandinavian Journal of Primary Health Care

Full Journal Title: [Scandinavian Journal of Primary Health Care](http://weblinks3.epnet.com/authHjafDetail.asp?tb=1&_ua=bo+B%5F+db+pbhjnh+bt+ID++%22BDB%22+7B90&_ug=sid+6E57C7B4%2D4F04%2D4AB5%2D8099%2DE7A3C5E5BBDA%40sessionmgr2+dbs+pbh+9397&_us=hd+True+sm+ES+4DBA&_uso=st%5B0+%2DID++BDB+tg%5B0+%2D+db%5B0+%2Dpbh+op%5B0+%2D); [Scandinavian Journal of Primary Health Care](http://www.tandf.co.uk/journals/titles/02813432.asp)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Kragstrup, J. (2001), Increasing impact of the *Scandinavian Journal of Primary Health Care* (SJPHC). *Scandinavian Journal of Primary Health Care*, **19** (2), 65-66.

Full Text: [2001\Sca J Pri Hea Car19, 65.pdf](2001/Sca%20J%20Pri%20Hea%20Car19,%2065.pdf)

? Ovhed, I., Van Royen, P. and Hakansson, A. (2005), What is the future of primary care research? Probably fairly bright, if we may believe the historical development. *Scandinavian Journal of Primary Health Care*, **23** (4), 248-253.

Full Text: [2005\Sca J Pri Hea Car23, 248.pdf](2005/Sca%20J%20Pri%20Hea%20Car23,%20248.pdf)

Abstract: Objective. To study one aspect of the development of primary care research from 1975 to 2003. Design. Quantitative bibliometric study. Setting. Pub Med database. Subjects. Four Nordic countries (Denmark, Finland, Norway, and Sweden), seven countries from the rest of Europe (Belgium, France, Germany, Italy, the Netherlands, Spain, and the UK), and seven countries from the rest of the world (Australia, Canada, India, Japan, New Zealand, South Africa, and the USA). Main outcome measures. Number of primary healthcare publications per million inhabitants. Percentage of publications in primary healthcare of all publications in human medicine. Results. In 2003, New Zealand, the UK, and Australia were in the lead, with barely 20 primary care publications per million inhabitants, followed by Norway, Sweden, the Netherlands, and Denmark, where the corresponding figure was around 10. A vigorous increase in publications from 1975 to 2003 was clearly seen in most of the countries. However, during the same period the proportion of publications from primary care in relation to all publications in human medicine was only moderately increased, or virtually unchanged. Conclusion. It is believed that primary care research has a future, and it is hoped it may even be bright. However, searching Pub Med gave but one aspect of the historical development, and in particular the comparisons between countries may be questionable.

Keywords: Africa, Australia, Belgium, Bibliometric, Bibliometric Study, Canada, Care, Database, Denmark, Development, Europe, Family Medicine, Finland, France, General Practice, General-Practice, Germany, Healthcare, Human, India, Italy, Japan, Lead, Medicine, Netherlands, New Zealand, Norway, Outcome, Outcome Measures, Primary, Primary Care, Primary Health Care, PUB MED, Publications, Research, South Africa, Spain, Sweden, the Netherlands, UK, USA, World

? Thulesius, H. (2011), Assessing research impact with Google Scholar: the most cited articles in the journal 2008-2010. *Scandinavian Journal of Primary Health Care*, **29** (4), 193-195.

Full Text: [2011\Sca J Pri Hea Car29, 193.pdf](2011/Sca%20J%20Pri%20Hea%20Car29,%20193.pdf)

Keywords: Education, Elderly-Patients, General-Practice, Google Scholar, Impact, Inappropriate Prescriptions, Journal, Research, Research Impact, Science, Scopus, Sickness Certification, Web

# Title: Scandinavian Journal of Psychology

Full Journal Title: [Scandinavian Journal of Psychology](http://www.blackwell-synergy.com/servlet/useragent?func=showIssues&code=sjop)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0036-5564

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Olsson, H. (1999), Is there a Scandinavian psychology? A bibliometric note on the publication profiles of Denmark, Finland, Norway, and Sweden. *Scandinavian Journal of Psychology*, **40** (4), 235-239.

Full Text: [1999\Sca J Psy40, 235.pdf](1999/Sca%20J%20Psy40,%20235.pdf)

Abstract: This note presents a quantitative bibliometric analysis based on information obtained from the PsycINFO database concerning publication patterns in different subfields of Scandinavian psychology for the years 1984 to 1997. A cluster analysis shows that the publication profiles of the Scandinavian countries are more similar to each other than to both the profile of the USA and a norm profile based on all countries except the USA and Scandinavia. The main differences are that the relative proportions of articles dealing with psychological disorders are higher and the relative proportions of articles dealing with educational psychology are lower for Scandinavia than for the rest of the world. Within the Scandinavian countries, Finland and Sweden form one cluster with higher relative proportions of psychophysiological articles, and Denmark and Norway form one cluster with higher relative proportions of articles dealing with psychological disorders.

Keywords: Scandinavian Psychology, Publication Profiles, Bibliometric Studies

Hjørland, B. (2002), Review. *Scandinavian Journal of Psychology*, **43** (1), 93-96.

Full Text: [2002\Sca J Psy43, 93.pdf](2002/Sca%20J%20Psy43,%2093.pdf)

# Title: Scandinavian Journal of Public Health

Full Journal Title: Scandinavian Journal of Public Health

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Arntzen, A. and Andersen, A.M.N. (2004), Social determinants for infant mortality in the Nordic countries, 1980-2001. *Scandinavian Journal of Public Health*, **32** (5), 381-389.

Abstract: Aim: Social equity in health is an important goal of public health policies in the Nordic countries. Infant mortality is often used as an indicator of the health of societies, and has decreased substantially in the Nordic welfare states over the past 20 years. To identify social patterns in infant mortality in this context the authors set out to review the existing epidemiological literature on associations between social indicators and infant mortality in Denmark, Finland, Norway, and Sweden during the period 1980-2000. Methods: Nordic epidemiological studies in the databases ISI Web of Science, PUBMED, and OVID, published between 1980 and 2000 focusing on social indicators of infant, neonatal, and postneonatal mortality, were identified. The selected keywords on social indicators were: education, income, occupation, social factors, socioeconomic status, social position, and social class. Results: Social inequality in infant mortality was reported from Denmark, Finland, Norway, and Sweden, and it was found that these increased during the study period. Post-neonatal mortality showed a stronger association with social indicators than neonatal mortality. Some studies showed that neonatal mortality was associated with social indicators in a non-linear fashion, with high rates of mortality in both the lowest and highest social strata. The pattern differed, however, between countries with Finland and Sweden showing consistently less social inequalities than Denmark and Norway. While the increased inequality shown in most studies was an increase in relative risk, a single study from Denmark demonstrated an absolute increase in infant mortality among children born to less educated women. Conclusions: Social inequalities in infant mortality are observed in all four countries, irrespective of social indicators used in the studies. It is, however, difficult to draw inferences from the comparisons between countries, since different measures of social position and different inclusion criteria are used in the studies. Nordic collaborative analyses of social gradients in infant death are needed, taking advantage of the population-covering registers in longitudinal designs, to explore the mechanisms behind the social patterns in infant mortality.

Keywords: Authors, Birth-Weight, Children, Databases, Death, Determinants, Education, Epidemiology, Finland, Health, Income, Inequalities, Infant Mortality, ISI, ISI Web of Science, Literature, Maternal Education, Methods, Mortality, Nordic Countries, Occupation, Policies, Pregnancy, Public Health, Pubmed, Relative Risk, Review, Risk, Science, Social, Social Class, Social Inequality, Socioeconomic Status, Socioeconomic-Factors, Stillbirth, Sweden, Web of Science, Women

? Niclasen, B.V.L. and Bjerregaard, P. (2007), Child health in Greenland. *Scandinavian Journal of Public Health*, **35** (3), 313-322.

Abstract: Aim: To review the knowledge on child health and child health problems in Greenland. Method: the review was based on theses, national statistics, national and international reports, and a search in Pub Med, PsycINFO, Web of Science, and WHOLIB databases from 1985 to 2005. The resulting articles were sorted by topic, type, quality of study, and relevance for child health today, providing 47 articles. Results: Children in Greenland have become taller and have improved their general health. The morbidity found in Greenlandic children is similar to that found elsewhere even though the magnitude of problems might differ. The child mortality is relatively high and unevenly distributed. The acute disease pattern is dominated by infections, mostly airway infections. Otitis and its sequelae is a problem. An increase in chronic conditions such as atopy, asthma, obesity, and disabilities has taken place. Overweight and obesity have tripled in 20 years and are a health threat as well as constituting negative health behaviour. Social ill health, socioeconomic inequity, and sociocultural changes also influence health but their consequences are not well investigated in children. Conclusions: A relatively high child mortality but the same morbidity pattern as in other Western societies was found. Negative health behaviour is frequent in schoolchildren. The influence of rapid cultural changes, and familial and societal factors related to social ill health, together with socioeconomic inequity, are of major importance to the health of children in Greenland. More accurate data on child health are necessary in the future to secure better prioritization. It is suggested to construct a set of reliable indicators of child health in Greenland to monitor the health of children on a national and regional basis.

Keywords: Acute, Adolescents, Airway, Asthma, Child, Child Health, Children, Databases, Disease, Disease Pattern, Greenland, Health Behaviour, Inequity, Inuit, Knowledge, Morbidity, Mortality, Obesity, Pub Med, Review, Science, Social, Social Ill-Health, Statistics, Web of Science

# Title: Scandinavian Journal of Rheumatology

Full Journal Title: Scandinavian Journal of Rheumatology

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Kristensen, L.E., Jakobsen, A.K., Bartels, E.M., Geborek, P., Bliddal, H., Saxne, T., nneskiold-Samsoe, B. and Christensen, R. (2011), The number needed to treat for second-generation biologics when treating established rheumatoid arthritis: A systematic quantitative review of randomized controlled trials. *Scandinavian Journal of Rheumatology*, **40** (1), 1-7.

Abstract: Objective: To evaluate the number needed to treat (NNT) and the number needed to harm (NNH) of the second-generation biologics abatacept, certolizumab, golimumab, rituximab, and tocilizumab in patients with established rheumatoid arthritis (RA) taking concomitant methotrexate (MTX). Methods: A systematic literature search of MEDLINE, EMBASE, Web of Science, and the Cochrane Register of Controlled Trials was conducted up to 1 November 2009. We selected any published randomized, double-blind, MTX-controlled study including RA patients with a mean disease duration of at least 5 years before entering a pivotal trial on second-generation biological therapy. Studies eligible for inclusion involved patients, who had previously shown inadequate response to conventional disease-modifying anti-rheumatic drug (DMARD) therapy. Pre-specified binary outcomes were extracted with a preference for 1-year data (6-month data were used if no data were available for 1 year). Two reviewers independently extracted the data necessary to estimate the absolute measures in a non-responder intention-to-treat OM analysis. Results: Five randomized controlled trials, one for each of the drugs, were selected and data extracted according to published data at endpoint for American College of Rheumatology 50% (ACR50)-responding patients, and withdrawals due to adverse events. NNT ranged from four to six treated patients to achieve one ACR50 response, while withdrawals due to adverse events were few and non-significant compared to the placebo group, except for rituximab administered as 1000 mg. Conclusion: Comparable efficacy was shown by the five biological agents studied, with few adverse events. However, for rituximab, tocilizumab, and golimumab, only 6-month data were available, hampering the external validity with regard to long-term efficacy and tolerability. A low dose (500 mg) of rituximab may be as effective as the recommended dose of 1000 mg.

Keywords: Analysis, Arthritis, Clinical-Practice, Cochrane, Costimulation Modulator Abatacept, Disease, Disease-Activity, Double-Blind, Drug, Drugs, Efficacy, Embase, Inadequate Response, Interleukin-6 Receptor Inhibition, Literature, MEDLINE, Methods, Methotrexate, Modifying Antirheumatic Drugs, Nonresponder, Outcomes, Patients, Phase-III, Quantitative, Randomized Controlled Trials, Review, Science, Systematic, Therapy, Validity, Web of Science

# Title: Scandinavian Journal of Statistics

Full Journal Title: [Scandinavian Journal of Statistics](http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1467-9469/issues)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Beirlant, J. and Einmahl, J.H.J. (2010), Asymptotics for the Hirsch Index. *Scandinavian Journal of Statistics*, **37** (3), 355-364.

Full Text: [2010\Sca J Sta37, 355.pdf](2010/Sca%20J%20Sta37,%20355.pdf)

Abstract: the last decade methods for quantifying the research output of individual researchers have become quite popular in academic policy making. The h-Index (or Hirsch Index) constitutes an interesting combined bibliometric volume/impact indicator that has attracted a lot of attention recently. It is now a common indicator, available for instance on the Web of Science. In this article, we establish the asymptotic normality of the empirical h-Index. The rate of convergence is non-standard: root h/(1 + nf(h)), where f is the density of the citation distribution and n is the number of publications of a researcher. In case that the citations follow a Pareto-type respectively a Weibull-type distribution as defined in extreme value theory, our general result specializes well to results that are useful for practical purposes such as the construction of confidence intervals and pairwise comparisons for the h-Index. A simulation study for the Pareto-type case shows that the asymptotic theory works well for moderate sample sizes already.

Keywords: Asymptotic Normality, Bibliometric, Citation Counts, Extreme Value Theory, h Index, h-Index, Hirsch Index, Research, Research Output, Tail Empirical Process, Weibull Tail-Coefficient

? Pratelli, L., Baccini, A., Barabesi, L. and Marcheselli, M. (2012), Statistical analysis of the Hirsch Index. *Scandinavian Journal of Statistics*, **39** (4), 681-694.

Full Text: [2012\Sca J Sta39, 681.pdf](2012/Sca%20J%20Sta39,%20681.pdf)

Abstract: . The Hirsch Index (commonly referred to as h-Index) is a bibliometric indicator which is widely recognized as effective for measuring the scientific production of a scholar since it summarizes size and impact of the research output. In a formal setting, the h-Index is actually an empirical functional of the distribution of the citation counts received by the scholar. Under this approach, the asymptotic theory for the empirical h-Index has been recently exploited when the citation counts follow a continuous distribution and, in particular, variance estimation has been considered for the Pareto-type and the Weibull-type distribution families. However, in bibliometric applications, citation counts display a distribution supported by the integers. Thus, we provide general properties for the empirical h-Index under the small- and large-sample settings. In addition, we also introduce consistent non-parametric variance estimation, which allows for the implementation of large-sample set estimation for the theoretical h-Index.

Keywords: Approach, Bibliometric, Bibliometric Indicator, Citation, Citation Counts, Distribution, Families, General, h Index, h-Index, Heavy-Tailed Distribution, Hirsch, Hirsch Index, Hirsch-Index, Impact, Implementation, Index, Indicator, Research, Research Output, Scientific Production, Size, Small, Theory, Variance Estimation

# Title: Scandinavian Journal of Urology

Full Journal Title: Scandinavian Journal of Urology

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Cozzi, G., Rocco, B.M., Grasso, A., Rosso, M., El Rahman, D.A., Oliva, I., Talso, M., Costa, B., Tafa, A., Palumbo, C., Gadda, F. and Rocco, F. (2013), Perineural invasion as a predictor of extraprostatic extension of prostate cancer: A systematic review and meta-analysis. *Scandinavian Journal of Urology*, **47** (6), 443-448.

Full Text: [2013\Sca J Uro47, 443.pdf](2013/Sca%20J%20Uro47,%20443.pdf)

Abstract: A systematic review of the literature was performed to assess the relationship between the presence of perineural invasion (PNI) at prostate biopsy and extraprostatic extension (EPE) of prostate cancer. In August 2012, Medline, Embase, Scopus and Web of Science databases were searched. A “free-text” protocol using the terms “perineural invasion prostate cancer” was applied. Studies published only as abstracts and reports from meetings were not included in this review. In total, 341 records were retrieved from Medline, 507 from Embase, 374 from Scopus and 65 from the Web of Science database. The records were reviewed to identify studies correlating the presence of PNI with that of EPE. A cumulative analysis was conducted using Review Manager software v. 5.1 (Cochrane Collaboration, Oxford, UK). In univariate analysis, PNI showed a statistically significant association with pT3 tumours (p < 0.00001), which could be observed for both pT3a (p < 0.0001) and pT3b (p < 0.0001). In conclusion, the cumulative analysis shows a statistically significant higher incidence of EPE in patients who had PNI at needle biopsy. The main limitation of the analysis was that it was not possible to perform a multivariate analysis. Further attempts to build a nomogram for the prediction of EPE could include the presence of PNI at needle biopsy.

Keywords: Analysis, Association, Biochemical Failure, Biopsy, Cancer, Carcinoma, Cochrane Collaboration, Collaboration, Cumulative, Database, Databases, Extracapsular Extension, Extraprostatic Extension, Gleason Score, Incidence, Limitation, Literature, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Multivariate, Multivariate Analysis, Needle Biopsy, Needle-Biopsy, Neurovascular Bundle, Nomogram, Pathological Stage, Patients, Perineural Invasion, Positive Surgical Margins, Prediction, Prognostic-Significance, Prostate Cancer, Protocol, Radical Retropubic Prostatectomy, Records, Review, Science, Scopus, Software, Specimens, Systematic Review, UK, Web of Science, Web of Science Databases

# Title: Scandinavian Journal of Work Environment & Health

Full Journal Title: Scandinavian Journal of Work Environment & Health

ISO Abbreviated Title: Scand. J. Work Environ. Health

JCR Abbreviated Title: Scand J Work Env Hea

ISSN: 0355-3140

Issues/Year: 6

Journal Country/Territory: Finland

Language: English

Publisher: Scand J Work Env Health

Publisher Address: Topeliuksenkatu 41A, SF-00250 Helsinki, Finland

Subject Categories:

Public, Environmental & Occupational Health: Impact Factor 1.756, 25/85

? Navarro, A. and Martin, M. (2004), Scientific production and international collaboration in occupational health, 1992-2001. *Scandinavian Journal of Work Environment & Health*, **30** (3), 223-233.

Full Text: [2004\Sca J Wor Env Hea30, 223.pdf](2004/Sca%20J%20Wor%20Env%20Hea30,%20223.pdf)

Abstract: Objectives the objectives of the present study were twofold, to describe international scientific production in occupational health and to examine international collaboration in this discipline.

Methods A bibliometric study was carried out, using Science Citation Index, in order to evaluate the articles published during the period 1992-2001 in eight representative occupational health journals. Scientific production, collaborative profiles for each country, and the significant relationships established between countries are reported.

Results One or more institutions in the United States had contributed to over 40% of the articles examined. The United States was followed by the United Kingdom (9.15%) and then Sweden (8.65%). When population size effects were eliminated, the Scandinavian countries proved to be the leading producers. After correction for gross domestic product, there was an increase in the ranking of apparently scientifically modest countries. The Scandinavian countries remained high. In terms of international collaboration in general, there was an inverse relationship between the production of a country and the proportion of articles co-authored with institutions in other countries. Finally, the significant relationships between countries permitted the identification of up to six large collaboration nuclei.

Conclusions the high absolute and relative Scandinavian production is suggestive of the great importance of occupational health in these countries. Access to publication by more modest countries, scientifically speaking, is observed to occur through collaboration with the high-production countries. In this sense, it would seem necessary to study the basis underlying these relationships. Finally, the characterization of the collaborative nuclei does not differ greatly from what was expected.

Keywords: Bibliometrics, Journals

? Gehanno, J.F., Takahashi, K., Darmoni, S. and Weber, J. (2007), Citation classics in occupational medicine journals. *Scandinavian Journal of Work Environment & Health*, **33** (4), 245-251.

Full Text: [2007\Sca J Wor Env Hea33, 245.pdf](2007/Sca%20J%20Wor%20Env%20Hea33,%20245.pdf)

Abstract: Objectives the number of citations an article receives after its publication not only reflects its impact on the scientific community, but also the impact of the institutions or countries in the field studied. In 1987, Garfield introduced the concept of “citation classics” for the best-cited articles. An analysis of top-cited articles coming from journals in the field of occupational medicine (eg, Occupational and Environmental Medicine, Scandinavian Journal of Work, Environment & Health) has not yet been reported. The purpose of this study was to assess whether or not such citation classics exist in this field and to analyze their characteristics. Methods the most frequently cited articles published in the five major journals in occupational medicine were identified using the database of Science Citation Index Expanded. The data were obtained by searching one year and one journal at a time. All of the articles cited more than 100 times were collected and analyzed. Results Among the 15 553 articles published by the five journals since 1949, only 85 articles had been cited more than 100 times. The oldest had been published in 1950 and the latest in 1997. The United Kingdom contributed 28% of the citation classics and the United States or Sweden produced 19%. The most cited article had been cited 979 times. The main topics of articles were metabolism, occupational neoplasms, and work-related musculoskeletal disorders. Conclusions Since the 1980s, Scandinavia and the United States have taken the leadership in the publication of citation classic papers. Nevertheless, according to the level of citations, the influence of literature published in occupational medicine journals remains limited.

Keywords: Analysis, Archives, Bibliometrics, Citation, Citation Classics, Citation Index, Citations, Countries, Database, Environment, Field, Health, Impact, Journal, Journals, Leadership, Literature, Medicine, Most-Cited Articles, Neoplasms, Numerical Data, Occupational Health, Papers, Periodical, Publication, Science, Science Citation Index, Statistics, Sweden, United Kingdom, United States

Notes: JJournal

? Burdorf, A. and Viikari-Juntura, E. (2007), Bibliometric analysis of the *Scandinavian Journal of Work Environment & Health* - results from the past 10 years. *Scandinavian Journal of Work Environment & Health*, **33** (4), 318-319.

Full Text: [2007\Sca J Wor Env Hea33, 318.pdf](2007/Sca%20J%20Wor%20Env%20Hea33,%20318.pdf)

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Environment

? Kolstad, H.A. (2008), Nightshift work and risk of breast cancer and other cancers - A critical review of the epiderniologic evidence. *Scandinavian Journal of Work Environment & Health*, **34** (1), 5-22.

Full Text: [2008\Sca J Wor Env Hea34, 5.pdf](2008/Sca%20J%20Wor%20Env%20Hea34,%205.pdf)

Abstract: Objectives This systematic review concerns the role of nightshift work in the risk of breast cancer or other cancers. Methods Studies that specifically included information on nightshift or shift work and reported cancer occurrence were focused upon. A systematic search of MEDLINE and the Science Citation Index was conducted until May 2007. The quality of each paper was discussed with respect to design, exposure and outcome information, bias, confounding, and exposure-response assessment. Results Thirteen relevant reports were found, and eight reported the relative risk for breast cancer, three for prostate cancer, three for colon cancer, and four for all cancers. Most of the studies had crude information about nightshift work, four register-linked studies had no individual exposure information but relied on exposure probabilities assessed on a group level, and no studies analyzed cancer risk according to the cumulative number of night shifts (however, most of the studies did so according to the number of years of nightshift work). Confounding did not seem to be of major concern. The presentation of the results was not always complete, and it would have been appreciated if the reasons for leaving some findings out had been reported. There were indications of a long-term effect of nightshift work (more than 20-30 years), but the number of positive studies was small. In addition, they were all conducted among nurses, and the risk estimates were only moderately increased. This situation makes the results sensitive to bias, chance, and confounding. Conclusions There is limited evidence for a caUSAl association between nightshift work and breast cancer, while there is insufficient evidence for prostate cancer, colon cancer, and overall cancer.

Keywords: Assessment, Association, Bias, Breast Cancer, Cabin Attendants, Cancer, Chronobiology Disorder, Circadian Disruption, Circadian Rhythm, Citation, Collaborative Reanalysis, Commercial Airline Pilots, Confounding, Cumulative, Design, Endocrine Systems, Estimates, Evidence, Exposure, Female Flight Attendants, Indications, Information, Long Term, Long-Term, Melatonin Levels, Nurses, Occupational Exposure, Occupational Health, Outcome, Presentation, Prostate Cancer, Prostate-Cancer, Quality, Quality of, Relative Risk, Review, Risk, Role, Science, Science Citation Index, Shift Work, Shift-Work, Small, Systematic Review, Urinary 6-Sulfatoxymelatonin Levels, Work

? Rollin, L., Darmoni, S., Caillard, J.F. and Gehanno, J.F. (2009), Fate of abstracts presented at an International Commission on Occupational Health (ICOH) congress - followed by publication in peer-reviewed journals? *Scandinavian Journal of Work Environment & Health*, **35** (6), 461-465.

Full Text: [2009\Sca J Wor Env Hea35, 461.pdf](2009/Sca%20J%20Wor%20Env%20Hea35,%20461.pdf)

Abstract: Objectives Presentations at international meetings offer an excellent way to disseminate current research findings. One measure of the quality of research is jus subsequent publication. Our study aimed to determine the publication rate of abstracts presented at a congress of the International Commission on Occupational Health (ICOH), and to identify predictive factors of publication and differences between presented abstracts and subsequently published papers Methods We identified a random sample of 318 abstracts presented at the 2000 ICOH meeting from the book of abstracts. Using MEDLINE and Embase, we assessed their publication rate in the period ranging from 1998 to 2006 and investigated the factors associated with the publication rate. Results of 318 abstracts originating from 51 countries, 105 articles [33%, 95% confidence interval (95% CI) 27-38)] were subsequently published in 67 journals indexed in MEDLINE or Embase. Mean time to publication was 17 months (95% CI 13-21). Multivariate analysis revealed that abstracts with quantitative data and written by authors originating from developed Countries were significantly more published From the time of abstract presentation to publication in a peer-reviewed journal, both the study sample size and the first author frequently changed (25% and 29%, respectively), but the overall conclusions remained stable, except in one case Conclusions Most of the abstracts presented at the 2000 ICOH congress were not subsequently published as full research reports. If this is the case for most abstracts submitted to conferences, this may limit the ability of a reader to judge the validity, reliability, and generalizability of the research presented. Caution is advised when referencing or generalizing from abstracts that have not been subsequently published in full.

Keywords: Bibliometrics, International, Medicine, Meetings, Peer Review, Scientific Meeting

? Rollin, L., Darmoni, S., Gaillard, J.F. and Gehanno, J.F. (2010), Searching for high-quality articles about intervention studies in occupational health - what is really missed when using only the MEDLINE database? *Scandinavian Journal of Work Environment & Health*, **36** (6), 484-487.

Full Text: [2010\Sca J Wor Env Hea36, 484.pdf](2010/Sca%20J%20Wor%20Env%20Hea36,%20484.pdf)

Abstract: Objective Most occupational health physicians access electronic databases to obtain reliable medical information. Although it has been demonstrated that the use of MEDLINE alone does not ensure comprehensiveness, many experts rely solely on this database. Our study aimed to discover to what extent the physician who limits his/her search to MEDLINE misses studies of high quality. Methods We constructed a “gold standard” database of high-quality intervention studies gathering all the references included in the systematic reviews of the Cochrane Library and indexed under the topic “occupational health field”. We then searched all these references, one by one, in MEDLINE. Results Overall, 88.8% [95% confidence interval (95% CI) 86.1-91.5] of the high quality studies included in our gold standard database were indexed in MEDLINE. References included in reviews on psychiatric or psychological topics were significantly less often indexed in MEDLINE [81.7% (95% CI 75.9-88.5)] than references included in reviews on other topics [92.2% (95% CI 89.5-95.0)] (P=0.001). Conclusion the recall ratio of MEDLINE for high-quality intervention studies is close to 90%. for occupational health practitioners who aim to find reliable answers to their daily practice questions, searching MEDLINE only is more cost-effective than previously thought.

Keywords: Bibliographic Databases, Bibliometrics, Databases, Embase, Gold, Information, References, Trials

# Title: Schizophrenia Bulletin

Full Journal Title: Schizophrenia Bulletin

ISO Abbreviated Title:

JCR Abbreviated Title:

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Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Nordgaard, J., Arnfred, S.M., Handest, P. and Parnas, J. (2008), The diagnostic status of first-rank symptoms. *Schizophrenia Bulletin*, **34** (1), 137-154.

Abstract: Objective: In the International Statistical Classification of Diseases, Tenth Revision(ICD-10) and Diagnostic and Statistical Manual of Mental Disorder, Third and Fourth Edition(DSM-III-IV), The presence of one of Schneider “first-rank symptoms” (FRS) is symptomatically sufficient for the schizophrenia diagnosis. Yet, it has been claimed that FRS may also be found in the nonschizophrenic conditions, and therefore, they are not specific or diagnostic for schizophrenia. This review was made to clarify the issue of diagnostic specificity. Methods: (1) A critical review of FRS studies published in English between 1970 and 2005. (2) A highlight of the 5 most frequently cited studies identified in the Web of Science. (3) Theoretical implications of the epistemological issues of FRS. Results: the reviewed studies do not allow for either a reconfirmation or a rejection of Schneider’s claims about FRS. The sources of disagreement between the studies are (1) including or excluding acute patients with potential degradation of consciousness; (2) assessing or not the phenomenological context; (3) assessing patients in different stages of their illness evolution; and (4) differential emphasis on mood symptoms and history of psychiatric symptoms. Conclusion: Both DSM-IV and ICD-10 emphasize FRS to a degree that is not supported by the empirical evidence. Until the status of FRS is clarified in depth, we suggest that the FRS, as these are currently defined, should be de-emphasized in the next revisions of our diagnostic systems. Future studies aiming at validation of FRS as diagnostic features need to apply a phenomenological perspective and include a homogenous group of patients across a wide spectrum of diagnoses.

Keywords: 1st Rank Symptoms, Acute, Classification, Criteria, Diagnosis, Diagnostic Systems, Diseases, DSM-IV, Follow-up, History, Illness, Kurt Schneider, Methods, Mood, Patients, Prevalence, Prognostic Implications, Psychosis, Review, Schizophrenia, Schizophrenia, Schneiderian Symptoms, Science, Specificity, Subjective Experience, Symptoms, Validation, Web of Science

? Nitta, M., Kishimoto, T., Muller, N., Weiser, M., Davidson, M., Kane, J.M. and Correll, C.U. (2013), Adjunctive use of nonsteroidal anti-inflammatory drugs for schizophrenia: A meta-analytic investigation of randomized controlled trials. *Schizophrenia Bulletin*, **39** (6), 1230-1241.

Full Text: [2013\Sch Bul39, 1230.pdf](2013/Sch%20Bul39,%201230.pdf)

Abstract: Objective: To meta-analytically assess the efficacy and tolerability of nonsteroidal anti-inflammatory drugs (NSAIDs) vs placebo in schizophrenia. Method: Searching PubMed, PsycINFO, ISI Web of Science, and the US National Institute of Mental Health clinical trials registry from database inception to December 31, 2012, we conducted a systematic review/meta-analysis of randomized placebo-controlled studies assessing the efficacy of adjunctive NSAIDs. Primary outcome was the change in Positive and Negative Syndrome Scale (PANSS) total score. Secondary outcomes included change in PANSS positive and negative subscores, all-cause discontinuation, and tolerability outcomes. Random effects, pooled, standardized mean changes (Hedges’ g) and risk ratios were calculated. Results: Across 8 studies, including 3 unpublished reports (n = 774), The mean effect size for PANSS total score was -0.236 (95% CI: -0.484 to 0.012, P = .063, I-2 = 60.6%), showing only trend-level superiority for NSAIDs over placebo. The mean effect sizes for the PANSS positive and negative scores were -0.189 (95% CI: -0.373 to -0.005, P = .044) and -0.026 (95% CI: -0.169 to 0.117, P = .72), respectively. The relative risk for all-cause discontinuation was 1.13 (95% CI: 0.794 to 1.599, P = .503). Significant superiority of NSAIDs over placebo regarding PANSS total scores was moderated by aspirin treatment (N = 2, P = .017), inpatient status (N = 4, P = .029), first-episode status (N = 2, P = .048), and (in meta-regression analyses) lower PANSS negative subscores (N = 6, P = .026). Interpretation: These results indicate that adjunctive NSAIDs for schizophrenia may not benefit patients treated with first-line antipsychotics judged by PANSS total score change. NSAIDs may have benefits for positive symptoms, but the effect was minimal/small. However, due to a limited database, further controlled studies are needed, especially in first-episode patients.

Keywords: Add-On Therapy, Analyses, Antidepressants, Antipsychotics, Aspirin, Assessing, Augmentation, Benefits, Celecoxib Augmentation, Changes, Clinical, Clinical Trials, Concomitant, Database, Double-Blind, Drugs, Effect Size, Effects, Efficacy, Immune-System, Inflammation, Interpretation, ISI, ISI Web of Science, Meta-Regression, Microglia, N, Negative Symptoms, Nonsteroidal Anti-Inflammatory, Nov, Outcome, Outcomes, P, Patients, Placebo, Placebo-Controlled Trial, Psycinfo, Pubmed, Randomized, Registry, Relative Risk, Results, Risk, Scale, Schizophrenia, Science, Size, Symptoms, Treatment, Treatment Resistance, Us, Web of Science

# Title: Schizophrenia Research

Full Journal Title: [Schizophrenia Research](http://www.sciencedirect.com/science/journal/09209964)

ISO Abbreviated Title:

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ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Takei, N., Verdoux, H. and Nanko, S. (1996), Schizophrenia research activities in non-English speaking countries (13 EEC and 4 Asian countries): A MEDLINE survey. *Schizophrenia Research*, **18** (2-3), 245.

Full Text: [1996\Sch Res18, 245.pdf](1996/Sch%20Res18,%20245.pdf)

Abstract: We investigated schizophrenia research activities in 17 non-English speaking countries (13 EEC and 4 Asian countries) via a MEDLINE survey for publications of English-written papers over a period of 1990-94.

The averaged yearly numbers of all papers related to schizophrenia research that had appeared in MEDLINE were 45 (Germany), 40 (Japan), 26 (Sweden), 20 (Italy), 14 (Denmark), 10 (France), 9 (Netherlands), 8 (Finland), 7 (Spain), 5 (Austria), 3 (Belgium, Taiwan, and Greece), 2 (China and South Korea), and nil (Luxembourg and Portugal). Ten countries which produced more than 4 papers per year were further examined in terms of influence of research outputs. We only counted the papers which were published in main psychiatric journals with impact factor (a measure of how influential the paper is in research communication) above one. The yearly numbers of communicable papers adjusted for the number of doctors (per 10,000 doctors) in each country were as follows: 6.6 (Denmark), 4.9 (Sweden), 3.8 (Finland), 1.4 (Netherlands), 1.3 (Germany), 0.7 (Japan), 0.6 (Austria), 0.4 (Italy), 0.3 (France), and 0.2 (Spain).

? Theander, S.S. and Wetterberg, L. (2010), Schizophrenia in MEDLINE 1950-2006: A bibliometric investigation. *Schizophrenia Research*, **118** (1-3), 279-284.

Full Text: [2010\Sch Res118, 279.pdf](2010/Sch%20Res118,%20279.pdf)

Abstract: the aim was to perform a bibliometric study, and compare the quantity of publications on schizophrenia with the total medical literature in MEDLINE during 57 years, 1950-2006. The annual additions of literature to MEDLINE are continually increasing and form the MEDLINE growth curve. Comparisons of the number of publications on schizophrenia, or any other disease, to this curve, may be used to estimate the research activity. Methods for the identification of relevant references to papers on schizophrenia were evaluated and three different samples were operationally defined, retrieved and counted. During 1950-2006, 16.28 million references were added to MEDLINE. Nearly 68000, 0.42%, references were related to schizophrenia. The percentage of papers on schizophrenia among the psychiatric literature decreased from 5.2 to 2.6%. The present study indicates that the number of references on schizophrenia in MEDLINE has followed the general increase of medical publications. This pattern differs compared to some other research fields such as dementia, HIV, and peptic ulcer. Samples of references on schizophrenia may be retrieved in MEDLINE by operational definitions of search methods. The quantity of schizophrenia research during 57 years has kept pace with the total medical literature. One interpretation of the results is that more resources are needed to enhance research activities on schizophrenia. (C) 2009 Elsevier B.V. All rights reserved.

Keywords: Activities, Bibliometric, Bibliometric Study, Bibliometrics, Bipolar Disorder, Dementia, Eating-Disorders, Elsevier, General Psychiatric Journals, Growth, History, HIV, Identification, Interpretation, Literature, Medical, Medical Literature, MEDLINE, Methods, Number, Number of Publications, Publications, Research, Research Activity, Schizophrenia, Science, Trends

? Miura, I., Zhang, J.P., Nitta, M., Lencz, T., Kane, J.M., Malhotra, A.K., Yabe, H. and Correll, C.U. (2014), BDNF Val66Met polymorphism and antipsychotic-induced tardive dyskinesia occurrence and severity: A meta-analysis. *Schizophrenia Research*, **152** (2-3), 365-372.

Full Text: [2014\Sch Res152, 365.pdf](2014/Sch%20Res152,%20365.pdf)

Abstract: Background: Tardive dyskinesia (TD) is a serious long-term consequence of antipsychotic treatment. Since brain-derived neurotrophic factor (BDNF) has potent neurotrophic activity, genetic alterations in the BDNF gene may affect antipsychotic-induced TD. Methods: Searching PubMed and Web of Science until 05/31/13, we conducted a systematic review and a meta-analysis of the effects of BDNF Val66Met polymorphism on antipsychotic-induced TD. Pooled odds ratio was calculated to assess the effects of BDNF Val66Met polymorphism on TD occurrence. Additionally, pooled standardized mean differences (Hedges’g) were calculated to assess the effects on Abnormal Involuntary Movement Scale (AIMS) total score. Results: Out of 699 potentially eligible hits, 6 studies (N = 1740, mean age = 46.0 +/- 10.4 years; males = 73.1%; Asians = 80.5%, Caucasians = 19.5%; schizophrenia = 96.2%) were included in this meta-analysis. Pooling data from all studies, no significant associations were found between BDNF Val66Met polymorphism and TD (p = 0.82) or AIMS total scores (p = 0.11). However, in studies including only Caucasians (n = 339), Met allele carriers had significantly higher AIMS total scores (Hedges’ g = 0.253, 95% confidence interval = 0.030 to 0.476, p = 0.026) and non-significantly higher TD occurrence (p = 0.127). Conversely, there was no association between BDNF and AIMS scores (p = 0.57) or TD (p = 0.65) in Asians. Conclusion: Although there was no significant association between BDNF Val66Met polymorphism and TD or AIMS scores across all patients, our results suggest that BDNF Val66Met polymorphism affects severity and, possibly, TD development in Caucasians. Since the number of studies and patients was still small, additional data are needed to confirm genotype-racial interactions. Furthermore, BDNF enhancing treatments for TD may require further study, especially in Caucasians. (C) 2013 Elsevier B.V. All rights reserved.

Keywords: Activity, Age, Association, Confidence, Data, Development, Effects, Gene, Genetic, Interval, Long Term, Long-Term, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, N, Neurotrophic Factor, Odds Ratio, Patients, Polymorphism, Pubmed, Results, Review, Rights, Scale, Schizophrenia, Science, Small, Systematic Review, Treatment, Web of Science

? Najjar, S. and Pearlman, D.M. (2015), Neuroinflammation and white matter pathology in schizophrenia: Systematic review. *Schizophrenia Research*, **161** (1), 102-112.

Full Text: [2015\Sch Res161, 102.pdf](2015/Sch%20Res161,%20102.pdf)

Abstract: Background: Neuroinflammation and white matter pathology have each been independently associated with schizophrenia, and experimental studies have revealed mechanisms by which the two can interact in vitro, but whether these abnormalities simultaneously co-occur in people with schizophrenia remains unclear. Method: We searched MEDLINE, EMBASE, PsycINFO and Web of Science from inception through 12 January 2014 for studies reporting human data on the relationship between microglial or astroglial activation, or cytokines and white matter pathology in schizophrenia. Results: Fifteen studies totaling 792 subjects (350 with schizophrenia, 346 controls, 49 with bipolar disorder, 37 with major depressive disorder and 10 with Alzheimer’s disease) met all eligibility criteria. Five neuropathological and two neuroimaging studies collectively yielded consistent evidence of an association between schizophrenia and microglial activation, particularly in white rather than gray matter regions. Ultrastructural analysis revealed activated microglia near dystrophic and apoptotic oligodendroglia, demyelinating and dysmyelinating axons and swollen and vacuolated astroglia in subjects with schizophrenia but not controls. Two neuroimaging studies found an association between carrier status for a functional single nucleotide polymorphism in the interleukin-1 beta gene and abnormal white as well as gray matter volumes in schizophrenia but not controls. A neuropathological study found that orbitofrontal white matter neuronal density was increased in schizophrenia cases exhibiting high transcription levels of pro-inflammatory cytokines relative to those exhibiting low transcription levels and to controls. Schizophrenia was associated with decreased astroglial density specifically in subgenual cingulate white matter and anterior corpus callosum, but not other gray or white matter areas. Astrogliosis was consistently absent. Data on astroglial gene expression, mRNA expression and protein concentration were inconsistent. Conclusion: Neuroinflammation is associated with white matter pathology in people with schizophrenia, and may contribute to structural and functional disconnectivity, even at the first episode of psychosis. (C) 2014 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/3.0/).

Keywords: Access, Activation, Alzheimer’S, Alzheimer’S Disease, Analysis, Article, Association, Autoimmune-Diseases, Bipolar, Bipolar Disorder, Concentration, Corpus-Callosum, Criteria, Cytokines, Data, Density, Disease, Dorsolateral Prefrontal Cortex, Embase, Evidence, Experimental, Expression, Fibrillary Acidic Protein, First, From, Gene, Gene Expression, Human, In Vitro, Interleukin-1, License, Major Depressive Disorder, Maternal Exposure, Mechanisms, Medline, Negative-Symptoms, Neuroimaging, Neuroinflammation, Neuron Density, Neuropathology, Open, Open Access, Open Access Article, Pathology, Polymorphism, Proinflammatory Cytokines, Protein, Psychosis, Psycinfo, Reporting, Results, Review, Schizophrenia, Science, State Functional Connectivity, Structural Connectivity, Systematic, Systematic Review, Transcription, Web, Web Of Science, White Matter

# Title: School Psychology International

Full Journal Title: School Psychology International

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Notes: JJournal

? Jennings, R.L., Ehrhardt, K. and Poling, A. (2008), A bibliometric analysis of *School Psychology International* 1995-2007. *School Psychology International*, **29** (5), 515-528.

Full Text: [2008\Sch Psy Int29, 515.pdf](2008/Sch%20Psy%20Int29,%20515.pdf)

Abstract: the present study examined all articles published in School Psychology International from 1995 to 2007 to obtain data relevant to seven research questions: (1) which nations contributed articles to SPI? (2) how many SPI manuscripts involved multi-author (and multi-national) collaboration? (3) which institutions were the most prolific contributors to SPI? (4) what is the self-citation rate in SPI? (5) how often does SPI cite other major school psychology journals? (6) which first authors or editors were most frequently cited in SPI? (7) which books were the most frequently cited in SPI? Results indicate that the journal is broad in scope, interdisciplinary and truly international with respect to its contributors. Moreover, a substantial number of its contributions involve authors from two or more nations. In these regards, SPI is unique and, in our opinion, uniquely important for the international community of school psychologists.

Keywords: Authors, Bibliometric, Bibliometric Analysis, Bibliometric Study, Books, Citation Analysis, Collaboration, International Collaboration, Journal, Journals, Nations, Research, School Psychology International, School Psychology Journals, Self-Citation, Women, Women’s Participation

# Title: School and Society

Full Journal Title: School and Society

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Aaron, M. (1921), Equal partners and equal contributions. *School and Society*, **14** (366), 627-632.

Full Text: [-1959\Sch Soc29, 627.pdf](-1959/Sch%20Soc29,%20627.pdf)

# Title: Schweizerische Medizinische Wochenschrift

Full Journal Title: Schweizerische Medizinische Wochenschrift

ISO Abbreviated Title: Schweiz. Med. Wochenschr.

JCR Abbreviated Title: Schweiz Med Wschr

ISSN: 0036-7672

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Journal Country/Territory: Switzerland

Language: Multi-Language

Publisher: Schwabe & Co Ag Verlag

Publisher Address: Farnsburgerstrasse 8, CH-4132 Muttenz 1, Switzerland

Subject Categories:

Medicine, General & Internal: Impact Factor

? Zenger, C.A. (1991), AIDS, right and wrong - Problems of HIV testing and medical confidentiality. *Schweizerische Medizinische Wochenschrift*, **121** (34), 1205-1211.

Abstract: the present Swiss legal position on the following two questions is described and discussed. First, under what circumstances can a physician test a patient for HIV antibodies (or, more generally, use diagnostic methods) without the patient’s express consent? Second, in what cases can he inform others of the patient’s HIV status (or, more generally, breach medical confidentiality) without the patient’s agreement? Informed consent of the person involved is the most important justification; as a rule the consent must be signified specifically and expressly both for tests and for the breach of confidentiality. Tacit consent may be assumed only in special circumstances; a request for a checkup, for example, in no way includes (for the present at any rate) tacit consent to HIV testing. Another possible justifying ground is protection of third parties. However, testing (especially secret tests) for the protection of medical and nursing staff is, in the present stage of development, neither suitable nor necessary for such protection and hence is legally unjustifiable. Nor, except in cases of admissible emergency assistance, is confidential notification of sexual partners legally admissible. Finally, there may be a justifying legal basis and overriding public interest in exceptional cases, e.g. where, in certain circumstances, the authorities order an open, compulsory HIV test in an individual case or unlinked tests for epidemiological purposes, or, if need be, for a physician’s notification of the public health authorities in cases of desperado behaviour by HIV positive patients. However, tests and breaking of medical confidentiality are in most cases of so little practical use in stemming the HIV epidemic that the interests they are held to serve - the fight against disease - carry little weight and do not override the interests of protecting the individual.

Keywords: Development, Disease, Emergency, HIV, HIV Testing, Interest, Medical, Nursing, Patients, Public Health, Sexual Partners

? Keusch, G.T., Hamer, D., Joe, A., Kelley, M., Griffiths, J. and Ward, H. (1995), Cryptosporidia: Who is at risk. *Schweizerische Medizinische Wochenschrift*, **125** (18), 899-908.

Abstract: *Cryptosporidium parvum* is a coccidian parasite originally described a century ago and, until recently, not considered to be a human pathogen. It has a complex life cycle, including both sexual and asexual reproduction, an auto-infectious cycle, and the ability to complete its development within a single host. The transmission form is a robust, environmentally resistant oocyst, excreted in the stool, which can exist for long periods of time in the environment. Because animals, in particular domesticated livestock, are its primary host, human infection is usually zoonotic. Oocysts often find their way into water supplies, and it resists chlorination and is incompletely filtered from processed drinking water supplies, even when filtration is working optimally. Transmission via ingestion of fecally contaminated swim ming pool water, food, fomites, and sexual activities facilitating fecal-oral inoculation have been demonstrated. The major target of *C. parvum* in the host is the intestinal apithelial cell, resulting in diarrhea, sometimes profuse and persistent, although it may also infect other organs such as the gall bladder and lungs. Pathogenesis involves attachment, probably via a sporozoite lectin, invasion, probably involving apical organelles, replication within a parasitophorous vacuole with the host cell membrane, causing cellular dysfunction. Diagnosis is generally made by visualization of the oocyst form in stool by staining methods, the best of which appears to be auramine and fluorescence microscopy. Those at greatest risk are immunocompromised adults and children, especially those with AIDS, children in day care, travelers to endemic regions, dairy or cattle farm workers of their families or contacts, household contacts of cases or carriers, and possibly owners of infected dogs or cats or their neighbors. There is no specific therapy available, however in the immunocompetent host the illness is self-limited, lasting from a few days to 3 weeks, and long term carriage is uncommon. In the immunocompromised host, infection is prolonged, sometimes asymptomatic, but may result in chronic debilitating diarrhea with dehydration, malabsorption and wasting. Public health measures to reduce contamination of water supplies and vigilent surveillance will reduce the risk to populations. Reducing behaviors favoring fecal-oral transmission, such as certain sexual activities, and scrupulous hygiene in the day care setting would also reduce the likelihood of transmission but not eliminate it. Given our lack of knowledge about *Cryptosporidium* biology and pathogenesis, high priority should be given to research designed to increase our understanding of the organism and improve the chance of developing useful therapeutic or preventative drugs or strategies.

? Navarro, F.A. (1997), The language of medicine in Switzerland from 1920 to 1995. *Schweizerische Medizinische Wochenschrift*, **127** (38), 1565-1573.

Abstract: Aim of study: It is generally accepted that since the end of the Second World War, English has become the main language in the medical field in Switzerland, but scarcely any objective data are available on the development of this process in this country. The aim of the present study was to analyze the frequency of the different languages in the literature references in articles published in the Swiss Medical Weekly over the past 75 years, with special attention to the possible differences existing between articles originating in German-speaking Switzerland and French-speaking Switzerland.

Methods: the language of publication of 47160 literature references cited in 2489 original articles published in the Swiss Medical Weekly between 1920 and 1995 was established. The 1730 articles published in German contained 32607 assessable references; the 759 articles published in French contained 14553 assessable references.

Results: the percentages of literature references in German, French and English cited in the articles written in German were, respectively, 83.6%, 9.1% and 5.9% in 1920; 68.6%, 7.2% and 18.3% in 1945; 30.7%, 5.6% and 61.9% in 1970; 11.3%, 1.5% and 86.7% in 1995. The percentages of literature references in French, German and English cited in the articles written in French were, respectively, 61.1%, 31.8% and 4.0% in 1920; 30.6%, 39.3% and 26.5% in 1945; 19.8%, 9.6% and 69.7% in 1970; 7.4%, 2.4% and 90.0% in 1995.

Conclusions: (1) Between 1945 and 1995 the percentage of literature references in English has increased continuously, while the percentages of references in German and French have decreased. (2) English replaced German as the main language of medicine towards 1955 in French-speaking Switzerland and towards 1965 in German-speaking Switzerland. (3) During the whole period studied (1920-1995), French-speaking authors cited publications in German more frequently than German-speaking authors cited publications in French. (4) the evolution of the relative importance of the languages in German-speaking Switzerland is very similar to that previously described in Germany and Austria. (5) In French-speaking Switzerland, on the other hand, the evolution of the relative importance of the different languages differs very considerably from that previously described in France.

Keywords: English, References, Clinica

# Title: SCI-Tech Information Development & Economy

Full Journal Title: [SCI-Tech Information Development & Economy](http://e29.cnki.net/KNS50/Navi/item.aspx?NaviID=1&BaseID=KJQB&NaviLink=%e7%a7%91%e6%8a%80%e6%83%85%e6%8a%a5%e5%bc%80%e5%8f%91%e4%b8%8e%e7%bb%8f%e6%b5%8e)

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ISSN: 1005-6033

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Subject Categories:

: Impact Factor

? Li, G.Z. (2006), A bibliometric analysis on Chinese knowledge organizations. *SCI-Tech Information Development & Economy*, **16** (8), 30-32.

Full Text: [2006\SCI-Tec Inf Dev Eco16, 30.pdf](2006/SCI-Tec%20Inf%20Dev%20Eco16,%2030.pdf)

Abstract: By using the statistical method and bibliometric method, and taking the literatures in the knowledge organizations’ research field published by China in period of 1989—2004, this paper makes quantitative analysis on the literature amount, publishing time, authors, institutions, periodicals distribution, and subject contents, etc.

Keywords: Knowledge Organization, Bibliometric Analysis, Quantitative Analysis

? Wu, L.J. and Hua, W.N. (2006), A quantitative analysis on papers, authors and citations in from 2000 to 2005. *SCI-Tech Information Development & Economy*, **16** (16), 10-12.

Full Text: [2006\SCI-Tec Inf Dev Eco16, 10.pdf](2006/SCI-Tec%20Inf%20Dev%20Eco16,%2010.pdf)

Abstract: Applying the bibliometric statistical method, this paper makes quantitative analysis on the papers, authors and citations in from 2000 to 2005, sums up the features of the published papers and the distribution of the authors in this period in order to make known better the features of the periodical and provide some references to increase its academic level.

Keywords: Paper Analysis, Author Analysis, Citation Analysis

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Full Text: [2007\SCI-Tec Inf Dev Eco17, 47.pdf](2007/SCI-Tec%20Inf%20Dev%20Eco17,%2047.pdf)

Abstract: This paper makes the statistical analysis on the papers, citations and authors of Chinese Journal of Stomatology from 2003 to 2005 by using the bibliometric method.

Keywords: Bibliometrics, Chinese Journal of Stomatology, Paper Analysis

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Keywords: Cells, Challenge, Chronic, Diabetes, Disease, Failure, Growth, Health, Inflammation, Insulin, Investigation, Knowledge, Lead, Management, Obesity, Pathways, Protein, Receptor Substrate-2, Resistance, Signaling, Stimulates Tyrosine Phosphorylation, Synthesis

Lipsitch, M., Cohen, T., Cooper, B., Robins, J.M., Ma, S., James, L., Gopalakrishna, G., Chew, S.K., Tan, C.C., Samore, M.H., Fisman, D. and Murray, M. (2003), Taiwan: Frank Shu named university head. *Science*, **May**, 1.

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Full Text: [2011\Science333, 1015.pdf](2011/Science333,%201015.pdf)

Abstract: We investigated the association between a U. S. National Institutes of Health (NIH) R01 applicant’s self-identified race or ethnicity and the probability of receiving an award by using data from the NIH IMPAC II grant database, the Thomson Reuters Web of Science, and other sources. Although proposals with strong priority scores were equally likely to be funded regardless of race, we find that Asians are 4 percentage points and black or African-American applicants are 13 percentage points less likely to receive NIH investigator-initiated research funding compared with whites. After controlling for the applicant’s educational background, country of origin, training, previous research awards, publication record, and employer characteristics, we find that black applicants remain 10 percentage points less likely than whites to be awarded NIH research funding. Our results suggest some leverage points for policy intervention.

Keywords: African American, Ethnicity, Funding, Health, Intervention, NIH, Points, Policy, Publication, Race, Research, Science, Thomson Reuters, Training, Web of Science

? Greenland, P. and Fontanarosa, P.B. (2012), Ending honorary authorship. *Science*, **337** (6098), 1019.

Full Text: [2012\Science337, 1019.pdf](2012/Science337,%201019.pdf)

Keywords: Authorship

? Uzzi, B., Mukherjee, S., Stringer, M. and Jones, B. (2013), Atypical combinations and scientific impact. *Science*, **342** (6157), 468-472.

Full Text: [2013\Science342, 468.pdf](2013/Science342,%20468.pdf)

Abstract: Novelty is an essential feature of creative ideas, yet the building blocks of new ideas are often embodied in existing knowledge. From this perspective, balancing atypical knowledge with conventional knowledge may be critical to the link between innovativeness and impact. Our analysis of 17.9 million papers spanning all scientific fields suggests that science follows a nearly universal pattern: the highest-impact science is primarily grounded in exceptionally conventional combinations of prior work yet simultaneously features an intrusion of unusual combinations. Papers of this type were twice as likely to be highly cited works. Novel combinations of prior work are rare, yet teams are 37.7% more likely than solo authors to insert novel combinations into familiar knowledge domains.

? Rodriguez, A. and Laio, A. (2014), Clustering by fast search and find of density peaks. *Science*, **344** (6191), 1492-1496.

Full Text: [2014\Science344, 1492.pdf](2014/Science344,%201492.pdf)

Abstract: a Cluster analysis is aimed at classifying elements into categories on the basis of their similarity. Its applications range from astronomy to bioinformatics, bibliometrics, and pattern recognition. We propose an approach based on the idea that cluster centers are characterized by a higher density than their neighbors and by a relatively large distance from points with higher densities. This idea forms the basis of a clustering procedure in which the number of clusters arises intuitively, outliers are automatically spotted and excluded fromthe analysis, and clusters are recognized regardless of their shape and of the dimensionality of the space inwhich they are embedded. We demonstrate the power of the algorithm on several test cases.

Keywords: Algorithm, Analysis, Approach, Bibliometrics, Cluster, Cluster Analysis, Clustering, Forms, Outliers, Pattern, Pattern Recognition, Power, Procedure, Similarity

# Title: ScienceAsia

Full Journal Title: ScienceAsia

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 1513-1874

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address: Thailands Natl Science & Technology Development Agency, Public Information Dept, 73/1 Rama Vi Rd, Rajdhevee, Bangkok, 00000, Thailand

Subject Categories:

Multidisciplinary Sciences: Impact Factor

? Allen, M.A. (2010), On the current obsession with publication statistics. *ScienceAsia*, **36** (1), 1-5.

Full Text: [2010\ScienceAsia36, 1.pdf](2010/ScienceAsia36,%201.pdf)

Abstract: Crude publication statistics such as publication counts and impact factors are routinely being employed to assess individuals and institutions. Although they can play a role in an approximate preliminary assessment, using them for anything more is inappropriate due to their over-simplicity and ease of manipulation. Furthermore, it is argued that rewarding scientists for achieving high scores in such number-based evaluations ultimately leads to a slowing of scientific progress. Suggestions are given on how reliance on statistics can be reduced and their manipulation discouraged.

Keywords: Citations, Impact Factor, h-Index, Bibliometrics, Research Assessment, Index, Impact

# Title: Science Bulletin

Full Journal Title: Science Bulletin

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Zheng, Y.M., Niu, Z.G., Gong, P. and Wang, J. (2015), A database of global wetland validation samples for wetland mapping. *Science Bulletin*, **60** (4), 428-434.

Full Text: 2015\Sci Bul60, 428.pdf

Abstract: A database of global wetland validation samples (GWVS) is the foundation for wetland mapping on a global scale. In this work, a database of GWVS was created based on 25 “wetland-related” keyword searches of a total of 3,506 full-text documents downloaded from the Web of Science. Eight hundred and three samples from a total of 68 countries and 141 protected areas were recorded by the GWVS, including samples of marine/coastal wetlands, inland wetlands and human-made wetlands, at ratios of 53 %, 41 % and 6 %, respectively. The results exhibit spatial distribution among Terrestrial Ecoregions of the World, the World Database on Protected Areas and the Database of Global Administrative Areas. Within most of the biomes, protected areas and countries examined, the very low concentration of samples requires more attention in the future. The greatest concentration of samples within a single biome is found in the tropical and subtropical moist broadleaf forest biome, accounting for 27 % of the total samples, while no sample is found in the biome of tropical and subtropical coniferous woodland. Greater efforts are expected to be made to record samples in Oceania, Central Europe, Northern Europe, Northern Africa, Central Africa, Central America, the Caribbean, and midwestern South America. Our data show that it is feasible to map global wetlands using Landsat TM/ETM+ at 30-m resolution. The continued improvement of the GWVS sharing platform should be reinforced in the future, making a strong contribution to global wetland mapping and monitoring.

Keywords: Africa, Attention, Biome, Central America, Central Europe, China, Concentration, Contribution, Data, Database, Definition, Distribution, Documents, Earth Observation, Europe, Forest, From, Global, Gwvs, Improvement, Mapping, Monitoring, Northern Europe, Project, Protected Area, Record, Remote Sensing, Scale, Science, South America, Spatial Distribution, Tropical, Validation, Web, Web Of Science, Wetland, Wetland Mapping, Wetland Monitoring, Wetlands, Work

# Title: Science China-Physics Mechanics & Astronomy

Full Journal Title: [Science China-Physics Mechanics & Astronomy](http://www.springerlink.com/content/v26522712677/)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 1674-7348

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Zheng, Y.N., Yuan, J.P., Pan, Y.T. and Zhao, X.Y. (2011), Scientometric analysis of physics (1979-2008): A quantitative description of scientific impact. *Science China-Physics Mechanics & Astronomy*, **54** (1), 176-182.

Full Text: [2011\Sci Chi-Phy Mec Ast54, 176.pdf](2011/Sci%20Chi-Phy%20Mec%20Ast54,%20176.pdf)

Abstract: Citations are a way to show how researchers build on existing research to further evolve research. The citation count is an indication of the influence of specific articles. The importance of citations means that it is valuable to analyze the articles that are cited the most. This research investigates highly-cited articles in physics (1979-2008) using citation data from the ISI Web of Science. In this study, 1544205 articles were examined. The objective of the analysis was to identify and list the highly-productive countries, institutions, authors, and fields in physics. Based on the analysis, it was found that the USA is the world leader in physics, and Japan has maintained the highest growth rate in physics research since 1990. Furthermore, the research focus at Bell Labs and IBM has played important roles in physics. A striking fact is that the five most active authors are all Japanese, but the five most active institutions are all in the USA. In fact, only the University of Tokyo is ranked among the top 11 institutions, and only American authors have single-author articles ranked among the top 19 articles. The highest-impact articles are distributed across 25 subjects categories. Physics, Multidisciplinary has 424 articles, and is ranked at No. 1 in total articles; followed by Physics, Condensed Matter. The study can provide science policy makers with a picture of innovation capability in this field and help them make better decisions. Hopefully, this study will stimulate useful discussion among scientists and research managers about future research directions.

Keywords: Analysis, Authors, Citation, Citations, Cited Articles, Data, Distributed, Domestic Articles, Field, Growth, Growth Rate, High-Impact Articles, Impact, Indication, Innovation, Institutions, International Articles, ISI, ISI Web of Science, Japan, Policy, Research, Research Output, Science, Science Policy, Scientific Impact, Social Network Analysis, USA, Web of Science, World

# Title: Science Communication

Full Journal Title: [Science Communication](http://uk1.csa.com/ids70/browse_toc.php?SID=727f8201daa75ffa83e6c6d1180e303b&db=sagecom-set-c&docid=sage-set-c%2FSCX_2005_27_2indx_cln3.wais+0+sagecom-set-c); [Science Communication](http://scx.sagepub.com/)

ISO Abbreviated Title: Sci. Commun.

JCR Abbreviated Title: Sci Commun

ISSN: 1075-5470

Issues/Year: 4

Journal Country/Territory: United States

Language: English

Publisher: Sage Publications Inc

Publisher Address: 2455 Teller Rd, ThoUSAnd Oaks, CA 91320

Subject Categories:

Communication: Impact Factor 0.476, /(2002) SSCI

? Evans, W. (2001), Mapping mainstream and fringe medicine on the Internet. *Science Communication*, **22** (3), 292-299.

Full Text: [2001\Sci Com22, 292.pdf](2001/Sci%20Com22,%20292.pdf)

Abstract: This report describes a system that monitors Internet discussion groups and Web sires for evidence that public interest bt herbal remedies is outpacing the available scientific evidence regarding herbal remedies. Using content analysis and bibliometric techniques, this system can identify emerging unorthodox practices and beliefs related to health and medicine. In addition. this System can map the diffusion of health-related claims across Internet communities.

Keywords: Information

# Title: Science of Computer Programming

Full Journal Title: Science of Computer Programming

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Vasilescu, B., Serebrenik, A., Mens, T., van den Brand, M.G.J. and Pek, E. (2014), How healthy are software engineering conferences? *Science of Computer Programming,* **89**, 251-272.

Full Text: [2014\Sci Com Pro89, 251.pdf](2014/Sci%20Com%20Pro89,%20251.pdf)

Abstract: In this article we study the health of software engineering conferences by means of a suite of metrics created for this purpose. The metrics measure stability of the community, openness to new authors, introversion, representativeness of the PC with respect to the authors’ community, availability of PC candidates, and scientific prestige. Using this metrics suite, we assess the health of 11 software engineering conferences over a period of more than 10 years. In general, our findings suggest that software engineering conferences are healthy, but we observe important differences between conferences with a wide scope and those with a more narrow scope. We also find that depending on the chosen health metric, some conferences perform better than others. This knowledge may be used by prospective authors to decide in which conferences to publish, and by conference steering committees or PC chairs to assess their selection process. (C) 2014 Elsevier B.V. All rights reserved.

Keywords: Article, Authors, Availability, Community, Computer-Science, Conferences, Empirical Research, Engineering, General, Health, Impact, Knowledge, Measure, Metrics, Multiple Comparisons, Prospective, Purpose, Quality, Repositories, Rights, Scientometrics, Scope, Selection, Software, Software Engineering, Stability, Systems, Time

# Title: Science and Engineering Ethics

Full Journal Title: [Science and Engineering Ethics](http://www.springerlink.com/content/120482/)

ISO Abbrev. Title: Sci. Eng. Ethics

JCR Abbrev. Title: Sci Eng Ethics

ISSN: 1353-3452

Issues/Year: 4

Language: English

Journal Country/Territory: Netherlands

Publisher: Springer

Publisher Address: Van Godewijckstraat 30, 3311 GZ Dordrecht, Netherlands

Subject Categories:

Engineering, Multidisciplinary: Impact Factor 0.563, 41/68 (2008)

History & Philosophy of Science: Impact Factor 0.563, 14/41 (2008)

Multidisciplinary Sciences: Impact Factor 0.563, 25/42 (2008)

? Thomsen, M. and Resnik, D. (1995), The effectiveness of the erratum in avoiding error propagation in physics. *Science and Engineering Ethics*, **1** (3), 231-240.

Full Text: [1995\Sci Eng Eth1, 231.pdf](1995/Sci%20Eng%20Eth1,%20231.pdf)

Abstract: the propagation of errors in physics research is studied, with particular attention being paid to the effectiveness of the erratum in avoiding error propagation. We study the citation history of 17 physics papers which have significant errata associated with them. It would appear that the existence of an erratum does not significantly decrease the frequency with which a paper is cited and in most cases the erratum is not cited along with the original paper. The authors comment on implications for the responsibilities of authors.

Krimsky, S. and Rothenberg, L.S. (2001), Conflict of interest policies in science and medical journals: Editorial practices and author disclosures. *Science and Engineering Ethics*, **7** (2), 205-218.

Full Text: [2001\Sci Eng Eth7, 205.pdf](2001/Sci%20Eng%20Eth7,%20205.pdf)

Abstract: This study examines the extent to which scientific and biomedical journals have adopted conflict of interest (COI) policies for authors, and whether the adoption and content of such policies leads to the publishing of authors’ financial interest disclosure statements by such journals. In particular, it reports the results of a survey of journal editors about their practices regarding COI disclosures. About 16 percent of 1396 highly ranked scientific and biomedical journals had COI policies in effect during 1997. Less than 1 percent of the articles published during that year in the journals with COI policies contained any disclosures of author personal financial interests while nearly 66 percent of the journals had zero disclosures of author personal financial interests. Nearly three fourths of journal editors surveyed usually publish author disclosure statements suggesting that low rates of personal financial disclosures are either a result of low rates of author financial interest in the subject matter of their publications or poor compliance by authors to the journals’ COI policies.

Keywords: Conflict of Interests, Financial Disclosure, Scientists, Scientific Literature, Editors

? Bird, S.J. (2002), Self-plagiarism and dual and redundant publications: What is the problem? Commentary on ‘seven ways to plagiarize: Handling real allegations of research misconduct’. *Science and Engineering Ethics*, **8** (4), 543-544.

Full Text: [2002\Sci Eng Eth8, 543.pdf](2002/Sci%20Eng%20Eth8,%20543.pdf)

Keywords: Dual Publication, Publications, Research, Self-Plagiarism

? Marušić, M., Božikov, J., Katavić, V., Hren, D., Kljaković-Gašpić, M. and Marušić, A. (2004), Authorship in a small medical journal: A study of contributorship statements by corresponding authors. *Science and Engineering Ethics*, **10** (3), 493-502.

Full Text: [2004\Sci Eng Eth10, 493.pdf](2004/Sci%20Eng%20Eth10,%20493.pdf)

Abstract: the authorship criteria of the International Committee of Medical Journal Editors (ICMJE) are widely accepted in biomedical journals, but many studies in large and prestigious journals show that a considerable proportion of authors do not fulfill these criteria. We investigated authorship. contributions in a small medical journal outside the scientific mainstream, to see if poor adherence to authorship criteria is common in biomedical journals. We analyzed statements on research contribution, as checked by the corresponding author, for individual authors of 114 research articles, representing 475 authors, submitted to the Croatian Medical Journal (CMJ) from 1999 to 2000. Only 40% of authors fulfilled the ICMJE authorship criteria. The authors listed first on the by-line were more likely to fulfill the authorship criteria than all other authors on the by-line. The percentage of authors fulfilling the ICMJE criteria of authorship decreased with the increase in the number of authors listed on the by-line. These results indicate that poor adherence to ICMJE authorship criteria is poor across biomedical journals, regardless of the size of the scientific community. Authorship and contributorship in biomedical journals, as well as editorial ethical responsibilities towards authorship criteria need critical redefinition and education of both editors and authors.

Keywords: Author, Authorship, Contribution, Credit, Criteria, Ethics, Journals, Order, Publications, Research, Research Articles, Researcher Contributions, Science

? Sheskin, T.J. (2006), An analytic hierarchy process model to apportion co-author responsibility. *Science and Engineering Ethics*, **12** (3), 555-565.

Full Text: [2006\Sci Eng Eth12, 555.pdf](2006/Sci%20Eng%20Eth12,%20555.pdf)

Abstract: the analytic hierarchy process (AHP) can be used to determine coauthor responsibility for a scientific paper describing collaborative research. The objective is to deter scientific fraud by holding co-authors accountable for their individual contributions. A hiearchical model of the research presented in a paper can be created by dividing it into primary and secondary elements. The co-authors then determine the contributions of the primary and secondary elements to the work as a whole as well as their own individual contributions. They can use the results to determine authorship order.

Keywords: Analytic, Authorship, Co-Author, Fraud, Hierarchy, Model, Primary, Process, Research, Responsibility

? Neale, A.V., Northrup, J., Dailey, R., Marks, E. and Abrams, J. (2007), Correction and use of biomedical literature affected by scientific misconduct. *Science and Engineering Ethics*, **13** (1), 5-24.

Full Text: [2007\Sci Eng Eth13, 5.pdf](2007/Sci%20Eng%20Eth13,%205.pdf)

Abstract: the purpose of this study was to identify and describe published research articles that were named in official findings of scientific misconduct and to investigate compliance with the administrative actions contained in these reports for corrections and retractions, as represented in PubMed. Between 1993 and 2001, 102 articles were named in either the NIH Guide for Grants and Contracts (“Findings of Scientific Misconduct”) or the U. S. Office of Research Integrity annual reports as needing retraction or correction. In 2002, 98 of the 102 articles were indexed in PubMed. Eighty-five of these 98 articles had indexed corrections: 47 were retracted; 26 had an erratum; 12 had a correction described in the “comment” field. Thirteen had no correction, but 10 were linked to the NIH Guide “Findings of Scientific Misconduct”, leaving only 3 articles with no indication of any sort of problem. As of May 2005, there were 5,393 citations to the 102 articles, with a median of 26 citations per article (range 0-592). Researchers should be alert to “Comments” linked to the NIHGuide as these are open access, and the “Findings of Scientific Misconduct” reports are often more informative than the statements about the retraction or correction found in the journals.

Keywords: Access, Acute Myeloid-Leukemia, Bibliometric Analysis, Biomedical, Biomedical Publishing, Citations, Field, Hamster Gustatory Cortex, Indication, Journals, Literature, Migration-Inhibitory Factor, Myosin Heavy-Chain, Open Access, Protein Kinase-C, Publication Ethics, Pubmed, Rat Optic-Nerve, Research, Retracted Article. See, Retraction of Publication, Scientific Misconduct, Sodium-Channels, Status Group Members, Suppressor T-Cells

? Golubic, R., Rudes, M., Kovacic, N., Marusic, M. and Marusic, A. (2008), Calculating impact factor: How bibliographical classification of journal items affects the impact factor of large and small journals. *Science and Engineering Ethics*, **14** (1), 41-49.

Full Text: [2008\Sci Eng Eth14, 41.pdf](2008/Sci%20Eng%20Eth14,%2041.pdf)

Abstract: As bibliographical classification of published journal items affects the denominator in this equation, we investigated how the numerator and denominator of the impact factor (IF) equation were generated for representative journals in two categories of the Journal Citation Reports (JCR). We performed a full text search of the 1st-ranked journal in 2004 JCR category “Medicine, General and Internal” (New England Journal of Medicine, NEJM, IF = 38.570) and 61st-ranked journal (Croatian Medical Journal, CMJ, IF = 0.690), 1st-ranked journal in category “Multidisciplinary Sciences” (Nature, IF = 32.182) and journal with a relative rank of CMJ (Anais da Academia Brasileira de Ciencias, AABC, IF = 0.435). Large journals published more items categorized by Web of Science (WoS) as non-research items (editorial material, letters, news, book reviews, bibliographical items, or corrections): 63% out of total 5,193 items in Nature and 81% out of 3,540 items in NEJM, compared with 31% out of 283 items in CMJ and only 2 (2%) out of 126 items in AABC. Some items classified by WoS as non-original contained original research data (9.5% in Nature, 7.2% in NEJM, 13.7% in CMJ and none in AABC). These items received a significant number of citations: 6.9% of total citations in Nature, 14.7% in NEJM and 18.5% in CMJ. IF decreased for all journals when only items presenting original research and citations to them were used for IF calculation. Regardless of the journal’s size or discipline, publication of non-original research and its classification by the bibliographical database have an effect on both numerator and denominator of the IF equation.

Keywords: Journal, Impact Factor, Bibliographical Database, Indexing, Science, Quality

? Foo, J.Y.A. (2009), A study on journal self-citations and intra-citing within the subject category of multidisciplinary sciences. *Science and Engineering Ethics*, **15** (4), 491-501.

Full Text: [2009\Sci Eng Eth15, 491.pdf](2009/Sci%20Eng%20Eth15,%20491.pdf)

Abstract: for academic research outcomes, there is an increasing emphasis on the bibliometric scorings like the journal impact factor and citations when the assessment of the scientific merits of research or researchers is required. Currently, no known study has been conducted to explore the bibliographical trends of the subject category of multidisciplinary sciences as indexed by the annual Journal Citation Reports of the Thomson Scientific. The effect of journal self-citations and intra-citing within a discipline to the bibliometric data computation can be confounding. In this study, six journals were selected from the multidisciplinary sciences subject category where the trend of self-citations and intra-citing were analysed. These journals were chosen as they published more than 450 citable articles in the year 2007 and had available bibliometric data for a 10-year period. The results showed that self-citations rose as much as +23.98% while intra-citing declined up to -5.80% over the observed period. The retrospective impacts and influences of these observations were also discussed in this study.

Keywords: Assessment, Bibliographical Database, Bibliometric Data, Citations, Classification, Impact, Impact-Factor, Indexing, Journal Impact Factor, Multidisciplinary, Publication, Research, Science Metrics, Self-Citations, Thomson Scientific

? Neale, A.V., Dailey, R.K. and Abrams, J. (2009), Analysis of citations to biomedical articles affected by scientific misconduct. *Science and Engineering Ethics*, **16** (2), 251-261.

Full Text: [2010\Sci Eng Eth16, 251.pdf](2010/Sci%20Eng%20Eth16,%20251.pdf)

Abstract: We describe the ongoing citations to biomedical articles affected by scientific misconduct, and characterize the papers that cite these affected articles. The citations to 102 articles named in official findings of scientific misconduct during the period of 1993 and 2001 were identified through the Institute for Scientific Information Web of Science database. Using a stratified random sampling strategy, we performed a content analysis of 603 of the 5,393 citing papers to identify indications of awareness that the cited articles affected by scientific misconduct had validity issues, and to examine how the citing papers referred to the affected articles. Fewer than 5% of citing papers indicated any awareness that the cited article was retracted or named in a finding of misconduct. We also tested the hypothesis that affected articles would have fewer citations than a comparison sample; this was not supported. Most articles affected by misconduct were published in basic science journals, and we found little cause for concern that such articles may have affected clinical equipoise or clinical care.

Keywords: Bibliometric Analysis, Journalology, Journal Citations, Quantitative Content Analysis, Retraction, Scientific Misconduct, Retraction, Mistakes, Medicine, Impact

? Foo, J.Y.A. (2011), Impact of excessive journal self-citations: A case study on the *Folia Phoniatrica et Logopaedica* journal. *Science and Engineering Ethics*, **17** (1), 65-73.

Full Text: [2011\Sci Eng Eth17, 65.pdf](2011/Sci%20Eng%20Eth17,%2065.pdf)

Abstract: There is an increasing trend towards assessing the scientific performance of researchers and institutions of higher learning in the form of journal publications and the associated citations. Currently, the journal impact factor (JIF) value is the most widely used measure for any academic contents. However, there are growing concerns for the unethical practices adopted by journal editors to manipulate the JIF computations. Recently, a Swiss journal, Folia Phoniatrica et Logopaedica which has a JIF value of 0.655 in the year 2006 registers a remarkable JIF increment (of 119%) to 1.439 in the year 2007. It is believed that the journal can achieve such a prominent JIF improvement by publishing a single editorial article that self-cited 66 of its own articles published either in the year 2005 or 2006. The journal has been revoked of any JIF value in the following year of 2008. Thus, it is interesting to review the possible alternative bibliographical trend for the journal should the self-cite event has been avoided, the circumstances leading to the decision by the editor to publish such an article and the possible ethical implications or lessons that can be derived from this incident.

Keywords: Alternative, Assessing, Association, Authors, Bias, Bibliographical Database, Bibliometric Data, Citations, Decision, Editors, Ethical, Impact, Impact Factor, Improvement, Indexing, Institutions, Journal, Journal Editors, Journal Impact, Journal Impact Factor, Learning, Mar, Measure, Peer-Reviewed Journals, Performance, Practices, Publication, Publications, Publishing, Quality, Retrospective Analysis, Review, Science, Scientific Performance, Trend, Trends, Value

? Foo, J.Y.A. (2011), A retrospective analysis of the trend of retracted publications in the field of biomedical and life sciences. *Science and Engineering Ethics*, **17** (3), 459-468.

Full Text: [2011\Sci Eng Eth17, 459.pdf](2011/Sci%20Eng%20Eth17,%20459.pdf)

Abstract: Among the many forms of research misconduct, publishing fraudulent data is considered to be serious where the confidence and validity of the research is detrimentally undermined. In this study, the trend of 303 retracted publications from 44 authors (with more than three retracted publications each) was analysed. The results showed that only 6.60% of the retracted publications were single-authored and the discovery of fraudulent publications had reduced from 52.24 months (those published before the year 2000) to 33.23 months (those published on the year 2000 and onwards). It appears that with the widely accessible public databases like PubMed, fraudulent publications can be detected more easily. The different approaches adopted by authors who had previous publications retracted are also discussed herein.

Keywords: Research Misconduct, Data Falsification, Journal Publications, Fraudulent Publications, Integrity, Responsible Conduct, Impact Factors, Article. See, pg 335, Fraud

? Smith, E. and Williams-Jones, B. (2012), Authorship and responsibility in health sciences research: A review of procedures for fairly allocating authorship in multi-author studies. *Science and Engineering Ethics*, **18** (2), 199-212.

Full Text: [2012\Sci Eng Eth18, 199.pdf](2012/Sci%20Eng%20Eth18,%20199.pdf)

Abstract: While there has been significant discussion in the health sciences and ethics literatures about problems associated with publication practices (e.g., ghost- and gift-authorship, conflicts of interest), there has been relatively little practical guidance developed to help researchers determine how they should fairly allocate credit for multi-authored publications. Fair allocation of credit requires that participating authors be acknowledged for their contribution and responsibilities, but it is not obvious what contributions should warrant authorship, nor who should be responsible for the quality and content of the scientific research findings presented in a publication. In this paper, we review arguments presented in the ethics and health science literatures, and the policies or guidelines proposed by learned societies and journals, in order to explore the link between author contribution and responsibility in multi-author multidisciplinary health science publications. We then critically examine the various procedures used in the field to help researchers fairly allocate authorship.

Keywords: Allocation, Allocation of Authorship, Authors, Authorship, Conflicts of Interest, Credit, Credit, Ethics, Field, Gift Authorship, Guidance, Guidelines, Health, Health Sciences, Issues, Journals, Multi-Author Studies, Multidisciplinary, Policies, Practices, Procedures, Publication, Publication Ethics, Publication Ethics, Publications, Quality, Research, Responsibilities, Responsibility, Review, Science, Sciences, Scientific Research, Tools, Views

# Title: Science Editing in Biomedicine and Humanities

? Masic, I. (2013), *Science Editing in Biomedicine and Humanities*. Avicena d.o.o. Sarajevo, Avicena.

Full Text: [2013\Masic, I.pdf](2013/Masic,%20I.pdf)

# Title: Science Evaluation and Its Management

Full Journal Title: Science Evaluation and Its Management

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 1387-6708

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Rauch, H. (1999), Performance indicators for science evaluation. *Science Evaluation and Its Management*, **28**, 17-21.

Abstract: Various bibliometric methods exist for the evaluation of scientific work. They become more important since the process of publishing becomes easier and publishing becomes an important business factor as well. Impact factors and indicators are useful tools for comparisons within distinct disciplines. The time-dependence of the indicators can be a useful tool for the identification of priority fields in science. Comparisons between groups, institutions, and national activities should be restricted to distinct disciplines, and often to sub-disciplines. When these limits are transcended normalising factors have to be introduced. Bibliometric analysis requires highly experienced people. Self-citations and citation of pseudo-scientific work have to be excluded. In the future, first-authorship has to be distinguished from others, and alphabetically ordered authors from others, as well. Measures to be taken after science evaluation should be agreed in advance and positive stimulus should be given. The author’s own experiences with evaluation processes in Austria and the Czech Republic will be discussed.

Keywords: Analysis, Authors, Bibliometric, Bibliometric Analysis, Bibliometric Methods, Citation, Evaluation, First-Authorship, Future, Impact, Impact Factors, Indicators, Methods, Publishing, Science, Science Evaluation, Tools

? Braun, T. and Schubert, A. (1999), A bird’s eye view mapping and landscaping world science. *Science Evaluation and Its Management*, **28**, 22-30.

Abstract: Mapping is defined in dictionaries as the “science of drawing on maps and charts or otherwise representing the features of a region,” or, in a broader sense, the “study or description of a region, system or entity showing specific relations of component parts as to shape, size, position, etc.” In proportional maps, the relative position of the entities concerned (viz., countries) is more or less “natural”, while their size (area) is proportional to a certain scientometric extension (publication output, citation rate, etc.). Thereby, the relative weight of the countries is easily visualised and, assuming an implicit knowledge of the “natural” proportions, significant deviations can readily be pinpointed. By complementing multidimensional maps with proper shading or colouring (or both), multidimensional representations of scientometric indicators become possible.

Keywords: Citation, Countries, Indicators, Knowledge, Mapping, Publication, Publication Output, Science, Scientometric Indicators, Size, System

? Koutecky, J. (1999), Dialogue between scientists and evaluators as a means to properly choose and assess research directions. *Science Evaluation and Its Management*, **28**, 79-82.

Abstract: Evaluation is an important and powerful means to improve the quality of the scientific work. The chief part of the evaluation procedure should involve direct dialogue between scientists being evaluated and experts evaluating them. To this end, the experts must have good written reports at their disposal. The scientometric data must not only be considered, but very carefully so. The character of the internal and external valuation differs widely. The virtues of periodic evaluation activities are reviewed in thus paper. The only way maintain to a high level evaluation of the scientific process is to follow the peer review principle. What cannot be tolerated under any circumstances are bureaucratic decisions about the quality of scientific work.

Keywords: Evaluation, Peer Review, Peer-Review, Quality, Research

? Deliwe, M. (1999), Towards establishing indicators to evaluate performance within systems of innovation. *Science Evaluation and Its Management*, **28**, 103-113.

Abstract: A number of highly accurate quantitative indicators exist to measure the performance of innovative systems. These measures include bibliometrics, scientometrics and patent statistics. They are often supplemented by other sophisticated statistical and mathematical measures, often closely aligned to econometrics. Other techniques include input-process, output-analysis. There is little dispute that these techniques are quite useful. This paper argues that, while these techniques are quite useful, these measures have some limitations that flow, ironically, from their successes. These factors are often matters of equity and, or areas of market failure. This paper argues for an integrated system of indicators that will reflect the complexity of an innovation system and seek to uphold its ends: the improvement of the human conditions in utilitarian terms. This could be achieved if the indicators act as a comprehensive information system anchored on vital elements of both the innovation systems and utilitarian principles. These elements are identified as Equity, the Economy, Human Development, Indicators and Environmental Sustainability. The challenge will be to integrate reports from these research projects according to the needs of the inquirer at a given time. These indicators have the advantage of being problem-oriented and of addressing issues that are crucial to policy makers. They are ideal for indicating trends and tracing the impact of an innovation system in given places at given times, and also to enable contrast and comparisons to be made.

Keywords: Bibliometrics, Impact, Indicators, Innovation, Innovation System, Patent, Research, Research Projects, Scientometrics, Statistics, System, Trends

? Van Raan, A.F.J. (1999), Evaluation of performance and trends in basic and applied research by advanced bibliometric methods: A science policy instrument for nations with an economy in transition. *Science Evaluation and Its Management*, **28**, 227-245.

Abstract: This paper(1) presents an overview of advanced bibliometric methods for (1) assessment of strengths and weaknesses in research performance, and for (2) monitoring scientific developments. In the first application, we focus on the detailed analysis of research performance in an international (e.g., world-wide, European) comparative perspective. This type of analysis can be applied to different organisational levels, e.g., research groups, universities, government institutes, companies, research organisations, and countries. We demonstrate that our recently developed indicators are very informative. They are, particularly at the level of research groups, university departments and institutes, an indispensable element next to peer review in research evaluation procedures. At the national or, for instance, European level, bibliometric indicators are the building blocks of “S&T Observatories” developments. They provide insight into the scientific position of countries in terms of influence and specialisations. In the second application, monitoring of scientific (basic and applied) developments, recent advances in bibliometric mapping techniques are promising. They are unique instruments to discover patterns of scientific communication, processes of knowledge dissemination, and structural dynamics of scientific developments. These mapping methods also enable us to specifically focus on countries with an economy and an S&T system “in transition”. We discuss this “bibliometric cartography” briefly and indicate its potential for unravelling multidisciplinary developments and interfaces between science and technology. This is important, as we know that multidisciplinary cross-roads of basic and applied scientific fields are often the loci of discovery and technological innovation. We present recent, practical examples. Advanced bibliometric methods have now come to a stage of providing excitement, instead of “just statistics”. They become, in fact, next to their intrinsic values for the study of science and technology, more and more an important branch of information technology.

Keywords: Advances, Analysis, Application, Assessment, Bibliometric, Bibliometric Indicators, Bibliometric Mapping, Bibliometric Methods, Building, Communication, Discovery, Dynamics, Economy, Evaluation, First, Indicators, Influence, Information, Information Technology, Innovation, Insight, Interfaces, International, Knowledge, Mapping, Methods, Monitoring, Multidisciplinary, National, Nations, Peer, Peer Review, Peer-Review, Performance, Policy, Potential, Procedures, Research, Research Evaluation, Research Performance, Review, Science, Science and Technology, Science Policy, Scientific Communication, Techniques, Technological Innovation, Technology, Transition, Trends, Universities, University, Values

? Gomez-Caridad, I. (1999), Bibliometric indicators for research evaluation: Inter-field differences. *Science Evaluation and Its Management*, **28**, 256-265.

Abstract: Bibliometric indicators used to quantify scientific performance and impact at the macro-level are usually obtained from international multidisciplinary databases. Their adequacy varies with the country analysed, the field of science and the publication habits of scientists, as the vehicles used to diffuse research results vary from experimental basic sciences to applied sciences and engineering and to social sciences and humanities. A validation at the meso-level is presented, studying the activity of the Spanish Research Council through its Annual Reports and how it is reflected in international databases. The use of specific and multiple performance indicators adapted to each area is suggested.

Keywords: Bibliometric, Bibliometric Indicators, Databases, Evaluation, Field, Humanities, Impact, Indicators, Journals, Performance Indicators, Publication, Research, Research Collaboration, Research Evaluation, Research Results, Science, Sciences, Scientific Performance, Social Sciences, Spanish

# Title: Science Focus

Full Journal Title: Science Focus

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

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Full Text: [2006\Sci Foc1, 8.pdf](2006/Sci%20Foc1,%208.pdf)

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Full Text: [2006\Sci Foc1, 8.pdf](2006/Sci%20Foc1,%208.pdf)

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Full Text: [2006\Sci Foc1, 10.pdf](2006/Sci%20Foc1,%2010.pdf)

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Full Text: [2007\Sci Foc2, 11.pdf](2007/Sci%20Foc2,%2011.pdf)

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Full Text: [2007\Sci Foc2, 1.pdf](2007/Sci%20Foc2,%201.pdf)

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Full Text: [2008\Sci Foc3, 60.pdf](2008/Sci%20Foc3,%2060.pdf)

? King, C. (2009), 谁是能源研究的引领者？*Science Focus*, **4** (1), 54-57.

Full Text: [2009\Sci Foc4, 54.pdf](2009/Sci%20Foc4,%2054.pdf)

# Title: Science Indicators for Developing Countries

Full Journal Title: Science Indicators for Developing Countries

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Schubert, A. and Braun, T. (1992), 3 Scientometric studies on developing countries as a tribute to Moravcsik, Michael. *Science Indicators for Developing Countries*, 49-64.

Keywords: Scientometric, Tribute

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Keywords: Bibliometric, Research

? Krauskopf, M. (1992), Scientometric indicators as a means to assess the performance of state supported universities in developing countries - the Chilean case. *Science Indicators for Developing Countries*, 209-224.

Keywords: Scientometric, Universities

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Keywords: Bibliometric, Research, Research Output

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Keywords: Bibliometrics, Science

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Keywords: Bibliometric, Bibliometric Analysis, Science

# Title: Science & Justice

Full Journal Title: Science & Justice

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Jones, A.W. (2005), Which articles and which topics in the forensic sciences are most highly cited? *Science & Justice*, **45** (4), 175-182.

Full Text: [2005\Sci Jus45, 175.pdf](2005/Sci%20Jus45,%20175.pdf)

Abstract: Forensic science is a multidisciplinary field, which covers many branches of the pure, the applied and the biomedical sciences. Writing-up and publishing research findings helps to enhance the reputation of the investigators and the laboratories where the work was done. The number of times an article is cited in the reference lists of other articles is generally accepted as a mark of distinction. Indeed, citation analysis has become widely used in research assessment of individual scientists, university departments and entire nations. This article concerns the most highly cited papers published in the Journal of Forensic Sciences (JFS) between 1956 and 2005. These were identified with the help of Web-of-Science, which is the on-line version of Science Citation Index, produced by Thomson Institute for Scientific Information (Thomson ISI) with head offices in Philadelphia, USA. This database tracks, among other things, the annual citation records of articles published in several thoUSAnd scientific journals worldwide. Those JFS articles accumulating 50 or more citations were identified and rank-ordered according to the total number of citations. These articles were also evaluated according to the name of first author, the subject category of the article, the country of origin and the pattern of co-authorship. This search strategy located 46 articles cited between 50 and 292 times since they first appeared in print. The most highly cited paper by far was by Kasai, Nakamura and White (USA and Japan) concerning DNA profiling and the application of the polymerase chain reaction (PCR) in forensic science. Some forensic scientists appeared as first author on two to three highly cited articles, namely Wetli (USA), Budowle (USA) and Comey (USA). When the highly cited articles were sub-divided into subject category, 15 were identified as coming from toxicology, closely followed by criminalistics (14 articles), pathology (nine articles), physical anthropology (five articles), forensic psychiatry (two articles) and one from odontology. The number of co-authors on these highly cited articles ranged from one to nine and the names of some investigators appeared on as many as four highly cited papers. The vast majority of papers originated from US laboratories although five came from Japan, two each from Sweden and Canada and there was also a joint USA-Swiss collaboration. The Thompson ISI citation databases provide unique tools for tracking citations to individual articles and impact and citation records of scholarly journals.

Keywords: Analysis, Anthropology, Assessment, Authorship, Bibliometrics, Biomedical, Citation, Citation Analysis, Citation Index, Citations, Co-Authorship, Coauthorship, Collaboration, Database, Databases, DNA, Field, Forensic Science, Highly-Cited, Impact, Institute for Scientific Information, ISI, Japan, Journals, Nations, Origin, Papers, PCR, Profiling, Psychiatry, Publications, Publishing, Reference, Research, Research Assessment, Science, Science Citation Index, Sciences, Scientific Information, Scientific Journals, Sweden, Thomson ISI, Tools, Topics, Toxicology, University, US, USA, Web of Science

# Title: Science Progress

Full Journal Title: [Science Progress](http://infotrac.galegroup.com/itw/infomark/0/1/1/purl=rc18_EAIM_0__jn+%22Science+Progress%22?sw_aep=jrycal5)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

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# Title: Science and Public Policy

Full Journal Title: [Science and Public Policy](http://www.ingentaconnect.com/content/beech/spp)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

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Full Text: [2000\Sci Pub Pol27, 23.pdf](2000/Sci%20Pub%20Pol27,%2023.pdf)

Abstract: This paper demonstrates that some conventional indicators used in research evaluation may fail to account for the non-linearity between size of institution and performance. This can result in an over- or under-estimation of the research performance of both large and small institutions and nations. This paper shows that a power law relationship exists between recognition or impact and (a) publishing size of scientific communities within an OECD science system and (b) publishing size of a research community across OECD science systems or institutions in a science system. Also, a power law relationship exists between the amount of various types of collaboration and the publishing size of institutions. A new class of scale-independent indicators is developed to overcome the inequity produced by some nonlinear characteristics commonly measured when evaluating research performance.

Notes: UUniversity

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Full Text: [2003\Sci Pub Pol30, 85.pdf](2003/Sci%20Pub%20Pol30,%2085.pdf)

Abstract: Despite increasing interest amongst policy makers and academics, there have been few attempts at gathering systematic data on the nature and extent of research collaborations between universities and industry. This paper uses joint scientific publications as an indicator of such collaborations in the UK over 20 years. It finds that, although there has been a rapid increase in the volume of university–industry collaborations since the 1980s, the biggest increases were before the major policy measures of the mid-1990s. An important factor would appear to be the growing need for firms, especially non-British firms, to collaborate with leading-edge academic research in promising areas of new technology.

? Hessels, L.K., Grin, J. and Smits, R.E.H.M. (2011), The effects of a changing institutional environment on academic research practices: Three cases from agricultural science. *Science and Public Policy*, **38** (7), 555-568.

Full Text: [2011\Sci Pub Pol38, 555.pdf](2011/Sci%20Pub%20Pol38,%20555.pdf)

Abstract: This paper investigates the varying effects of a changing institutional environment on academic research practices in three fields of Dutch animal science. Our analysis shows that the shifts in funding have stimulated interactions with societal stakeholders in fields where this has helped to sustain a basic research agenda. In other fields researchers experience a tension between satisfying the needs of application-oriented funding sources and reaching high scores on evaluations dominated by bibliometric indicators. The paper concludes with the identification of three field characteristics that seem to moderate the effects of institutional changes on academic research practices.

Keywords: Agenda, Analysis, Bibliometric, Bibliometric Indicators, Environment, Funding, Impact, Output, Regimes, Research, Researchers, Science, System

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Full Text: [2011\Sci Pub Pol38, 669.pdf](2011/Sci%20Pub%20Pol38,%20669.pdf)

Abstract: the term ‘national innovation systems’ surfaced for the first time in print during the late 1980s and, in the years that followed, several important contributions on this topic appeared. This paper investigates the role that this new literature plays within innovation studies and the world of science more generally and discusses the sources for its emergence. With the help of expert assessments, the three most important contributions to the ‘national innovation systems’ literature are identified. Then the citations to these works in scholarly journals in the Web of Science are presented and the characteristics of the ‘national innovation systems’ literature, as compared with other areas of research, are analyzed.

Keywords: Citations, Historical-Perspective, Innovation, Journals, Literature, Research, Scholarly Journals, Science, Web of Science

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Full Text: [2013\Sci Pub Pol40, 563.pdf](2013/Sci%20Pub%20Pol40,%20563.pdf)

Abstract: the ability of metrics to represent complex information about research in an accessible format has previously been overlooked in preference to debate about their shortcomings as research evaluation tools. Here, we argue that bibliometrics have the potential to widen scientific participation by allowing non-academic stakeholders to access scientific decision making, thereby increasing the democratisation of science. Government policies from 3 countries (UK, Australia and Spain) are reviewed. Each country outlines a commitment to the democratisation of science for one set of policies whilst ignoring this commitment when developing parallel research evaluation policies. We propose a change in dialogue from whether bibliometrics should be used to how they should be used in future evaluations. Future research policies should take advantage of bibliometrics to foster greater democratisation of research to create more socially-reflexive evaluation systems.

Keywords: Access, Assessments, Australia, Bibliometrics, Commitment, Country, Decision, Decision Making, Decision-Making, Deliberation, Democratisation of Science, Developing, Dialogue, Efficiency, Engagement, Evaluation, Government, Humanities, Information, Journals, Metrics, Netherlands, Participation, Peer Review, Peer-Review, Policies, Potential, Preference, Public, Public Engagement, Reliability, Research, Research Evaluation, Research Quality, Review, Science, Science and Innovation Policy, Social-Sciences, Spain, Stakeholders, Systems, UK

# Title: Science of Science and Management of S. & T.

Full Journal Title: [Science of Science and Management of S. & T.](http://www.ilib2.com/P-QCode~kxxykxjsgl.html)

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JCR Abbreviated Title:

ISSN: 1002-0241

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Subject Categories:

: Impact Factor

? Zhao, L.J. (2005), A literature review of basic research performance evaluation. *Science of Science and Management of S. & T.*, **10**, 44-48.

Full Text: [2005\Sci Sci Man10, 44.pdf](2005/Sci%20Sci%20Man10,%2044.pdf)

Keywords: Basic Research, Performance Evaluation; Indicator System, Peer Review, Bibliometric Analysis, Literature Review

? Xu, Z. (2006), Current situation and development trend of basic science research in Xinjiang based on the analysis of the articles Indexed in SCI-E. *Science of Science and Management of S. & T.*, **4**, 28-38.

Full Text: [2006\Sci Sci Man4, 28.pdf](2006/Sci%20Sci%20Man4,%2028.pdf)

Abstract: Based on the data abstracted from SCI-E database during the period 1997-2005, the paper shows that basic science in Xin jiang has made a good progress, while the scientific writing index is still lower and need to be increased. Xinjiang University and Urumqi is the center of scientific activity respectively in the aspects of institute and location. The distribution of scientific activity in Xinjiang is of obvious difference with other areas and institutes. In addition, international scientific collaborative.

Keywords: SCI-E, Xinjiang, Basic Science, Gray Prediction, Scientometrics

? Chen, L.X., Liang, L.M. and Liu, Z.Y. (2006), Is there Matthew effect in international collaboration of mechanics research? *Science of Science and Management of S. & T.*, **8**, 12-43.

Full Text: [2006\Sci Sci Man8, 12.pdf](2006/Sci%20Sci%20Man8,%2012.pdf)

Abstract: Based on the statistics and analyses of 168689 articles published in SCI source journals in the field of mechanics, this paper explored the relationship between productivity and international scientific collaboration. The investigation indicates that there exists Matthew effect in international collaboration of mechanics research. The less productive countries prefer to collaborate with the more productive countries. The more productive a country is, the higher its first authors’ ratio is. The country with ...

Keywords: International Scientific Collaboration, Mechanics, Matthew Effect, Scientometrics

? Jin, J., Ma, Z. and Liang, Z.P. (2007), An analysis on China-US cooperation in science and technology from the perspective of China-US co-authored papers’ status. *Science of Science and Management of S. & T.*, **5**, 41-47.

Full Text: [2007\Sci Sci Man5, 41.pdf](2007/Sci%20Sci%20Man5,%2041.pdf)

Abstract: the large amount of data concerning China-US co-authored papers in science and technology from the year of 1978 to 2005 have been collected, organized and analized in a thorough way by applying the bibliometric research method. The total scale, ratio and their changes, scientific disciplines, participating agencies and publishing journals of the co-authored papers in the past and the present have been statistically ranked and evaluated as a preliminary study on the performance evaluation of the internation...

Keywords: Science Citation Index (SCI), Co-Authorship, Bibliometrics, International

? Cheng, Y. and Niancai, L.I.U. (2007), Mapping the development of Chinese top universities in recent years based on scientometric indicators. *Science of Science and Management of S. & T.*, **28** (9), 132-138.

Full Text: [2007\Sci Sci Man28, 132.pdf](2007/Sci%20Sci%20Man28,%20132.pdf)

Abstract: This study reviews the changes of 9 Chinese top universities supported by “985 project” during 1997-2005 based on the analysis of a series of scientometric indicators. The following indicators total number of publications indexed by SCIE and SSCI, cumulated impact factor, average expected quality of publications, percentage of publications in top journals, are calculated for each university: number of publications per faculty, and the index of disciplinary balance. Several suggestions are made for Chinese top universities on how to improve research quality, how to better integrate into global academic society and how to facilitate interdisciplinary research.

Keywords: Impact, Research

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Full Text: [2008\Sci Sci Man29, 109.pdf](2008/Sci%20Sci%20Man29,%20109.pdf)

Abstract: Based on the supposing that development of discipline is affected by administrative status through acquiring science and technology resources and development chances, we consider that the number of research production of a school dean’s discipline has a distinct change before and after his election. We chose academic papers of the new-elected deans of 43 management schools in “211 project” universities as research objects, collected and analyzed the papers of the deans’ stair discipline and all the papers of the schools, and tested the percentage of papers of the deans’ stair discipline to all the papers of the schools by paired samples T-test with statistics software of SPSS. We find that the election of the dean has a distinct effect on the number of the papers of his discipline.

Keywords: Research, Software

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Full Text: [2008\Sci Sci Man12, 38.pdf](2008/Sci%20Sci%20Man12,%2038.pdf)

Abstract: To determine the characteristics of scientific productivity of EA study, a bibliometric analysis of 1,320 EArelated papers in SCI from 1996-2005 was performed. The results indicate that EA-related studies have kept a steady increase since 1996, and EA was a popular topic for scientists. Environmental science and engineering ＆ environmental were the major subject categories of EA-related studies in SCI. The distribution of EA-related papers in journals was discrete. International collaboration was enhanced during the period of 1996-2005 on EA study, and obviously international co-authored papers were more visible than single-country papers. Developed countries have taken advantage to produce EA-related papers. There were three impeditive factors holding back the EA-Research: lack of continuity, low visibility and the difficulties they faced. Limitations of this bibliometric analysis are the incompletion of original data and the bias.

Keywords: Bibliometric Evaluation, Environmental Assessment, SCI, IF, CPP

# Title: Science, Technology & Human Values

Continues [Newsletter on Science, Technology, & Human Values](http://www.jstor.org/browse/07382618?frame=noframe&userID=8c700279@ntu.edu.tw/01cc99333c0050195c7e0&dpi=3&config=jstor)

Full Journal Title: [Science, Technology & Human Values](http://www.jstor.org/browse/01622439?config=jstor), [Science, Technology & Human Values](http://www.ingentaconnect.com/content/sage/j239); [Science, Technology & Human Values](http://infotrac.galegroup.com/itw/infomark/1/1/1/purl=rc18_EAIM_0__jn+%22Science%2C+Technology%2C+%26+Human+Values%22?sw_aep=jrycal5)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0162-2439

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Cano, V. (1988), Scientometrics for less developed-countries. *Science, Technology & Human Values*, **13** (1-2), 106-107.

Keywords: Scientometrics

? Glaenzel, W., Schubert, A. and Braun, T. (1988), On the theory and application of scientometric indicators. *Science, Technology & Human Values*, **13** (1-2), 125-126.

Keywords: Scientometric

? Nederhof, A.J. and Zwaan, R.A. (1988), Quality judgments of journals in the humanities and the social-sciences as scientometric indicators - A comparative-study. *Science, Technology & Human Values*, **13** (1-2), 156.

Keywords: Scientometric

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Full Text: [1988\Sci Tec Hum Val13, 349.pdf](1988/Sci%20Tec%20Hum%20Val13,%20349.pdf)

Keywords: Scientometrics

? Coward, H.R. and Franklin, J.J. (1989), Identifying the science-technology interface - matching patent data to a bibliometric model. *Science, Technology & Human Values*, **14** (1), 50-77.

Full Text: [1989\Sci Tec Hum Val14, 50.pdf](1989/Sci%20Tec%20Hum%20Val14,%2050.pdf)

? Hicks, D.M. and Katz, J.S. (1996), Where is science going? *Science, Technology & Human Values*, **21** (4), 379-406.

Full Text: [1996\Sci Tec Hum Val21, 379.pdf](1996/Sci%20Tec%20Hum%20Val21,%20379.pdf)

Abstract: Do researchers produce scientific and technical knowledge differently than they did ten years ago? What will scientific research look like ten years from now? Addressing such questions means looking at science from a dynamic systems perspective. Two recent books about the social system of science, by Ziman and by Gibbons, Limoges, Nowotny, Schwartzman, Scoff and Trow, accept this challenge and argue that the research enterprise is changing. This article uses bibliometric data to examine the extent and nature of changes identified by these authors, taking as an example British research. We use their theoretical frameworks; to investigate five characteristics of research said to be increasingly pervasive-namely, application, interdisciplinarity, networking, internationalization, and concentration of resources. Results indicate that research may be becoming more interdisciplinary and that research is increasingly conducted more in networks, both domestic and international; but the data are more ambiguous regarding application and concentration.

Keywords: Bibliometric, Collaboration, Research, Science

? Mahlck, P. (2001), Mapping gender differences in scientific careers in social and bibliometric space. *Science, Technology & Human Values*, **26** (2), 167-190.

Full Text: [2001\Sci Tec Hum Val26, 167.pdf](2001/Sci%20Tec%20Hum%20Val26,%20167.pdf)

Abstract: Despite a growing interest in gender differences in scientific careers, few studies have focused an the impact of research organization on researchers. This article offers a new approach to this issue by introducing bibliometric maps combined with sociological data and interviews, taking both the research organization and the experiences of the individual researcher into account. The results indicate that gender blares operate at various levels of the research organization and are often imbedded in seemingly gender-neutral processes and practices in the everyday working life of researchers.

Keywords: Bibliometric, Careers, Citations, Gender, Gender Differences, Impact, Impact of Research, Research

? Dalpé, R., Bouchard, L., Houle, A.J. and Bédard, L. (2003), Watching the race to find the breast cancer genes. *Science, Technology & Human Values*, **28** (2), 187-216.

Full Text: [2003\Sci Tec Hum Val28, 187.pdf](2003/Sci%20Tec%20Hum%20Val28,%20187.pdf)

Abstract: This article focuses on a crucial development in genetic research that occurred in the 1990s: the identification of the first two of the genes responsible for hereditary breast and ovarian cancer (*BRCA1* and *BRCA2*). Issues addressed touch on the evolution of the subfield, its potential impact on cancer treatment, and industry involvement. The article follows the activities of the various research groups competing in the race to identify the genes and depicts the frequent conflicts between them. Data are derived chiefly from a bibliometric database. The results show a diversity of research practices. Industrial researchers interacted within far more tightly knit networks than their counterparts working in public organizations. The patenting and commercial exploitation of results led to fierce battles, with one group capturing most of the benefits.

Keywords: Science Policy, University-Industry Relations, Genetics, Brca Genes, Brca2 Mutations, Ovarian-Cancer, Patent, Disease, Risk, Discovery, Science, Dispute, Debate, Women

# Title: Science & Technology Libraries

Full Journal Title: [Science & Technology Libraries](http://www.informaworld.com/smpp/title~content=t792306969~db=jour)

ISO Abbreviated Title:

JCR Abbreviated Title:

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Subject Categories:

: Impact Factor

? Sears, J. (1988), Coverage of conference documents in scientific databases: Viewpoint of Cambridge Scientific Abstracts. *Science & Technology Libraries*, **9** (2), 35-45.

Full Text: [1988\Sci Tec Lib9, 35.pdf](1988/Sci%20Tec%20Lib9,%2035.pdf)

Abstract: An outline is given of the nature and some problems of conference literature; its treatment by two bibliographic databases-published by Cambridge Scientific Abstracts Conference Papers Index (CPI) and Aquatic Sciences and Fisheries Abstracts (ASFA)--is described, giving some bibliometric data on conference documents in these files. The author concludes that a flexible approach to searching for conference documents will improve search results.

Keywords: Approach, Bibliometric, Data, Databases, Literature, Papers, Search, Treatment

? Sutton, E.D. (1993), Sources of information on sensory perception and psychophysics. *Science and Technology Libraries*, **13** (3-4), 71-89.

Full Text: [1993\Sci Tec Lib13, 71.pdf](1993/Sci%20Tec%20Lib13,%2071.pdf)

Keywords: Information, Perception

? Gandhi, S. (2000), Biometrics information: One-stop shopping. *Science & Technology Libraries*, **18** (4), 29-50.

Full Text: [2000\Sci Tec Lib18, 29.pdf](2000/Sci%20Tec%20Lib18,%2029.pdf)

Abstract: the article briefly describes biometry and the latest developments in that field. An outline of descriptors or subject headings used for biometry in the subject authority lists and indexing tools is given. A bibliometric analysis of biometrics literature from leading Online databases is included. The main section of the article contains the titles, links, a short description and contact for about fifty Web sites which may be useful to biometricians and researchers. It also lists important discussion groups and listserves in biometrics. To find an effective Internet tool for biometrics research the author performed exhaustive searches on eight search engines and presents an analytical overview of those results.

Notes: CCountry

Harande, Y.I. (2001), Bibliometric analysis of economic geology literature from Africa 1993-1996. *Science & Technology Libraries*, **20** (4), 45-54.

Full Text: [2001\Sci Tec Lib20, 45.pdf](2001/Sci%20Tec%20Lib20,%2045.pdf)

Abstract: Geological Abstracts (a print database) was used to compile a bibliography of economic geology literature from Africa, for the period 1993-1996. Two hundred and twenty-two items were recorded within the period studied and analyzed using simple statistical methods. The analyses were done according to contributions to the sub-divisions of the economic geology literature. Growth pattern of the field was also taken into consideration as well as which African countries contributed to the literature of economic geology. The findings of the study exhibit that African geological researchers were more active in certain areas of the economic geology literature, especially in the areas of energy sources and metals. All of the African contributions were in the form of research papers. Only six countries-South Africa, Nigeria, Zambia, Egypt, Tunisia, and Ghana-consistently contributed to the field of Economic Geology, one or more publications each year within the period studied.

Keywords: Geology Literature, African Publications, Bibliometric Analysis, Bibliography, Economic Geology, Geology Literature, African Geologists, Researchers, Growth Pattern, Contribution, Research papers

? Morrisey, L.J. (2002), Bibliometric and bibliographic analysis in an era of electronic scholarly communication. *Science & Technology Libraries*, **22** (3-4), 149-160.

Full Text: [2002\Sci Tec Lib22, 149.pdf](2002/Sci%20Tec%20Lib22,%20149.pdf)

Abstract: Bibliometric analysis of citation data is important to scientist and librarian alike. With alternate means of scientific scholarly communication proliferating, it’s important to be able to accurately link publications and their references. This article highlights some of the current problems that arise when doing citation analysis of different kinds of scientific scholarly Communication. A combination of better bibliographic control, interactive systems, and adherence to standardized electronic publishing protocols would improve the accuracy and reliability of the citation data retrieved.

Keywords: Accuracy, Analysis, Authors, Bibliographic Control, Bibliometric, Bibliometric Analysis, Bibliometrics, Citation, Citation Analysis, Communication, Publications, Publishing, References, Reliability, Scholarly Communication

? Kraus, J.R. (2002), Citation patterns of advanced undergraduate students in biology, 2000-2002. *Science and Technology Libraries*, **22** (3-4), 161-179.

Full Text: [2002\Sci Tec Lib22, 161.pdf](2002/Sci%20Tec%20Lib22,%20161.pdf)

Abstract: Thirty-three undergraduate student papers in biology that were presented at an annual symposium of undergraduate research at the University of Denver from 2000 through 2002 were evaluated. There were a total of 770 citations with an average of 23.3 citations per paper. It was determined that 76.2% of the citations came from journal articles, 16.4% came from books or book chapters, 6.4% were to other miscellaneous sources, and only 1.0% were to Web sites. Other findings include the top cited journals, the oldest cited journal articles, the average age and range of books and journals, the types of miscellaneous sources cited, and the stability of the cited Web sites.

? Bremholm, T.L. (2004), Challenges and opportunities for bibliometrics in the electronic environment: the case of the Proceedings of the Oklahoma Academy of Science. *Science and Technology Libraries*, **25** (1-2), 87-107.

Full Text: [2004\Sci Tec Lib25, 87.pdf](2004/Sci%20Tec%20Lib25,%2087.pdf)

Abstract: the digitization of back issues of print journals creates opportunities for bibliometric analysis using the electronic text files. Using readily available software, simple methods, and a little creativity, librarians call extract and manipulate information from database search results and from digitized journals for analysis of publication and citation behavior. The current study describes methods and results from a bibliometric and citation analysis of the electronic Version of the Proceedings of the Oklahoma Academy of Science. This study illustrates the opportunities as well as the challenges for bibilometrics and citation analysis in the electronic environment. As more journals migrate to the digital environment, issues of access, copyright and fair use, online file formats, and idiosyncrasies in the digital files may limit the opportunities for bibliometric analysis. Copyright 2004 by the Haworth Press, Inc. All rights reserved.

# Title: Science Technology & Human Values

Full Journal Title: Science Technology & Human Values

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Chubin, D.E. and Hackett, E.J. (1989), Commentary: On the virtues of self-study. *Science Technology & Human Values*, **14** (1), 96-99.

Full Text: [1989\Sci Tec Hum Val14, 96.pdf](1989/Sci%20Tec%20Hum%20Val14,%2096.pdf)

# Title: Science & Technology Review

Full Journal Title: Science & Technology Review

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? 李娜(2014), 中国高水平综述缘何产量低. *科技导报*, **32** (10), 9.

? 李娜(2014), 中国高水平综述缘何产量低. *Science & Technology Review*, **32** (10), 9.

Full Text: [2014\Sci Tec Rev32, 9.pdf](2014/Sci%20Tec%20Rev32,%209.pdf)

Abstract: 一篇发表在JASIST上、关于SCI扩展版中各国高被引综述文章的统计分析文章表明,中国科学家自1899—2011年发表的高引次综述文章数量偏少,从而引发热议。有专家指出,中国撰写高水平综述文章能力较弱,其背后原因如何、最近20年进展趋势如何、未来是否能有较大改善?本期科技事件为您报道相关问题。

Keywords: 综述；中国科学家；评论文章；武夷山；高水平；统计结果；扩展版；统计分析；产量；澳大利亚

# Title: Science Technology and Society

Full Journal Title: Science Technology and Society

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Gaillard, J. (2010), Measuring research and development in developing countries: Main characteristics and implications for the frascati manual. *Science Technology and Society*, **15** (1), 77-111.

Full Text: [2010\Sci Tec Lib15, 77.pdf](2010/Sci%20Tec%20Lib15,%2077.pdf)

Abstract: This article seeks to present the main characteristics of Research and Development (R&D) in developing countries using mainly available R&D statistics and to draw some implications for the Frascati Manual methodologies and its application. The main characteristics presented include trends and concentrations, relative share of Highly Qualified Skills (HQS) abroad, R&D expenditures, impact factor and the relative importance of international collaboration. R&D statistics in developing countries are still scarce, particularly in Africa. Furthermore, they may not fully explain the characteristics of R&D in developing countries, for example, the dynamics of R&D systems, R&D practices, informal behaviours and contributions, just to mention a few. It is, therefore, argued that beyond indicators, there is a need for complementary surveys to derive, inter alia, descriptors and narratives. In the concluding part, the particular characteristics of R&D in developing countries and the resulting consequences for R&D measurement are discussed, focusing on implications and recommendations, in view of a possible addition and/or future revision of the Frascati Manual.

? Naqvi, S.H. (2014), Polymer science research in India during 1999-2012: A scientometric study based on Science Citation Index-Expanded. *Science Technology and Society*, **19** (1), 95-108.

Full Text: [2014\Sci Tec Lib19, 95.pdf](2014/Sci%20Tec%20Lib19,%2095.pdf)

Abstract: the Scientometric study on Polymer Science Research in India’ based on Science Citation Index-Expanded shows that publication in polymer science by Indian scientists has increased steadily during the period 1999-2012. Total of 25,566 records were retrieved from the SCI for 1999-2012. In terms of world share, India stood at seventh position. India contributed only 4.38 per cent of publications to world output during 1999-2012. The authorship study validates that now-a-days multiple authorship prevails in almost all fields especially science subjects. Therefore, Lotka law when applied in our study does not pass the test. The institutions involved in polymer science research in India are mostly government supported academic institutions. The presence of private research laboratories is negligible. The Indian scientists in polymer science are collaborating with international scientists mostly in terms of joint publications. Out of top 40 journals, there are 34 foreign journals and are mostly from USA and UK. The analysis of subject categories shows that the polymer science is a multi-disciplinary field.

Keywords: Analysis, Authorship, Bibliometric Analysis, Citation, Field, India, Institutions, International, Journals, Law, Lotka, Mar, Multidisciplinary, Polymer, Publication, Publications, Records, Research, SCI, Science, Science Citation Index Expanded, Science Citation Index-Expanded, Science Research, Scientists, Scientometric, UK, USA, Web, World

# Title: Science of the Total Environment

Full Journal Title: [Science of the Total Environment](http://www.sciencedirect.com/science/journal/00489697)

ISO Abbreviated Title: Sci. Total Environ.

JCR Abbreviated Title: Sci Total Environ

ISSN: 0048-9697

Issues/Year: 26

Journal Country Netherlands

Language: Multi-Language

Publisher: Elsevier Science BV

Publisher Address: PO Box 211, 1000 AE Amsterdam, Netherlands

Subject Categories:

Environmental Sciences: Impact Factor 1.126, 40/126 (1999); Impact Factor 1.252, 35/127 (2000); Impact Factor 1.925, 24/134 (2004); Impact Factor 2.224, 22/140 (2005); Impact Factor 2.182, 38/160 (2007); Impact Factor 2.578, 33/163 (2008)

? Hu, J., Ma, Y.W., Zhang, L., Gan, F.X. and Ho, Y.S. (2010), A historical review and bibliometric analysis of research on lead in drinking water field from 1991 to 2007. *Science of the Total Environment*, **408** (7), 1738-1744.

Full Text: [2010\Sci Tot Env408, 1738.pdf](2010/Sci%20Tot%20Env408,%201738.pdf); [2010\Sci Tot Env-Hu1.pdf](2010/Sci%20Tot%20Env-Hu1.pdf)

Abstract: A bibliometric analysis based on Science Citation Index (SCI) published by Institute of Scientific Information (ISI) was carried out to identify the global research related to lead in drinking water field from 1991 to 2007 and to improve the understanding of research trends in the same period. The results from this analysis indicate that there have been an increasing number of annual publications mainly during two periods: from 1992 to 1997 and from 2004 to 2007. United States produced 37% of all pertinent articles followed by India with 8.0% and Canada with 4.8%. Science of the Total Environment published the most articles followed by Journal American Water Works Association and Toxicology. Summary of the most frequently used keywords are also provided. “Cadmium” was the most popular author keyword in the 17 years. Furthermore based on bibliometric results four research aspects were summarized in this paper and the historical research review was also presented. (C) 2009 Elsevier B.V. All rights reserved.

Keywords: Articles, Bibliometric, Bibliometric Analysis, Canada, Citation, Copper Corrosion, Corrosion, Corrosion Control, Developing Rat-Kidney, Distribution-Systems, Drinking Water, Elsevier, Environment, Exposure Increases, Global, Heavy-Metals, Historical Review, India, ISI, Lead, Oxidative Damage, Potable Water, Publications, Research, Research Trend, Research Trends, Review, SCI, Science, Science Citation Index, Scientometrics, Stimulus Properties, Stripping Analysis, Trends, United States, Water, Web of Science

? Huang, I.B., Keisler, J. and Linkov, I. (2011), Multi-criteria decision analysis in environmental sciences: Ten years of applications and trends. *Science of the Total Environment*, **409** (19), 3578-3594.

Full Text: [2011\Sci Tot Env409, 3578.pdf](2011/Sci%20Tot%20Env409,%203578.pdf)

Abstract: Decision-making in environmental projects requires consideration of trade-offs between socio-political, environmental, and economic impacts and is often complicated by various stakeholder views. Multi-criteria decision analysis (MCDA) emerged as a formal methodology to face available technical information and stakeholder values to support decisions in many fields and can be especially valuable in environmental decision making. This study reviews environmental applications of MCDA. Over 300 papers published between 2000 and 2009 reporting MCDA applications in the environmental field were identified through a series of queries in the Web of Science database. The papers were classified by their environmental application area, decision or intervention type. In addition, the papers were also classified by the MCDA methods used in the analysis (analytic hierarchy process, multi-attribute utility theory, and outranking). The results suggest that there is a significant growth in environmental applications of MCDA over the last decade across all environmental application areas. Multiple MCDA tools have been successfully used for environmental applications. Even though the use of the specific methods and tools varies in different application areas and geographic regions, our review of a few papers where several methods were used in parallel with the same problem indicates that recommended course of action does not vary significantly with the method applied. Published by Elsevier B.V.

Keywords: Analysis, Decision Making, Decision-Making, Environmental, Environmental Policy, Environmental Sciences, Face, Growth, Information, Intervention, Methodology, Multi-Criteria Decision Analysis, Papers, Review, Risk Management, Science, Sciences, Theory, Trends, Web of Science, Weights

? Khan, M.A. and Ho, Y.S. (2012), Top-cited articles in environmental sciences: Merits and demerits of citation analysis. *Science of the Total Environment*, **431**, 122-127.

Full Text: [2012\Sci Tot Env431, 122.pdf](2012/Sci%20Tot%20Env431,%20122.pdf)

Abstract: the purpose of this study was to identify the top-cited articles published in environmental science journals listed in journal Citation Reports OCR). The Web of Science database was used to retrieve the top-cited articles having 500 or more total citations from their publication to 2010. The articles were analyzed with regard to institution and country of origin with five indicators including total number of top-cited articles, as well as independent, collaborative, first author, and corresponding author articles. Article life was also investigated for history of impact of articles. Results showed that 88 articles were cited more than 500 times. These articles appeared in 26 different journals, with 28% of all top-cited articles in Environmental Science & Technology, followed by Water Resources Research. The top-cited articles published since 1971 to 2002 were from 17 countries. The USA published the most of the articles and was ranked on top among the five indicators. The U.S. Geological Survey was the most productive institution while, the Brunel University, UK published the most inter-institutionally collaborative and corresponding author articles under environmental science category. (C) 2012 Elsevier B.V. All rights reserved.

Keywords: Analysis, Article Life, Bias, Bibliometric, Bibliometric Analysis, Citation, Citation Analysis, Citations, Country, Country of Origin, Database, Environmental, Environmental Science, First, History, Impact, Indicators, Journal, Journal Citation Report, Journals, Life, Medicine, Model, Ophthalmology, Origin, Publication, Purpose, Research, Research Productivity, Rights, Science, Science Journals, Sciences, Sorption, Trends, UK, University, US, USA, Water, Web of Science

? Zhi, W. and Ji, G.D. (2012), Constructed wetlands, 1991-2011: A review of research development, current trends, and future directions. *Science of the Total Environment*, **441**, 19-27.

Full Text: [2012\Sci Tot Env441, 19.pdf](2012/Sci%20Tot%20Env441,%2019.pdf)

Abstract: This study explores a bibliometric approach to quantitatively evaluate global scientific constructed wetlands research, and statistically assess current trends, and future directions using the Science Citation Index Expanded (SCI-EXPANDED) database from 1991 to 2011. Articles referencing constructed wetlands were analyzed by accessing the following: publication language, output characteristics, publication performance by country and institution, author keywords, title words, and KeyWords Plus. Synthetically analyzing three keyword types, we concluded that the dominant constructed wetlands research hotspots from 1991 to 2011 included water, nutrients, plants, and flow. These four hotspots remained the most dominant research areas throughout our study period, and are predicted to remain the top research emphases in the near future. “Soil” also exhibited a notable increase since 2005, and is likely to become another notable area of research interest in the future. “Phytoremediation” and “horizontal” were not identified in 1991-1995, but exhibited marked increases from 136th (0.5%) and 169th (0.7%) in 1996-2000, to 9th (3.8%) and 11th (4.3%) in 2006-2011, respectively. Therefore, given the heightened attention during the last 15 years, these topics are likely to become a primary research focus in upcoming years. (C) 2012 Elsevier B.V. All rights reserved.

Keywords: Approach, Articles, Bibliometric, Bibliometric Analysis, Characteristics, Citation, Constructed, Constructed Wetland, Constructed Wetlands, Country, Current Trend, Database, Development, Diskette, Flow, Future Direction, Global, Language, Metals, Nutrients, Oil-Produced Water, Performance, Plants, Plus, Primary, Publication, Publication Performance, Referencing, Removal, Research, Research Development, Review, Rights, Science, Science Citation Index, Science Citation Index Expanded, Technology, Trends, Waste-Water, Water, Wetlands

? Fu, H.Z., Wang, M.H. and Ho, Y.S. (2013), Mapping of drinking water research: A bibliometric analysis of research output during 1992-2011. *Science of the Total Environment*, **443**, 757-765.

Full Text: [2013\Sci Tot Env443, 757.pdf](2013/Sci%20Tot%20Env443,%20757.pdf); [2012\Sci Tot Env-Fu.pdf](2012/Sci%20Tot%20Env-Fu.pdf)

Abstract: A bibliometric analysis based on the Science Citation Index Expanded from the Web of Science was carried out to provide insights into research activities and tendencies of the global drinking water from 1992 to 2011. Study emphases included performance of publication covering annual outputs, mainstream journals, Web of Science categories, leading countries, institutions, research tendencies and hotspots. The results indicated that annual output of the related scientific articles increased steadily. Water Research, Environmental Science & Technology, and Journal American Water Works Association were the three most common journals in drinking water research. The USA took a leading position out of 168 countries/territories, followed by Japan and Germany. A summary of the most frequently used keywords obtained from words in paper title analysis, author keyword analysis and Key Words Plus analysis provided the clues to discover the current research emphases. The mainstream research related to drinking water was water treatment methods and the related contaminants. Disinfection process and consequent disinfection by-products attracted much attention. Ozonation and chlorination in disinfection, and adsorption were common techniques and are getting popular. Commonly researched drinking water contaminants concerned arsenic, nitrate, fluoride, lead, and cadmium, and pharmaceuticals emerged as the frequently studied contaminants in recent years. Disease caused by contaminants strongly promoted the development of related research. (C) 2012 Elsevier B.V. All rights reserved.

Keywords: Adsorption, Analysis, Aquatic Environment, Arsenic, Arsenic Contamination, Author Keyword, Author Keyword Analysis, Bibliometric, Bibliometric Analysis, Bladder-Cancer Mortality, Cadmium, Citation, Contaminants, Development, Disease, Disinfection, Drinking Water, Environmental, European-Union, Fluoride, Germany, Global, Global Research Trend, Global Trends, Institutions, Japan, Journal, Journals, Keyword, Lead, Mapping, Methods, N-Acetylcysteine, Nitrate, Ozonation, Performance, Pharmaceuticals, Publication, Recent, Research, Research Output, Research Productivity, Research Trends, Rights, Sci-Expanded, Science, Science Citation Index, Science Citation Index Expanded, Science-Citation-Index, Scientometrics, Techniques, Technology, Treatment, USA, Water, Water Treatment, Web of Science

? Dragos, C.M. and Dragos, S.L. (2013), Bibliometric approach of factors affecting scientific productivity in environmental sciences and ecology. *Science of the Total Environment*, **449**, 184-188.

Full Text: [2013\Sci Tot Env449, 184.pdf](2013/Sci%20Tot%20Env449,%20184.pdf)

Abstract: Different academic bibliometric studies have measured the influence of economic, political and linguistic factors in the academic output of countries. Separate analysis in different fields can reveal specific incentive factors. Our study proves that the Environmental Performance Index, computed by Yale University, is highly significant (p<0.01) for the productivity of research and development activities in environmental sciences and ecology. The control variables like education financing, publishing of ISI Thomson domestic journals and the English language are also significant. The methodology uses Ordinary Least Squares multiple regressions with convincing results (R-2=0.752). The relative positions of the 92 countries in the sample are also discussed. We draw up a ranking of the countries’ concern for the environment, considering evenly the scientific productivity and the environment quality. We notice huge differences concerning the number of inhabitants and population income between the countries that dominate the classification and those occupying the last positions. (C) 2013 Elsevier B.V. All rights reserved.

Keywords: Academic Output, Analysis, Approach, Bibliometric, Bibliometric Analysis, Bibliometric Studies, Classification, Control, Degradation, Development, Ecology, Economic, Economic-Growth, Education, Environment, Environmental, Environmental Performance Index (EPI), Field, Financing, Income-Distribution, Inequality, Information, ISI, Journals, Kuznets Curve, Language, Methodology, Multiple Regressions, Performance, Population, Productivity, Publishing, Quality, Ranking, Research, Research and Development, Rights, Sciences, Scientific Productivity, University

? Makris, K.C. and Andra, S.S. (2014), Limited representation of drinking-water contaminants in pregnancy-birth cohorts. *Science of the Total Environment*, **468**, 165-175.

Full Text: [2014\Sci Tot Env468, 165.pdf](2014/Sci%20Tot%20Env468,%20165.pdf)

Abstract: Water contamination and noise have been consistently the least assessed environmental/lifestyle exposures in pregnancy-birth cohorts (PBC). Water quality surveillance data collected during the past decade within urban drinking-water distribution systems call for re-evaluation of water and health issues in the developed world. The objectives of this scientific commentary were to (i) highlight the extent of appraisal of water contamination in exposure assessment studies of PBC, worldwide, and (ii) propose recommendations to increase awareness of emerging water-related risks through their improved representation into PBC study designs in urban centers. Three scientific literature databases (Scopus, PubMed, and Web of Science) were used for a systematic search on worldwide PBC and their publications that considered water contamination and health outcomes. Publicly-available e-databases (ENRIECO, BIRTHCOHORTS, and CHICOS) were also employed for detailed exploration of existing European Union (EU)-based PBC. Out of the 76 PBC identified in the EU territory, only 12 of them incorporated water contamination into their study designs. Among which only 6 PBC published scientific articles that either included data on water contamination and/or water intake estimates. Trihalomethanes but not other disinfection by-products were mostly studied in the PBC around the globe, while fluoride, atrazine, perfluorinated compounds, tetrachloroethylene, and lead were studied to a lesser extent as water contaminants. It appears that chemical-based water contamination and corresponding human exposures represent a largely underappreciated niche of exposure science pertaining to pregnant mother and children’s health in PBC. Future PBC studies should grasp this opportunity to substantially reform elements of water contamination in their exposure assessment protocols and effectively combine them with their epidemiological study designs. (C) 2013 Elsevier B.V. All rights reserved.

Keywords: Assessment, Atrazine, Bisphenol-A Exposure, Chemical Mixtures, Contaminants, Contamination, Data, Databases, Disinfection, Disinfection By-Products, Disinfection Byproducts, Disrupting Chemicals, Distribution, Distribution-Systems, Drinking Water, Drinking Water Distribution Systems, Endocrine Disrupting Chemicals, Environmental Co-Exposures, Environmental Exposure, Estimates, EU, European Union, Exposure, Exposure Assessment, Exposures, Fetal-Growth, Fluoride, For-Gestational-Age, Health, Health Outcomes, Human, Issues, Lead, Literature, Mother, Mother-Child-Pairs, Niche, Noise, Outcomes, Perfluorinated Compounds, Polyethylene Terephthalate, Pregnancy-Birth Cohort, Pregnant, Protocols, Publications, Pubmed, Quality, Recommendations, Reform, Representation, Rights, Risks, Science, Scientific Literature, Scientific Literature Databases, Scopus, Surveillance, Systems, Urban, Water, Water and Health, Water Contamination, Water Quality, Web of Science, World

? Wang, Q., Yang, Z.G., Yang, Y., Long, C.L. and Li, H.P. (2014), A bibliometric analysis of research on the risk of engineering nanomaterials during 1999-2012. *Science of the Total Environment*, **473**, 483-489.

Full Text: [2014\Sci Tot Env473, 483.pdf](2014/Sci%20Tot%20Env473,%20483.pdf)

Abstract: A bibliometric analysis based on the Science Citation Index Expanded (SCI-Expanded) from the Web of Science was carried out to provide insights into research activities and tendencies of the global risk of engineering nanomaterials (ENMs) from 1999 to 2012. The number of publications per year has increased steadily since approximately 2006. The USA produced 41.9% of all pertinent articles followed by China with 14.8% and UK with 9.1%. Environmental Science & Technology, Toxicology, and puma! of Nanoparticle Research were the three most common journals in this field. A synthesized analysis by co-citation and words from author keywords provided the clues to discover the current research emphases. The mainstream research related to risk of ENMs was toxicological effects and ecological risk. Toxicity effect strongly promoted the development of related research in the past 14 years. Research on environmental behavior and ecological risk of ENMs is the fast growing field. (C) 2013 Elsevier B.V. All rights reserved.

Keywords: Analysis, Behavior, Bibliometric, Bibliometric Analysis, Carbon Nanotubes, China, Citation, Co-Citation, Cocitation, Development, Ecological Risk, Effects, Engineering, Engineering Nanomaterials, Environment, Environmental, Environmental Behavior, European-Union, Field, Global, Insoluble Iridium Particles, Journals, Lung, Manufactured Nanomaterials, Mar, Nanomaterials, Nanoparticle Uptake, Nanotechnology, Publications, Research, Research Trends, Rights, Risk, Sci-Expanded, Science, Science Citation Index, Science Citation Index Expanded, Size, Technology, Toxicity, Toxicology, UK, USA, Web of Science

? Li, Y.F. and Li, D. (2014), Assessment and forecast of Beijing and Shanghai’s urban ecosystem health. *Science of the Total Environment*, **487**, 154-163.

Full Text: [2014\Sci Tot Env487, 154.pdf](2014/Sci%20Tot%20Env487,%20154.pdf)

Abstract: In this paper, we first analyze the 5 most cited papers with the title containing “Urban ecosystem health” in Chinese academic journals, and 5 newer papers retrieved from the CSSCI (Chinese Social Sciences Citation Index). The results show that the number of indicators to be used together in more than three papers is 28, and then we select 27 of them to assess Beijing and Shanghai’s urban ecosystem health from 2000 to 2011. Secondly, when we standardize the original data, the worst value adjustment coefficient is introduced innovatively. Thirdly, using the entropy method, the weights of concrete indicators of Beijing and Shanghai in the different adjustment coefficients are calculated respectively. Fourthly, based on the fuzzy matter-element method, using the Hamming approach degree, the two cities’ ecosystem health index and the contribution value to overall health index from each component are calculated. Lastly, using gray prediction model, the evolutionary time response sequence function of Beijing and Shanghai’s urban ecosystem health index is identified, and thus both cities’ urban ecosystem health is predicted. (C) 2014 Elsevier B.V. All rights reserved.

Keywords: Approach, Assessment, Chinese, Citation, Cities, Concrete, Contribution, Cssci, Data, Ecosystem, Ecosystem Health, Entropy, Entropy Weight, First, Forecast, Function, Health, Health Index, Index, Indicators, Journals, Model, Papers, Prediction, Prediction Model, Response, Rey Prediction, Rights, Sciences, Shanghai, Social Sciences, Social Sciences Citation Index, Time Response, Urban, Urban Ecosystem, Value

# Title: Science Translational Medicine

Full Journal Title: Science Translational Medicine

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Sahel, J.A. (2011), Quality versus quantity: Assessing individual research performance. *Science Translational Medicine*, **3** (84), Article Number: 84cm13.

Full Text: [2011\Sci Tra Med3, 84cm13.pdf](2011/Sci%20Tra%20Med3,%2084cm13.pdf)

Abstract: Evaluating individual research performance is a complex task that ideally examines productivity, scientic impact, and research quality-a task that metrics alone have been unable to achieve. In January 2011, the French Academy of Sciences published a report on current bibliometric (citation metric) methods for evaluating individual researchers, as well as recommendations for the integration of quality assessment. Here, I draw on key issues raised by this report and comment on the suggestions for improving existing research evaluation practices.

Keywords: Assessment, Bibliometric, Citation, Evaluation, Google-Scholar, Impact, Impact Factor, Index, Journals, Metrics, Performance, Quality, Quantity, Research, Research Evaluation, Research Performance, Science, Scopus, Web

# Title: Science’s STKE

Previous Issues of Science Signaling

Back issues of Science Signaling

Full Journal Title: [Science’s STKE](http://stke.sciencemag.org/archive/)

ISO Abbreviated Title:

JCR Abbreviated Title: Sci STKE

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Vogel, S.S., Thaler, C. and Koushik, S.V. (2006), Fanciful FRET. *Science’s STKE*, 331, re2.

Full Text: [2006\Sci STK331, 2.pdf](2006/Sci%20STK331,%202.pdf)

Abstract: the validity of experiments based on Forster resonance energy transfer (FRET), an imaging technique widely used to measure protein-protein interactions in living cells, critically depends on the accurate and precise measurement of FRET efficiency. The use of FRET standards to determine FRET efficiency, and a consideration of such factors as how the abundance of FRET acceptors and the stoichiometry of donors and acceptors in a molecular complex can affect measured FRET efficiency, will enhance the usefulness with which FRET experiments can be interpreted.

Keywords: Efficiency, Energy, Experiments, Living, Measurement, Standards, Validity

# Title: Scientific Reports

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? Radicchi, F. (2012), In science “there is no bad publicity”: Papers criticized in comments have high scientific impact. *Scientific Reports*, **2**, Article Number: 815.

Full Text: [2012\Sci Rep2, 815.pdf](2012/Sci%20Rep2,%20815.pdf)

Abstract: Comments are special types of publications whose aim is to correct or criticize previously published papers. for this reason, comments are believed to make commented papers less worthy or trusty to the eyes of the scientific community, and thus predestined to have low scientific impact. Here, we show that such belief is not supported by empirical evidence. We consider thirteen major publication outlets in science, and perform systematic comparisons between the citations accumulated by commented and non commented articles. We find that (i) commented papers are, on average, much more cited than non commented papers, and (ii) commented papers are more likely to be among the most cited papers of a journal. Since comments are published soon after criticized papers, comments should be viewed as early indicators of the future impact of criticized papers.

Keywords: Belief, Citation Analysis, Citations, Collaboration, Comments, Community, Counts, Dilute Antiserum, Evidence, Ige, Impact, Indicators, Journal, Nov, Papers, Publication, Publications, Science, Scientific Impact

? Aragon, A.M. (2013), A measure for the impact of research. *Scientific Reports*, **3**, Article Number: 1649.

Full Text: [2013\Sci Rep3, 1649.pdf](2013/Sci%20Rep3,%201649.pdf)

Abstract: the last few years have seen the proliferation of measures that quantify the scientific output of researchers. Yet, most of these measures focus on productivity, thus fostering the “publish or perish” paradigm. This article proposes a measure that aims at quantifying the impact of research de-emphasizing productivity, thus providing scientists an alternative, conceivably fairer, evaluation of their work. The measure builds from a published manuscript, the literature’s most basic building block. The impact of an article is defined as the number of lead authors that have been influenced by it. Thus, the measure aims at quantifying the manuscript’s reach, putting emphasis on scientists rather than on raw citations. The measure is then extrapolated to researchers and institutions.

Keywords: Alternative, Authors, Basic Research, Building, Citation Analysis, Citations, Evaluation, h-Index, Impact, Indicators, Institutions, Lead, Measure, Metrics, Paradigm, Productivity, Proliferation, Research, Science, Scientific Output, Scientists, Work

? Lu, S.F., Jin, G.Z., Uzzi, B. and Jones, B. (2013), The retraction penalty: Evidence from the Web of Science. *Scientific Reports*, **3**, Article Number: 3146.

Full Text: [2013\Sci Rep3, 3146.pdf](2013/Sci%20Rep3,%203146.pdf)

Abstract: Scientific articles are retracted at increasing rates, with the highest rates among top journals. Here we show that a single retraction triggers citation losses through an author’s prior body of work. Compared to closely-matched control papers, citations fall by an average of 6.9% per year for each prior publication. These chain reactions are sustained on authors’ papers (a) published up to a decade earlier and (b) connected within the authors’ own citation network by up to 4 degrees of separation from the retracted publication. Importantly, however, citation losses among prior work disappear when authors self-report the error. Our analyses and results span the range of scientific disciplines.

Keywords: Analyses, Authors, Citation, Citation Network, Citations, Control, Disciplines, Error, Evidence, Journals, Losses, Network, Nov, Papers, Publication, Publications, Rates, Retraction, Science, Scientific Literature, Separation, Web of Science, Work

? Šubelj, L., Fiala, D. and Bajec, M. (2014), Network-based statistical comparison of citation topology of bibliographic databases. *Scientific Reports*, **4**, Article Number: 6496.

Full Text: [2014\Sci Rep4, 6496.pdf](2014/Sci%20Rep4,%206496.pdf)

Abstract: Modern bibliographic databases provide the basis for scientific research and its evaluation. While their content and structure differ substantially, there exist only informal notions on their reliability. Here we compare the topological consistency of citation networks extracted from six popular bibliographic databases including Web of Science, CiteSeer and arXiv.org. The networks are assessed through a rich set of local and global graph statistics. We first reveal statistically significant inconsistencies between some of the databases with respect to individual statistics. For example, the introduced field bow-tie decomposition of DBLP Computer Science Bibliography substantially differs from the rest due to the coverage of the database, while the citation information within arXiv.org is the most exhaustive. Finally, we compare the databases over multiple graph statistics using the critical difference diagram. The citation topology of DBLP Computer Science Bibliography is the least consistent with the rest, while, not surprisingly, Web of Science is significantly more reliable from the perspective of consistency. This work can serve either as a reference for scholars in bibliometrics and scientometrics or a scientific evaluation guideline for governments and research agencies.

Keywords: Bibliographic, Bibliographic Databases, Bibliography, Bibliometrics, Citation, Citeseer, Comparison, Complex Networks, Computer Science, Consistency, Coverage, Database, Databases, Decomposition, Distributions, Dynamics, Evaluation, Field, First, From, Global, Google-Scholar, Guideline, Information, Local, Networks, Rankings, Reference, Reliability, Research, Research Agencies, Science, Scientific Impact, Scientific Research, Scientometrics, Scopus, Statistics, Structure, Web Of Science, Web-Of-Science, Work

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Full Text: [2014\Sci Rep4, 6630.pdf](2014/Sci%20Rep4,%206630.pdf)

Abstract: Polymorphisms of LIG4 gene may influence DNA repair ability, thus altering the genetic stability and resulting in carcinogenesis. A growing number of studies have investigated the relevance of LIG4 T9I (rs1805388) and D501D (rs1805386) polymorphisms with cancer risk, however, the results are conflicting. To obtain a comprehensive conclusion, we searched relevant literatures from PubMed, Web of Science, Ovid and Embase databases on May 15, 2014 and performed a meta-analysis. In this meta-analysis, a total of 17 articles were included. Of them, there were 15 studies with 5873 cases and 5771 controls for rs1805388 and 6 studies with 4161 cases and 4881 controls for rs1805386. Overall, our results suggested that there was no obvious relevance of LIG4 T9I polymorphism with cancer susceptibility. However, in subgroup analysis, we found the LIG4 T9I was associated with a slightly decreased cancer risk among Caucasians. As to the rs1805386, the genetic variant had no significant association with cancer risk. In conclusion, despite several limitations, this meta-analysis suggested that LIG4 T9I genetic variant is associated with a decreased risk of cancer among Caucasians, however, the rs1805386 gene polymorphism is not a risk factor of cancer.

Keywords: Analysis, Articles, Association, Association Consortium, Cancer, Cancer Risk, Cancer Susceptibility, Databases, Dna, Dna-Ligase-Iv, Evidence, From, Gene, Gene Polymorphism, Genetic, Genetic Variant, Influence, Lung-Cancer, Meta Analysis, Meta-Analysis, Metaanalysis, Neck-Cancer, Ovarian-Cancer, Pathway Genes, Polymorphism, Polymorphisms, Pubmed, Relevance, Repair, Risk, Risk Factor, Science, Single-Nucleotide Polymorphisms, Stability, Strand Break Repair, Susceptibility, Tissue-Reactions, Trial Sequential-Analysis, Web Of Science

? Lu, X.C., Huang, B.S., Zheng, J.Y., Tao, Y., Yu, W., Tang, L.J., Zhu, R.L., Li, S. and Li, L.X. (2014), Decompressive craniectomy for the treatment of malignant infarction of the middle cerebral artery. *Scientific Reports*, **4**, Article Number: 7070.

Full Text: [2014\Sci Rep4, 7070.pdf](2014/Sci%20Rep4,%207070.pdf)

Abstract: Early decompressive craniectomy (DC) has been shown to reduce mortality in malignant middle cerebral artery (MCA) infarction, whereas efficacy of DC on functional outcome is inconclusive. Here, we performed a meta-analysis to estimate the effects of DC on malignant MCA infarction and investigated whether age of patients and timing of surgery influenced the efficacy. We systematically searched PubMed, Medline, Embase, Cochrane library, Web of Science update to June 2014. Finally, A total of 14 studies involved 747 patients were included, of which 8 were RCTs (341 patients). The results demonstrated that earlyDC(within 48 h after stroke onset) decreased mortality (OR=0.14, 95%CI=0.08, 0.25, p<0.0001) and number of patients with poor functional outcome (modified Rankin scale (mRS). 3) (OR=0.38, 95%CI=0.20, 0.73, p=0.004) for 12 months follow-up. In the subgroup analysis stratified by age, early DC improved outcome both in younger and older patients. However, laterDC (after 48h after stroke onset) might not have a benefit effect on lowering mortality or improving outcome in patients with malignant infarction. Together, this study suggested that decompressive surgery undertaken within 48 h reduced mortality and increased the number of patients with a favourable outcome in patients with malignant MCA infarction.

Keywords: Age, Analysis, Artery, Cerebral, Controlled-Trial, Dc, Decompressive Craniectomy, Deterioration, Effects, Efficacy, Follow-Up, Hemicraniectomy, Hemispheric Infarction, Infarction, Mca, Mca Infarction, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Middle Cerebral Artery, Modified, Mortality, Nov, Older, Older Patients, Onset, Outcome, Patients, Pooled Analysis, Pubmed, Scale, Science, Stroke, Surgery, Surgical Decompression, Territory Infarction, Timing, Treatment, Web, Web Of Science

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Full Text: [2015\Sci Rep5, 8924.pdf](2015/Sci%20Rep5,%208924.pdf)

Abstract: Though proposed as a promising target antigen for cancer immunotherapy, the prognostic value of Wilms’ tumor 1 (WT1) in solid tumors remains inconclusive. Here, we report a systematic review and meta-analysis of the association between WT1 expression and prognosis in solid tumors. PubMed, Web of Science and Google Scholar were searched to identify studies exploring the impact of WT1 on clinical outcomes, including overall survival (OS), disease-specific survival (DSS), disease-free survival (DFS), relapse/recurrence-free survival (RFS) or progression-free survival (PFS), in solid cancer patients. Hazard ratio (HR) and 95% confidence interval (CI) were applied to assess the strength of these associations. Finally, a total of 29 eligible studies with 4090 patients were identified for qualitative analysis, and 22 studies with 3620 patients were enrolled for quantitative synthesis. Overall, positive expression of WT1 was significantly associated with worse OS (metaHR = 1.48, 95% CI = 1.11-1.97) and DFS/RFS/PFS (metaHR = 2.14, 95% CI = 1.42-3.21). Subgroup analyses showed that WT1 positive expression could independently predict unfavorable DFS/RFS/PFS (metaHR = 1.86, 95% CI = 1.04-3.35). In summary, our study suggests that WT1 may be a potential marker to predict DFS/RFS/PFS in solid tumor patients. Further studies are needed to confirm the role of WT1 expression in clinical practice.

Keywords: Analyses, Analysis, Association, Breast-Cancer, Cancer, Cell Lung-Cancer, Clinical, Clinical Outcomes, Clinical Practice, Confidence, DSS, Epithelial Ovarian-Cancer, Expression, Gene Wt1, Google, Google Scholar, Hepatocellular-Carcinoma, IGG Antibody, Immunohistochemical Detection, Immunotherapy, Impact, Interval, Mar, Marker, Messenger-Rna Expression, Meta Analysis, Meta-Analysis, Metaanalysis, Outcomes, Overall Survival, Patients, Potential, Practice, Predicts Poor-Prognosis, Prognosis, Prognostic, Pubmed, Qualitative, Qualitative Analysis, Review, Role, Science, Soft-Tissue Sarcoma, Strength, Survival, Synthesis, Systematic, Systematic Review, Tumor, Value, Web, Web Of Science

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Full Text: [2015\Sci Rep5, 9392.pdf](2015/Sci%20Rep5,%209392.pdf)

Abstract: Previous studies have reported the association of glutathione S-transferase M1 (GSTM1) deletion polymorphism with genetic susceptibility of lung cancer in Chinese population. However, the results remained controversial. The aim of this study was to clarify the association of GSTM1 deletion polymorphism with lung cancer risk in Chinese population. Systematic searches were performed through the search engines of Medline/Pubmed, Web of Science, EMBASE, CNKI and Wanfang Medical Online. The pooled effects were calculated by STATA 10.0 software package and Review Manager 5.0.24. Overall, we observed an association of GSTM1 deletion polymorphism with increased lung cancer risk in Chinese population (odds ratio (OR) = 1.46, 95% confidence interval (95% CI): 1.32-1.66 for null genotype vs. present genotype) based on 53 studies including 7,833 cases and 10,353 controls. We also observed an increased risk of GSTM1 null genotype for lung cancer in stratified analyses by source of control, smoking status and histological type. The findings suggest that GSTM1 deletion polymorphism may contribute to lung cancer risk in Chinese population. Further, well-designed studies with larger sample sizes are required to verify the results.

Keywords: Adenocarcinoma Susceptibility, Analyses, Association, Cancer, Cancer Risk, Carcinoma, Chinese, Confidence, Control, Cyp1a1, Deletion, Effects, Embase, Evidence, From, Genetic, Genetic Polymorphisms, Genotype, Genotypes, Glutathione, Gstm1, Gstp1, Interval, Isothiocyanates, Lung, Lung Cancer, Lung Cancer Risk, M1, Mar, Medical, Meta Analysis, Meta-Analysis, Metaanalysis, Odds Ratio, Polymorphism, Population, Review, Risk, S-Transferase M1, Science, Smoking, Software, Source, Susceptibility, Systematic, T1 Polymorphisms, Web, Web Of Science, Women

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Full Text: [2015\Sci Rep5, 9507.pdf](2015/Sci%20Rep5,%209507.pdf)

Abstract: Numerous studies have investigated the utility of calretinin in differentiating malignant mesothelioma (MM) from metastatic carcinoma (MC) in serous effusions. However, the results remain controversial. The aim of this study is to determine the overall accuracy of calretinin in serous effusions for MM through a meta-analysis of published studies. Publications addressing the accuracy of calretinin in the diagnosis of MM were selected from the Medline (Ovid), PubMed, the Cochrane Library Database and the Web of Science. Data from selected studies were pooled to yield summary sensitivity, specificity, positive and negative likelihood ratio (LR), diagnostic odds ratio (DOR), and receiver operating characteristic (SROC) curve. Statistical analysis was performed by Meta-Disc 1.4 and STATA 12.0 softwares. 18 studies met the inclusion criteria and the summary estimating for calretinin in the diagnosis of MM were: sensitivity 0.91 (95% CI: 0.87-0.94), specificity 0.96 (95% CI: 0.95-0.96), positive likelihood ratio (PLR) 14.42 (95% CI: 7.92-26.26), negative likelihood ratio (NLR) 0.1 (95% CI: 0.05-0.2) and diagnostic odds ratio 163.03 (95% CI: 54.62-486.63). The SROC curve indicated that the maximum joint sensitivity and specificity (Q-value) was 0.92; the area under the curve was 0.97. Our findings suggest that calretinin may be a useful diagnostic tool for confirming MM in serous effusions.

Keywords: Accuracy, Adenocarcinoma, Analysis, Antibodies, Carcinoma, Cell Blocks, Criteria, Cytology, Data, Database, Diagnosis, Diagnostic, Differential-Diagnosis, From, Immunocytochemical Panel, Library, Likelihood Ratio, Lr, Mar, Medline, Mesothelioma, Meta Analysis, Meta-Analysis, Meta-Regression, Metaanalysis, Metastatic, Mm, N-Cadherin, Negative, Odds Ratio, Pleural Effusion, Publications, Pubmed, Science, Sensitivity, Specificity, Statistical Analysis, Utility, Web, Web Of Science

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Full Text: [2012\Sci Wor J, 721598.pdf](2012/Sci%20Wor%20J,%20721598.pdf)

Abstract: Background. High and continuously increasing research activity related to different aspects of prevention, prediction, diagnosis and treatment of brain metastases has been performed between 1990 and 2010. One of the major databases contains 2695 scientific articles that were published during this time period. Different measures of impact, visibility, and quality of published research are available, each with its own pros and cons. for this overview, article citation rate was chosen. Results. Among the 10 most cited articles, 7 reported on randomized clinical trials. Nine covered surgical or radiosurgical approaches and the remaining one a widely adopted prognostic score. Overall, 30 randomized clinical trials were published between 1990 and 2010, including those with phase II design and excluding duplicate publications, for example, after longer followup or with focus on secondary endpoints. Twenty of these randomized clinical trials were published before 2008. Their median number of citations was 110, range 13-1013, compared to 5-6 citations for all types of publications. Annual citation rate appeared to gradually increase during the first 2-3 years after publication before reaching high levels. Conclusions. A large variety of preclinical and clinical topics achieved high numbers of citations. However, areas such as quality of life, side effects, and end-of-life care were underrepresented. Efforts to increase their visibility might be warranted.

Keywords: Articles, Brain, Care, Cell Lung-Cancer, Central-Nervous-System, Citation, Citations, Clinical, Clinical Trials, Clinical-Practice Guideline, Databases, Design, Diagnosis, Effects, End of Life, End-Of-Life Care, First, Gamma-Knife Radiosurgery, Growth-Factor Receptor, Her2-Positive Breast-Cancer, Impact, Life, Metastases, Partitioning Analysis Rpa, Phase II, Phase-III Trial, Prediction, Prevention, Prognostic, Publication, Publications, Quality, Quality Of, Quality of Life, Radiation-Therapy, Randomized, Research, Review, Side Effects, Stereotactic Radiosurgery, Treatment, Visibility

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Full Text: [2014\Sci Wor J, 135812.pdf](2014/Sci%20Wor%20J,%20135812.pdf)

Abstract: Background. Bibliometrics are an essential aspect of measuring academic and organizational performance. Aim. This review seeks to describe methods for measuring bibliometrics, identify the strengths and limitations of methodologies, outline strategies for interpretation, summarise evaluation of nursing and midwifery performance, identify implications for metric of evaluation, and specify the implications for nursing and midwifery and implications of social networking for bibliometrics and measures of individual performance. Method. A review of electronic databases CINAHL, Medline, and Scopus was undertaken using search terms such as bibliometrics, nursing, and midwifery. The reference lists of retrieved articles and Internet sources and social media platforms were also examined. Results. A number of well-established, formal ways of assessment have been identified, including h-and c-indices. Changes in publication practices and the use of the Internet have challenged traditional metrics of influence. Moreover, measuring impact beyond citation metrics is an increasing focus, with social media representing newer ways of establishing performance and impact. Conclusions. Even though a number of measures exist, no single bibliometric measure is perfect. Therefore, multiple approaches to evaluation are recommended. However, bibliometric approaches should not be the only measures upon which academic and scholarly performance are evaluated.

Keywords: Assessment, Authors, Bibliometric, Bibliometrics, Citation, Citation Analysis, Citation Metrics, Databases, Design, Evaluation, Impact, Impact Factors, Indicators, Influence, Internet, Journals, Measure, Measures, Media, Medline, Methodologies, Methods, Metrics, Midwifery, Nursing, Open Access, Organizational, Performance, Practices, Publication, Publish, Ranking, Reference, Reference Lists, Results, Review, Scopus, Social, Sources, Trends, Webometrics

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Full Text: [2014\Sci Wor J2014, 523979.pdf](2014/Sci%20Wor%20J2014,%20523979.pdf)

Abstract: Objectives. We performed this meta-analysis to summarize all the results from available studies, aiming delineating the prognostic role of miRNA in esophageal cancer. Design and Methods. We searched the electronic databases PubMed, EMBASE, and ISI Web of Science without time restrictions for the correlative literature to aggregate the survival results. Relevant data were extracted from studies investigating the relationship between miRNAs expression and survival in esophageal cancer patients. Pooled hazard ratios of miR-21 and miR-375 for OS in ESCC were calculated. Results. A total of 25 studies involving 2,258 subjects analyzed the relationship between miRNA and prognosis of EC. In all, thirty-nine miRNAs associated with prognosis were reported in these studies. The pooled HR of higher miR-21 expression compared with lower miR-21 expression in ESCC was 1.84 (95% CI: 1.41-2.40, P < 0.001), which could significantly predict poorer OS in ESCC. Besides, higher miR-375 was also a significant predictor for OS in ESCC, with a pooled HR of 0.55 (95% CI: 0.42-0.72, P < 0.001). Conclusions. Our results support that miR-21 and miR-375 have a prognostic role in ESCC and may be useful therapeutic targets for the treatment of ESCC and meticulous follow-up for early detection of recurrence.

Keywords: Adenocarcinoma, Biogenesis, Biomarkers, Cancer, Circulating Tumor-Cells, Data, Databases, Design, Diagnosis, Down-Regulation, Early Detection, Ec, Embase, Esophageal Cancer, Expression, Follow-Up, From, Gene-Expression, Hazard, Human Breast-Cancer, ISI, ISI Web Of Science, Literature, Meta Analysis, Meta-Analysis, Metaanalysis, Metastasis, Methods, Mir-21, Mirna, P, Patients, Predictor, Prognosis, Prognostic, Pubmed, Recurrence, Restrictions, Results, Role, Science, Squamous-Cell Carcinoma, Support, Survival, Therapeutic, Treatment, Web Of Science

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Full Text: [2014\Sci Wor J, 540309.pdf](2014/Sci%20Wor%20J,%20540309.pdf)

Abstract: The polymorphisms in the three main heat shock protein 70 (HSP70-1, HSP70-2, and HSP70-hom) genes were identified to be associated with cancer risk. However, the results are inconsistent. We perform a meta-analysis to evaluate the association between the three HSP70 polymorphisms and cancer risk. Relevant studies were identified using PubMed, Web of Science, Chinese National Knowledge Infrastructure (CNKI), and Wanfang databases up to March 29, 2014. The cancer risk associated with the HSP70 polymorphisms was estimated for each study by odds ratios (OR) together with its 95% confidence interval (CI), respectively. Twenty case-control studies from eighteen publications were included; a significant association was observed for HSP70-2 polymorphism (dominant model: OR = 1.53, 95% CI: 1.11-2.09; recessive model: OR = 1.91, 95% CI: 1.06-3.45; AG versus AA: OR = 1.38, 95% CI: 1.03-1.84; GG versus AA: OR = 2.34, 95% CI: 1.21-4.54), while there was no significant association for HSP70-1 and HSP70-hom polymorphisms. Besides, in stratification analyses by ethnicity, cancer type, and source of control, significant association was detected for HSP70-2 polymorphism, while for HSP70-hom polymorphism, we found a significant association in hospital-based population under homozygote comparison model. This meta-analysis suggests that the HSP70-2 polymorphism rather than HSP70-hom and HSP70-1 polymorphisms was associated with the risk of cancer.

Keywords: Ag, Alpha, Analyses, Association, Cancer, Cancer Risk, Case-Control, Case-Control Studies, Chinese, Comparison, Confidence, Control, Databases, Disease, Duodenal-Ulcer, Ethnicity, Expression, From, Gastric-Cancer, Gene, Genes, Gg, Heat-Shock Proteins, Hepatocellular-Carcinoma, Interval, Knowledge, Lung-Cancer, Meta Analysis, Meta-Analysis, Metaanalysis, Model, Polymorphism, Polymorphisms, Population, Prognosis, Protein, Publications, Pubmed, Risk, Science, Shock, Source, Stratification, Susceptibility, Web Of Science

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Full Text: [2014\Sci Wor J, 624573.pdf](2014/Sci%20Wor%20J,%20624573.pdf)

Abstract: Objective. This meta-analysis aimed to investigate a comprehensive and reliable conclusion on the correlations of single nucleotide polymorphisms (SNPs) in the vascular endothelial growth factor (VEGF) gene with the risk of diabetic nephropathy (DN) in patients with diabetes mellitus (DM). Methods. We screened PubMed, Embase, Web of Science, Cochrane Library, CISCOM, CINAHL, Google Scholar, CBM, and CNKI databases for those relevant studies that investigated the association of 14,945 subjects with clinicopathological parameters in gastric cancer. Results. Eleven case-control studies that met all inclusion criteria were included in this meta-analysis. A total of 14,945 subjects were involved, including 3,049 DN patients and 11,896 DM patients. Our meta-analysis results revealed that VEGF rs2010963 and rs3025039 polymorphisms might contribute to the risk of DN in DM patients. Ethnicity-stratified analysis suggested that VEGF genetic polymorphisms were associated with an increased risk of DN among Asians. However, we found no correlations of VEGF genetic polymorphisms with susceptibility to DN among Caucasians. Conclusion. Our findings suggest that VEGF rs2010963 and rs3025039 polymorphisms may contribute to the risk of DN in DM patients, especially among Asians. Thus, VEGF genetic polymorphisms could be useful biomarkers for early diagnosis of DN in DM patients.

Keywords: Activation, Analysis, Angiogenesis, Asians, Association, Biomarkers, Cancer, Case-Control, Case-Control Studies, Complications, Correlations, Criteria, Databases, Diabetes, Diabetes Mellitus, Diagnosis, Disease, Early Diagnosis, Endothelial Growth-Factor, Gastric, Gastric Cancer, Gene, Genetic, Genetic Polymorphisms, Google, Google Scholar, Growth, Growth Factor, Mechanisms, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Nephropathy, Patients, Polymorphisms, Pubmed, Results, Retinopathy, Risk, Science, Susceptibility, Vascular Endothelial Growth Factor, VEGF, Web Of Science

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Full Text: 2014\Sci Wor J, 750579.pdf

Abstract: Background. Predicting cardiovascular risk is of great interest in renal transplant recipients since cardiovascular disease is the leading cause of mortality. Objective. To conduct a systematic review to assess the validity of cardiovascular risk prediction models in this population. Methods. Five databases were searched (MEDLINE, EMBASE, SCOPUS, CINAHL, and Web of Science) and cohort studies with at least one year of follow-up were included. Variables that described population characteristics, study design, and prognostic performance were extracted. The Quality in Prognostic Studies (QUIPS) tool was used to evaluate bias. Results. Seven studies met the criteria for inclusion, of which, five investigated the Framingham risk score and three used a transplant-specific model. Sample sizes ranged from 344 to 23,575, and three studies lacked sufficient event rates to confidently reach conclusion. Four studies reported discrimination (as measured by c-statistic), which ranged from 0.701 to 0.75, while only one risk model was both internally and externally validated. Conclusion. The Framingham has underestimated cardiovascular events in renal transplant recipients, but these studies have not been robust. A risk prediction model has been externally validated at least on one occasion, but comprehensive validation in multiple cohorts and impact analysis are recommended before widespread clinical application is advocated.

Keywords: Analysis, Application, Bias, Cardiovascular, Cardiovascular Disease, Characteristics, Clinical, Clinical-Practice, Cohort, Coronary-Heart-Disease, Criteria, Databases, Design, Discrimination, Disease, Embase, Events, External Validation, Follow-Up, Framingham Risk Score, Impact, Impact Analysis, Medline, Metabolic Syndrome, Methods, Model, Models, Mortality, Performance, Population, Prediction, Prediction Model, Prognostic, Prospective Open Cohort, Quality, Rates, Renal, Renal Transplant, Renal Transplant Recipients, Renal-Transplantation, Results, Review, Risk, Risk Model, Sample, Science, Scopus, Score, Study Design, Systematic, Systematic Review, United-Kingdom, Validation, Validity, Web Of Science

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Full Text: 1987\Scientist1, 4.pdf

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Full Text: 1988\Scientist2, 19.pdf

Keywords: Articles, Jun, Science

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Full Text: 1988\Scientist2, 15.pdf

Keywords: Methods

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Full Text: 1990\Scientist4, 22.pdf

Keywords: Researchers, Scientists

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Full Text: 1990\Scientist4, 24.pdf

Keywords: Researchers, Scientists

Notes: UUniversity

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Full Text: 1990\Scientist4, 1.pdf

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Full Text: 1990\Scientist4, 20.pdf

Keywords: Researchers, Scientists

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Full Text: 1990\Scientist4, 14.pdf

Keywords: Citation, Scientists

? (1990), Most cited scientists - Researchers ranked 451-500 for the periods 1965-78 and 1973-84. *Scientist*, **4** (23), 18

Full Text: 1990\Scientist4, 18.pdf

Keywords: Researchers, Scientists

? Webb, T.D. (1994), Societies aid in large-scale effort to support Russian science. *Scientist*, **8** (2), 3.

Full Text: 1994\Scientist8, 3.pdf

? Emsley, J. (1994), Citation analysis reveals organic-chemistry most active research (Reprinted from Science-Watch, Vol 4, Pg 7, 1993). *Scientist*, **8** (5), 15.

Full Text: 1994\Scientist8, 15.pdf

Abstract: Organic chemistry’s top-cited papers: the newsletter science watch recently examined the most-referenced papers in organic chemistry, a subdiscipline that employs a substantial number of research chemists.

Keywords: Research

? Moore, P.D. (1994), Oceanic plants are at the root of ecologys most-cited studies (Reprinted from Science-Watch, June, 1994). *Scientist*, **8** (23), 15.

Full Text: 1994\Scientist8, 15.pdf

Abstract: Biological oceanography led a recent study of the citation records of ecology and environmental sciences articles, reported in the newsletter Science Watch.

Keywords: Citation, Environmental, Environmental Sciences, Oceanography, Science, Sciences

? (1995), Citation analysis identifies 1994s most-cited authors, hottest topics (Reprinted from Science-Watch, Feb 1995). *Scientist*, **9** (11), 13-14.

Full Text: 1995\Scientist9, 13.pdf

Abstract: Last year’s most cited authors and “hottest” topics were identified through citation analysis in a recent issue of the newsletter Science Watch, reprinted here.

Keywords: Analysis, Authors, Citation, Citation Analysis, Science, Topics

? (1996), Most-cited research articles, top ‘hot paper’ authors of 1995. *Scientist*, **10** (11), 13-??.

Abstract: What’s Hot, Who’s Hot: the hottest scientists of 1995 as well as last year’s hottest papers were identified in a recent article in the newsletter Science Watch, reprinted here.

Keywords: Articles, Research, Science

Garfield, E. (1997), Dispelling a few common myths about journal citation impacts. *Scientist*, **11** (3), 11.

Full Text: [1997\Scientist11, 11.pdf](1997/Scientist11,%2011.pdf)

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Full Text: 1997\Scientist11, 10.pdf

Abstract: the hottest of ‘96: Last year’s most-cited research articles and the authors who have fielded the most “hot” papers are identified in a report from the newsletter Science Watch, reprinted here.

Keywords: Authors, Papers, Research, Science

? Cherfas, J. (1997), Citation data identify Alzheimer’s breast cancer as hot areas - Hot papers in basic biology (Reprinted from Science Watch, vol 8, pg 7, 1997). *Scientist*, **11** (10), 11.

Full Text: 1997\Scientist11-10, 11.pdf

Abstract: Articles on Alzheimer’s disease and breast cancer are among the most cited recent papers in biology and medicine, according to a report from the newsletter Science Watch, reprinted here.

Keywords: Alzheimer’s Disease, Articles, Biology, Breast Cancer, Cancer, Citation, Data, Disease, Gene, Medicine, Mutations, Papers, Recent, Science

? Sharp, D.W. (1997), Citation data identify Alzheimer’s breast cancer as hot areas - Hot papers in medicine (Reprinted). *Scientist*, **11** (10), 11-??.

Full Text: 1997\Scientist11-10, 11-1.pdf

Abstract: Articles on Alzheimer’s disease and breast cancer are among the most cited recent papers in biology and medicine, according to a report from the newsletter Science Watch, reprinted here.

Keywords: Alzheimer’s Disease, Articles, Biology, Breast Cancer, Cancer, Citation, Data, Disease, Medicine, Papers, Recent, Science

Garfield, E. (1998), Long-Term vs. Short-Term Journal Impact: Does it matter? *Scientist*, **12** (3), 10.

Full Text: [1998\Scientist12, 10.pdf](1998/Scientist12,%2010.pdf)

Garfield, E. (1998), Long-term vs. short-term impact: Part II. Cumulative impact factors. *Scientist*, **12** (3), 12-13.

Full Text: [1998\Scientist12, 12.pdf](1998/Scientist12,%2012.pdf)

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Full Text: [1999\Scientist13, 12.pdf](1999/Scientist13,%2012.pdf)

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Full Text: [2000\Scientist14, 4-1.pdf](2000/Scientist14,%204-1.pdf)

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Full Text: [2000\Scientist14, 6.pdf](2000/Scientist14,%206.pdf)

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Full Text: [2000\Scientist14, 4.pdf](2000/Scientist14,%204.pdf)

Keywords: Scientific Discovery

? Garfield, E. (2002), Demand citation vigilance. *Scientist*, **16** (2), 6.

Full Text: [2002\Scientist16, 6.pdf](2002/Scientist16,%206.pdf)

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Full Text: [2002\Scientist16, 10.pdf](2002/Scientist16,%2010.pdf)

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Full Text: [2002\Scientist16, 10-1.pdf](2002/Scientist16,%2010-1.pdf)

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Full Text: [2002\Scientist16, 10-2.pdf](2002/Scientist16,%2010-2.pdf)

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Full Text: [2005\Scientist19, 24.pdf](2005/Scientist19,%2024.pdf)

Keywords: h Index, h-Index

? Egghe, L. (2006), How to improve the h-Index. *Scientist*, **20** (3), 15.

Full Text: [2006\Scientist20, 15.pdf](2006/Scientist20,%2015.pdf)

Keywords: h Index, h-Index

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Full Text: [2006\Scientist20, 14.pdf](2006/Scientist20,%2014.pdf)

Keywords: h Index, h-Index

? Wiley, S. (2009), Don’t fight to be cited forget science and cell: Submit your papers to the journals read by your grant reviewers. *Scientist*, **23** (1), 25.

Full Text: 2009\Scientist23, 25.pdf

Keywords: Journals, Papers

? Wachtel, M. (2010), Retracted: Highly Cited Paper. *Scientist*, **24** (6), 19.

Full Text: 2010\Scientist24, 19.pdf

# Title: Scientometrics

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Full Text: [1960-80\Scientometrics1, 3.pdf](1960-80/Scientometrics1,%203.pdf)

? Gilbert, G.N. (1978), Measuring the growth of science: A review of indicators of scientific growth. *Scientometrics*, **1** (1), 9-34.

Full Text: [1960-80\Scientometrics1, 9.pdf](1960-80/Scientometrics1,%209.pdf)

Abstract: A number of indicators of the growth of science are critically reviewed to asses their strengths and weaknesses. The focus is on the problems involved in measuring two aspects of scientific growth, growth in manpower and growth in knowledge. It is shown that the design of better indicators depends on careful consideration of the theoretical framework within which the indicators are intended to be used. Recent advances in the sociology of science suggest ways in which the validity of existing indicators may be assessed and improved. This paper is a revision of one presented to the International Symposium on Quantitative Methods in the History of Science, Berkely, California, August 25–27, 1976, under the title Measuring Science.

? Narin, F. (1978), Objectivity versus relevance in studies of scientific advance. *Scientometrics*, **1** (1), 35-41.

Full Text: [1960-80\Scientometrics1, 35.pdf](1960-80/Scientometrics1,%2035.pdf)

Abstract: A conceptual framework is suggested within which various techniques for studying scientific advance may be viewed. The two axes are *relevance of the* technique to a ‘true’ measure of the rate of scientific advance, versus *objectivity of the* technique. It is suggested that a situation exists somewhat analogous to the Heisenberg uncertainty principle; the most objective technique, a simple publication count, is the least relevant to a true measure of scientific advance, while the most relevant technique, interviews with an eminent and knowledgeable scientist in the field, is the least objective. Between these two extremes lie a group of scientometric techniques which should be capable of producing analyses which are both satisfactorily relevant and satisfactorily objective.

? Inhaber, H. and Alvo, M. (1978), World science as an input-output system. *Scientometrics*, **1** (1), 43-64.

Full Text: [1960-80\Scientometrics1, 43.pdf](1960-80/Scientometrics1,%2043.pdf)

Abstract: World science can be characterized as the product of one scientist or nation — knowledge or published papers — used or consumed by other scientists or nations. In this sense, science can be viewed as an input-output system, analogous to the models used in economics. An input-output model of the citation patters of the 18 leading countries in international science was constructed. These countries produce most of the world’s science. The large role of the United States in both producing and consuming scientific information is evident in the results. The models also show the role of other countries with respect to each other. for example, the multinational nature of science in countries like the Netherlands and Switzerland is evident. The model can be used to show which countries interact with others, and which do not. Both types of information are useful in discussing trans-national interactions in science.

? deB. Beaver, D. and Rosen, R. (1978), Studies in scientific collaboration. Part I. Professional origins of scientific co-authorship. *Scientometrics*, **1** (1), 65-84.

Full Text: [1960-80\Scientometrics1, 65.pdf](1960-80/Scientometrics1,%2065.pdf)

Abstract: From a historical and sociological perspective, this essay presents and develops the first comprehensive theory of scientific collaboration: collaborative Scientific research, formally acknowledged by co-authorships of scientific papers, originated, developed, and continues to be practiced as a response to the professionalization of science. Following an overview of the origins and early history of collaboration in the 17th and 18th centuries, a.study of the first professionalized scientific eommunity~ that of Napoleonic France, confirms that, as the theory predicts, collaboration is atypical research style associated with professionalization. In the early 19th century, virtually all joint research was performed by French scientists; collaborative research only appeared much later in England and Germany when they, too, underwent professionalization. That historical finding, which constitutes a puzzling anomaly for any other view of scientific teamwork, here conforms to theoretical expectation. Several other predictions of the theory are presented, to be taken up in subsequent studies.

? Hustopecký, J. and Vlachý, J. (1978), Identifying a set of inequality measures for science studies. *Scientometrics*, **1** (1), 85-98.

Full Text: [1960-80\Scientometrics1, 85.pdf](1960-80/Scientometrics1,%2085.pdf)

Abstract: Indices of inequality are tested against skewed frequency distributions met in science studies by the method of principal component analysis. The procedure holds some promise of providing a limited set of measures which can help to differentiate populations within several different substantive contexts. Variation of six selected measures of inequality with mean for the cases of four simple probability distributions is demonstrated.

? Vlachý, J. (1978), Research, technology and innovation policy in the Frg, 1951-1977 - Weber, G. *Scientometrics*, **1** (1), 99-100.

Full Text: [1960-80\Scientometrics1, 99.pdf](1960-80/Scientometrics1,%2099.pdf)

? Polacek, V. (1978), Bibliography of biology - Analytical presentation with respect to the history of science and to information-theory - German - Simon, HR. *Scientometrics*, **1** (1), 100.

Full Text: [1960-80\Scientometrics1, 100.pdf](1960-80/Scientometrics1,%20100.pdf)

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Full Text: [1960-80\Scientometrics1, 107.pdf](1960-80/Scientometrics1,%20107.pdf)

? deB Beaver, D. and Rosen, R. (1979), Studies in scientific collaboration. 2. Scientific co-authorship, research productivity and visibility in the French scientific Elite, 1799-1830. *Scientometrics*, **1** (2), 133-149.

Full Text: [1960-80\Scientometrics1, 133.pdf](1960-80/Scientometrics1,%20133.pdf)

Abstract: This essay investigates a number of the predictions of the theoretical view of scientific collaboration as a response to the professionalization of science: (1) that collaboration is most typically practiced by the scientific elite, or those who aspire to it, (2) that it increases individual research productivity, and (3) that it enhances the visibility of research to the largcr scientific community. With respect to the first professionalized scientific community, that of Napoleonic France, the study focusses on the research practices and careers of mcmbcrs of the Society of Arceuil, the Philomatic Society, and the First Class oi the Institut, as they illustrate and confirm the accuracy of those predictions.

? Boalt, G. and Bergryd, U. (1979), Differences in research orientation reflected in the allocation of grants - Methodological study. *Scientometrics*, **1** (2), 151-159.

Full Text: [1960-80\Scientometrics1, 151.pdf](1960-80/Scientometrics1,%20151.pdf)

Abstract: the scientists in the Social Science Research Councils are, after all, human and their own research orientation will influence their attitude towards applicants and project. But their attitude will be strengthened or counteracted by other factors. They may be conscious of their bias and try to compensate for it eitaer because they really want to be fair or because they are afraid to appear biassed in the eyes of the other council members. and then other personal factors may affect their decision: friendship with the applicants, their wish to repay a former member of the council for grants they once received from him or their striving for their own personal research empire. Each such factor will influence grant allocation in a special way. The necpositivistic sociologist in the Swedish Social Science Research Council was in 1973 relieved by a more radical sociologist and we have used this opportunity to see whether it is possible to study the effect of the changed research orientation, although other person factors will influence grant allocation. We worked Out alternative hypothesis systems built on a) research orientation and b) personal research empire building. Our methodmade sense in this particular case and should be possible to use under similar conditions.

? Moravcsik, M.J. and Murugesan, P. (1979), Citation patterns in scientific revolutions. *Scientometrics*, **1** (2), 161-169.

Full Text: [1960-80\Scientometrics1, 161.pdf](1960-80/Scientometrics1,%20161.pdf)

Abstract: the method of classifying citations according to the context in the citing paper, previously developed by the authors, is applied to the study of scientific revolutions. In particular, the BCS theory of superconductivity and the non-conservation of parity are investigated. The results can be easily interpreted in terms of the characteristic features of these discoveries. It is suggested that these two examples represent two different types of ‘paradigm’ changes, thus prompting a considerable refinement of the usual dichotomous picture of ‘normal’ *vs.* ‘breakthrough’ science.

? Chubin, D.E. and Studer, K.E. (1979), Knowledge and structures of scientific growth: Measurement of a cancer problem domain. *Scientometrics*, **1** (2), 171-193

Full Text: [1960-80\Scientometrics1, 171.pdf](1960-80/Scientometrics1,%20171.pdf)

Abstract: In the context of bridging the so-called externalist and cognitive perspectives on the growth of research communities, a cancer ‘problem domain’ is examined (1) to distinguish a growth in knowledge from a proliferating research literature, and (2) show how measurement of formal communiation, uninformed by the ‘historical record,’ clarifies or distorts sociological interpretations of innovation and growth in biomedicine. Specifically, coauthorship and citation networks are analyzed for reverse transcriptase researchers, 1970-74. This analysis reveals the visibility of large National Cancer Institute laboratories in the research literature, but demonstrates the need to augment disaggregated network data with intellectual and social (policy) history to explain the growth and structure of the domain.

? Bláha, K. (1979), Essays of An Information Scientist - Garfield, E. *Scientometrics*, **1** (2), 195-196.

Full Text: [1960-80\Scientometrics1, 195.pdf](1960-80/Scientometrics1,%20195.pdf)

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Full Text: [1960-80\Scientometrics1, 196.pdf](1960-80/Scientometrics1,%20196.pdf)

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Full Text: [1960-80\Scientometrics1, 201.pdf](1960-80/Scientometrics1,%20201.pdf)

? deB Beaver, D. and Rosen, R. (1979), Studies in scientific collaboration. 3. Professionalization and the natural-history of modern scientific co-authorship. *Scientometrics*, **1** (3), 231-245.

Full Text: [1960-80\Scientometrics1, 231.pdf](1960-80/Scientometrics1,%20231.pdf)

Abstract: A review of selected parameters of the growth of scientific collaboration over the last century provides further confirmation of the dependency of teamwork on the increasing professionalization of science. Analysis reveals significant inaccuracies in current views of the recency and prevalence of collaborative research, and affords a more correct picture of twentieth century developments. A change in the growth rate of the practice of scientific collaboration at about the time of World War I, and indications of associations of teamwork with financial support and research publication in leading journals are discussed. Characteristics of the natural history of scientific coUaboration ~ signify that collaboration reflects relationships of dependency within a hierarchically stratified professional community, and serves as a means of professional mobility. As such, it continues to fulfil its original functions.

? Szalai, A. (1979), Research on research and some problems of research bureaucracy. *Scientometrics*, **1** (3), 247-260

Full Text: [1960-80\Scientometrics1, 247.pdf](1960-80/Scientometrics1,%20247.pdf)

Abstract: the paper deals in its first part critically with the ‘*ideo-eentric*’interpretation of the subject matter of the sociology of science. Especially American sociologists tend to regard sociology of science as a *part of the* sociology of knowledge, specialized in defining the nature of scientific *ideas and* their relations to other kinds of ideas, institutional and personality factors, etc. However, in our days the center of gravity of sociological studies on science has shifted more and more outward of the domain of the sociology of knowledge. *Research on research,* particularly research on the objective socio-economic, organizational and operational aspects of institutionalized and professionalized research activity, have become very central to the sociology of science and have made probably some of the greatest contributions to its recent development. The material demands of society on science, and vice versa, the investment of society in the scientific establishment, the bread-and-board questions of research activity, the hard realities of national and industrial research policies, etc., provide a vast *terra incognita* into which the contemporary sociology of science must foray. The second part of the present paper deals with the delineation of a stretch of the ‘unknown land’ that has remained hitherto largely unexplored by the sociology of science, namely with the structure and the functions of contemporary *research bureaucracy.* Some findings of a Hungarian empirical study are discussed which seem to indicate that ‘big science’ tends to go hand in hand with big research bureaucracy, in particular with an increased share of administrative personnel in the total staff on research institutions.

? Rabkin, Y.M. and Inhaber, H. (1979), Science on the periphery: Citation study of 3 less developed-countries. *Scientometrics*, **1** (3), 261-274.

Full Text: [1960-80\Scientometrics1, 261.pdf](1960-80/Scientometrics1,%20261.pdf)

Abstract: the scientific interactions of three peripheral nations in terms of citations and references to scientific literature is considered. The nations chosen are Argentina, Brazil and Norway, each with scientific establishments much smaller than those of central, or major, scientific nations. These three nations cite publications of the central nations strongly in comparison to those of theiI own country. of the citations to the publications of these three countries, the bulk are generated from within the country involved. There is comparatively little interaction with neighbours. Further work is needed to determine if these patterns exist for most peripheral countries.

? Kunz, M. (1979), Time distribution of patent information. *Scientometrics*, **1** (3), 275-282.

Full Text: [1960-80\Scientometrics1, 275.pdf](1960-80/Scientometrics1,%20275.pdf)

Abstract: Abandonement rates of patents in five European countries are studied. The time distribution of British patents can be described by a truncated Gauss’ distribution Belgian patents by a Poisson’s distribution. Appropriate models derived on the base of the octogonal and cubical linear vector space norms are discussed.

? Vlachý, J. (1979), Physics careers, employment and education - Perl, ML. *Scientometrics*, **1** (3), 283-284.

Full Text: [1960-80\Scientometrics1, 283.pdf](1960-80/Scientometrics1,%20283.pdf)

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Full Text: [1960-80\Scientometrics1, 295.pdf](1960-80/Scientometrics1,%20295.pdf)

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Full Text: [1960-80\Scientometrics1, 307.pdf](1960-80/Scientometrics1,%20307.pdf)

Abstract: A comparative analysis of the information activities of leading scientists has been carried out, including 5 Soviet chemists and 5 foreign ones, and 8 Soviet physicists, specialist in low temperature physics. Within chemists there has appeared a tendency to a new form of scientific activities, namely ephemeron teams which favour the ‘production line’ mode of getting new information. In physics, the traditional scheme is preserved: leading scientists publish few articles and have few co-authors. The ephemeron teams produce an expanding information: new objects and processes are studied from the previously elaborated point of view. The specific average citation rate (number of references per number of papers) is a criterion for separating the publications of the ‘intellectual industry’ from the pilot studies full of novel ideas.

? Rabkin, Y.M. and Lafittehoussat, J.J. (1979), Cooperative research in petroleum chemistry. *Scientometrics*, **1** (4), 327-338.

Full Text: [1960-80\Scientometrics1, 327.pdf](1960-80/Scientometrics1,%20327.pdf)

Abstract: the American Petroleum Institute (All) Research Project 6 has been chosen as a model to study the science organization in petroleum chemistry. The quantitative analysis of scientific publications, references, citations and citation lags elucidates the cooperative nature of Project 6.

? Brožek, V. and Karen, P. (1979), Dynamics of information-flow in the field of rare-earth carbides research. *Scientometrics*, **1** (4), 339-357.

Full Text: [1960-80\Scientometrics1, 339.pdf](1960-80/Scientometrics1,%20339.pdf)

Abstract: Dynamics of the research of rare earth carbide compounds are analysed by the information flow method. Papers concerning the matter indicated in the *ChemicalAbstracts* as well as in surveys of professional literature since 1895 are categorised into a three-dimensional system of 29 descriptors, according to their date of publication. A new, finer unit of scientific production volume is used for the information flow quantification. Selected complete time arrays are approximated using either an exponential curve and the Gompertz function; the growth constants for the time array are also calculated. Development until 1975 is estimated on the basis on the course of the approximated arrays up to 1973 and is compared with the actual state.

? Garfield, E. (1979), Is citation analysis a legitimate evaluation tool? *Scientometrics*, **1** (4), 359-375.

Full Text: [1960-80\Scientometrics1, 359.pdf](1960-80/Scientometrics1,%20359.pdf)

Abstract: A comprehensive discussion on the use of citation analysis to rate scientific performance and the controversy surrounding it. The general adverse criticism that citation counts include an excessive number of negative citations (citations to incorrect results worthy of attack), self-citations (citations to the works of the citing authors), and citations to methodological papers is analyzed. Included are a discussion of measurement problems such as counting citations for multiauthored papers, distinguishing between more than one person with the same last name (homographs), and what it is that citation analysis actually measures. It is concluded that as the scientific enterprise becomes larger and more complex, and its role in society more critical, it will become more difficult, expensive and necessary to evaluate and identify the largest contributors. When properly used, citation analysis can introduce a useful measure of objectivity into the evaluation process at relatively low financial cost.

? Vlachý, J. (1979), Quotations and scientometrics. *Scientometrics*, **1** (4), 377-380.

Full Text: [1960-80\Scientometrics1, 377.pdf](1960-80/Scientometrics1,%20377.pdf)

? Dobrov, G.M., Randolph, R.H. and Rauch, W.D. (1979), New options for team research via international computer-networks. *Scientometrics*, **1** (5-6), 387-404.

Full Text: [1960-80\Scientometrics1, 387.pdf](1960-80/Scientometrics1,%20387.pdf)

Abstract: In this paper, international team research (ITR) is discussed as an object for measurement, systems analysis, and management. The paper is intended as a contribution to the development of a ‘problem’ orientation in scientometrics. In the authors’ view, scient-9- metric studies can help solve the problem of efficient ITR in several ways - for instance, by identifying needed improvements in (a) international ~scientific communication in general, (b) scientific interactions within and among research teams as part of the creative process, and (c) the overall international Usage of existing scientific knowledge. The paper discusses the machinery of ITR, models of scientific communication, and some original experience in using computers and telecommunications as tools for scientific interaction. All of these are potential objects for scientometric investigation. The paper itself performs some first steps in obtaining economic parameters for the different forms of international team research.

? Inhaber, H. and Lipsett, M.S. (1979), Gaps in ‘gaps in technology’ and other innovation inventories. *Scientometrics*, **1** (5-6), 405-417.

Full Text: [1960-80\Scientometrics1, 405.pdf](1960-80/Scientometrics1,%20405.pdf)

Abstract: A 1970 report of the Organization for Economic Corporation and Development indicated that Canada ranked last on a list of about 10 industrialized countries in terms of innovations. This ranking has been used to support frequently held contention that Canada is technologically uninnovative. However, the OECD list had no criteria for the inclusion or exclusion of a particular innovation. The OECD data has areas of difference with other independent measures of innovation. A comparison is made to a related study by Gellman Associates. This latter study shows that the Canadian position is not as poor as indicated by the OECD list.

? Krauze, T.K. and Mcginnis, R. (1979), Matrix analysis of scientific specialties and careers in science. *Scientometrics*, **1** (5-6), 419-444.

Full Text: [1960-80\Scientometrics1, 419.pdf](1960-80/Scientometrics1,%20419.pdf)

Abstract: A preliminary theoretical study is given of scientometric parameters such as co-authorship, co-references, co-citation, etc. The concept is based on a ‘scientific space’ whose elements are the scientific articles and their authors. The matrix operations representing certain hypotheses as well as sound definitions of concepts used so far in scientometrics are discussed.

? Small, H.G. and Crane, D. (1979), Specialties and disciplines in science and social-science - Examination of their structure using citation indexes. *Scientometrics*, **1** (5-6), 445-461.

Full Text: [1960-80\Scientometrics1, 445.pdf](1960-80/Scientometrics1,%20445.pdf)

Abstract: the technique of co-citation cluster analysis is applied to a special three-year (1972-1974) file of the *Social Sciences Citation Index.* An algorithm is devised for identifying clusters which belong to a discipline based on the percentage of source documents which appear in a disciplinary journal set. Clusters in three disciplines (economics, sociology and psychology) are identified using this algorithm. Clusters in a specialty of natural science (particle physics) obtained from the 1973 *Science Citation Index are* compared and contrasted with the three groups of social sciences clusters. Certain common structural characteristics of the social science and natural science groups suggest that knowledge is developing in parts of the social science disciplines in a manner similar to the natural sciences

? Shearer, E. and Moravcsik, M.J. (1979), Citation patterns in little science and big science. *Scientometrics*, **1** (5-6), 463-474.

Full Text: [1960-80\Scientometrics1, 463.pdf](1960-80/Scientometrics1,%20463.pdf)

Abstract: the classification of citations by their context, previously formulated and used for other studies, is employed here to see if the citation patterns of big and little science are different or not. Theoretical physics articles in 1935 and 1955 are thus compared. No significant differences were found except in the number of references per article which increased significantly from 1935 to 1955, and again to 1968. It is found, however, that the German journal Zeitschrift für Physik has considerably higher percentages of conceptual, organic, and evolutionary citations, both in 1935 and in 1955, than the Physical Review. The interpretation of this difference remains unclear.

? Yablonsky, A.I. (1980), Fundamental regularities of the distribution of scientific productivity. *Scientometrics*, **2** (1), 3-34.

Full Text: [1960-80\Scientometrics2, 3.pdf](1960-80/Scientometrics2,%203.pdf)

Abstract: This paper presents a methodological and mathematical study of the main regularities related to the distribution of scientific productivity. An analysis of these regularities is given from the point of view of two approaches, the frequency and the rank approaches, to the problem of scientific productivity. The connection between these approaches is studied and a number of mathematical formulas that are both of theoretical significance for the understanding of information data basis formation mechanisms and of practical one, in particular, for the estimate of Bradford’s law parameters, are deduced. The relation between the scientific productivity distributions under consideration and the stable non-Gaussian distributions is analyzed. The formation of the corresponding regularities of scientific productivity is regarded as a consequence of probability process combined with deterministic one.

? Cohen, J.E. (1980), Publication rate as a function of laboratory size in a biomedical-research institution. *Scientometrics*, **2** (1), 35-52.

Full Text: [1960-80\Scientometrics2, 35.pdf](1960-80/Scientometrics2,%2035.pdf)

Abstract: At the Rockefeller University in 1977-78, the number of aU publications of a research group in a year was approximately proportional to the number of individuals in that group during the year. The number of primary research publications of a group in a year was also approximately proportional to the number of individuals in that group during the year. The observed frequency distribution of laboratory size was statistically indistinguishable from a 0-truncated negative binomial distribution, which is the equilibrium frequency distribution of size predicted by stochastic models for the dynamics of freely-forming primate social groups.

? Carpenter, M.P. and Narin, F. (1980), Subject composition of the worlds scientific journals. *Scientometrics*, **2** (1), 53-63

Full Text: [1960-80\Scientometrics2, 53.pdf](1960-80/Scientometrics2,%2053.pdf)

Abstract: A country by subject count of the serial periodical collection at the British Library Lending Division (BLLD) in 1973 is reported and compared to previous counts. Approximately 25 000 periodicals have titles indicating that they are scientific journals in nine fields of the physical and biological sciences, engineering, and mathematics. The overall subject distribution of the journals appears to be remarkably stable when compared to a similar count by *Hulme* 60 years ago, although the number of journals appears to have doubled in the last 60 years. A major shift was found in the national origin of the journals, when compared with *Hulme’s* counts, with a notable rise in the number and percent of U.S. journals, and a sharp decline in the percentage of French and German journals.

? Haitun, S.D. (1980), Scientometric investigations in the USSR. *Scientometrics*, **2** (1), 65-84.

Full Text: [1960-80\Scientometrics2, 65.pdf](1960-80/Scientometrics2,%2065.pdf)

Abstract: the following is a review of scientometric investigations in the USSR. Scientometrics has been taken in the rigorous sense of the term, defined as an approach of the science of science which attempts to measure science*reproducibly*. The state of scientometric research in the Soviet Union is compared to that of other countries.

? Chubin, D. (1980), Is citation analysis a legitimate evaluation tool. *Scientometrics*, **2** (1), 91-92.

Full Text: [1960-80\Scientometrics2, 91.pdf](1960-80/Scientometrics2,%2091.pdf)

? Garfield, E. (1980), Is citation analysis a legitimate evaluation tool - Reply. *Scientometrics*, **2** (1), 92-94.

Full Text: [1960-80\Scientometrics2, 92.pdf](1960-80/Scientometrics2,%2092.pdf)

? Knorr, K.D. and Mittermeir, R. (1980), Publication productivity and professional position: Cross-national evidence on the role of organizations. *Scientometrics*, **2** (2), 95-120.

Full Text: [1960-80\Scientometrics2, 95.pdf](1960-80/Scientometrics2,%2095.pdf)

Abstract: Studies of stratification in science have increasingly accepted the idea that science is a highly stratified and elitist system with skewed distributions of productivity and rewards. Attempts to explain the higher productivity of higher status scientists by pointing to their greater ease of publication as far as acceptance of their work by journals and publishers is concerned were not supported by the data in some recent studies. If status in general does not confer greater ease of publication the present paper argues that position within a research organization does confer greater ease of author - or co-authorship - and this is the major explanatory variable accounting for productivity differences within l’esearch laboratories as far as quantity of articles (and books) is concerned. Upward moves in a laboratory’s formal or informal position hierarchy are associated with a change of a scientist’s research involvement from goal executing to goal setting functions as well as with an increasing access to scientific manpower and project money. Goal setting tasks provide for a significant reduction of time-expenditures in research necessary to assure that the scientist is identified with the research results; consequently, they allow for an involvement in more research tasks than originally. Equivalently, resources in scientific manpower and project money act as a, multiplying element as far as quantity of output is concerned.

? Pokrovsky, V.A. (1980), Some problems of measuring the impact of R and D upon the efficiency of social production. *Scientometrics*, **2** (2), 121-132.

Full Text: [1960-80\Scientometrics2, 121.pdf](1960-80/Scientometrics2,%20121.pdf)

Abstract: A cxitical analysis of works by Soviet authors, devoted to the problem of assessing the contribution of science to the efficiency of social production, is carried out. The computational results of two different versions of production function and a factor analysis technique are also presented, based on the same statistical data of the 8th and the 9th Five- Yeax-Plan periods. The numerical value of economic efficiency of investment in R & D, which was determined by relating the benefits from R & D to the associated expenditures, has been found to be 2.1-11 times higher than the profitability of plant investment. The classification and analysis of the major factors, contributing to the growth of public production efficiency, using a multiple correlation technique, show, that a 1% increase in R & D expenditures is associated with a 0.43% rise in labor productivity which also confirms the higher productivity of R & D investments.

? Frame, J.D. (1980), Measuring scientific activity in lesser developed-countries. *Scientometrics*, **2** (2), 133-145.

Full Text: [1960-80\Scientometrics2, 133.pdf](1960-80/Scientometrics2,%20133.pdf)

Abstract: Quantitative indicators of scientific and technological activity are often of questionable validity and reliability. This is particularly true in lesser developed countries, where the lack of data gathering skills may frequently result in the development of misleading indicators. A number of manpower, education, expenditure, and publication indicators are examined for thirteen Middle Eastern countries. Reliability and validity problems are discussed for each indicator. The indicators are found to correlate with each other in reasonable ways, suggesting that despite their possible flaws, they nonetheless appear to measure scientific activity with some consistency.

? Sheldon, J.C. (1980), Cybernetic theory of physical science professions - causes of periodic normal and revolutionary science between 1000 and 1870AD. *Scientometrics*, **2** (2), 147-167.

Full Text: [1960-80\Scientometrics2, 147.pdf](1960-80/Scientometrics2,%20147.pdf)

Abstract: the changing levels of activities in a physical science profession are modelled as a network of relations between different career stages. This cybernetic theory predicts that the dominance of elites undergoes 300 year cycles of sharp alternations whereas the challenge of embryonic elites fluctuates in 100 year cycles. These results seem confirmed by a survey of chemical histories: the birthrate of outstanding chemists oscillates in 300 year cycles and of lesser chemists in 100 year cycles, both with the waveproffle specified by the model. These fluctuations seem to correspond to *Kuhn’s* periods of revolutionary and normal science.

Notes: UUniversity

? Le Pair, C. (1980), Switching between academic disciplines in universities in the Netherlands. *Scientometrics*, **2** (3), 177-191.

Full Text: [1960-80\Scientometrics2, 177.pdf](1960-80/Scientometrics2,%20177.pdf)

Abstract: the Netherlands university system encompasses roughly one half of the state financedresearch enterprise. Some characteristics and data on the field of education and present occupation of the professional staff in this system are given and conclusions are drawn concerning field mobility and mutual influencing of different disciplines.

Keywords: the Netherlands

? Gordon, M.D. (1980), A critical reassessment of inferred relations between multiple authorship, scientific collaboration, the production of papers and their acceptance for publication. *Scientometrics*, **2** (3), 193-201.

Full Text: [1960-80\Scientometrics2, 193.pdf](1960-80/Scientometrics2,%20193.pdf)

Abstract: There have recently been completed a number of studies which analyse and interpret trends in multiple authorship for scientific papers. This paper presents data which show that a significant relationship exists between levels of multiple authorship for papers submitted to a leading Astronomy journal, and their frequency of acceptance for publication. It is argued that this finding indicates the need for the exercise of more extensive qualification when drawing inferences about actual social aspects of research activity, from trends in the multiple authorship of published papers.

? Bonitz, M. (1980), Evidence for the invalidity of the Bradford Law for the single scientist. *Scientometrics*, **2** (3), 203-214.

Full Text: [1960-80\Scientometrics2, 203.pdf](1960-80/Scientometrics2,%20203.pdf)

Abstract: On the basis of a previously proposed method using meta-informations accumulating during SDI from an international system of the INIS-type, it is investigated, how the scientific journal rank distribution of a research institution, for which the Bradford law is valid, is composed of the single scientists’ journal distributions. In this transition from a macroscopic into a microscopic field of scientific communication evidence was found for the invalidity of the Bradford law for the journal rank distribution of a single scientist. This effect seems to confirm a fundamental qualitative difference of both fields of scientific communication.

? Lyon, W.S. (1980), Organization, attendance, speakers, and sessions: A study of 4 scientific conference series. *Scientometrics*, **2** (3), 215-226.

Full Text: [1960-80\Scientometrics2, 215.pdf](1960-80/Scientometrics2,%20215.pdf)

Abstract: An International Atomic Energy Agency (IAEA) Conference series on neutron activation analysis (NAA) in life sciences has been compared to another IAEA conference series and to two other conference series. No great differences in multiple attendees, speakers, chairmen, or diversity of session subjects was seen. The NAA meetings do appear to be less forrealized than the others.

Note: TTopic

? Lawson, J., Kostrewski, B. and Oppenheim, C. (1980), A bibliometric study on a new subject field: Energy analysis. *Scientometrics*, **2** (3), 227-237.

Full Text: [1960-80\Scientometrics2, 227.pdf](1960-80/Scientometrics2,%20227.pdf)

Abstract: A bibliometric study on energy analysis literature is reported. The literature is characterised by heavy emphasis on English-language journal articles and reports, and, after an initial exponential growth rate, it is now growing more slowly. Examination of the titles of articles demonstrated that even after ten years there is no standard terminology in the area. This casts doubt on the value of searching by title terms for new interdisciplinary subjects. On the other hand, secondary services employing controlled-language indexing were found to index the articles under a variety of headings. In any case, coverage of the subject by secondary services is generally poor. There are no clear core journals for this subject area. Some recommendations are made on how both authors of papers in the field and secondary services can ensure better retrieval of energy analysis articles.

? Moravcsik, M.J. (1980), Scientific productivity: the effectiveness of research groups in 6 countries - Andrews, FM. *Scientometrics*, **2** (3), 239-240.

Full Text: [1960-80\Scientometrics2, 239.pdf](1960-80/Scientometrics2,%20239.pdf)

? Lyon, W.S. (1980), Communication: the essence of science - Garvey, WD. *Scientometrics*, **2** (3), 241-242.

Full Text: [1960-80\Scientometrics2, 241.pdf](1960-80/Scientometrics2,%20241.pdf)

? Simonton, D.K. (1980), Techno-scientific activity and war: A yearly time-series analysis, 1500–1903 A. D. *Scientometrics*, **2** (4), 251-255.

Full Text: [1960-80\Scientometrics2, 251.pdf](1960-80/Scientometrics2,%20251.pdf)

Abstract: Previous research may have failed to find a general relationship between war and techno-scientific activity due to the failure (a) to treat the various types of war separately and (b) to use yearly rather than generational time series. Hence, the present study examined 404 consecutive years in European civilization from 1500 to 1903. Measures of four distinct kinds of war were defined and a log-transformed measure of techno-scientific activity was derived from a factor analysis of six histories and chronologies. The techno-science measure was regressed on the war measures plus a set of control variables. Techno-scientific activity was found to be a negative function of balance-of-power and defensive wars fought within Europe. In contrast, imperial and civil wars exerted no influence

? Pinski, G. (1980), Citation based measures of research interactivity. *Scientometrics*, **2** (4), 257-263.

Full Text: [1960-80\Scientometrics2, 257.pdf](1960-80/Scientometrics2,%20257.pdf)

Abstract: Citation based measures of research interactivity are derived starting from the array of bibliographic intercitations known as the citation matrix. These measures may be applied to any publishing aggregates such as journals, fields of research or nations and are size normalized, providing size independent measures of interactivity, lnteractivity measures are defined for pairs of units, for a unit within a system and for a system as a whole.

? Dewitt, T.W., Nicholson, R.S. and Wilson, M.K. (1980), Science Citation Index and chemistry. *Scientometrics*, **2** (4), 265-275.

Full Text: [1960-80\Scientometrics2, 265.pdf](1960-80/Scientometrics2,%20265.pdf)

Abstract: Citation data have been collected for a large number of chemists at American universities. The I principal objectives are to examine the use of citations as a tool in the study of sociology of chemical research and to determine the feasibility and accurancy of using automatically generated data. Past results in each of these areas, as well as a projection of future uses of citation data, are presented. First, a pilot study is described and some *tentative* conclusions discussed. The method used minimizes some of the most commonlyexpressed criticism of citation data, such as multiple author, self-citations, etc. An effort has been made to establish the accuracy of automatically generated citation data. This project uses as a base for comparison the complete bibliographies of several thoUSAnd chemists. Several different’citation indices are compared with other indicators commonly employed in discussions of the characteristics of the field of chemistry. The results generally support the idea that citations are meaningful. However, they also reveal some problems which require that great care be exercised in the use of citation data. The use of citation data to ‘observe’ a chemistry subfield over time also is illustrated.

Keywords: Science Citation Index

? Small, H. and Greenlee, E. (1980), Citation context analysis of a co-citation cluster: Recombinant-DNA. *Scientometrics*, **2** (4), 277-301.

Full Text: [1960-80\Scientometrics2, 277.pdf](1960-80/Scientometrics2,%20277.pdf)

Abstract: the techniques of co-citation clustering and citation context analysis are combined to concretely define the shared knowledge within a research *specialty. The* cluster for a large and fast moving biomedical specialty, recombinant-DNA, is presented in terms of the highly cited documents comprising it and their co-citation links. By examining citation contexts in the papers citing the highly cited documents, it is possible to label each of the documents in the cluster with its specific cognitive meaning for the citing authors. Co-citation contexts are used to reveal the relationships among the concepts symbolized by the highly cited documents, providing a cognitive equivalent of the co-citation links. This may open a new way to the investigation of the logic of conceptual change at the specialty level.

? Manten, A.A. (1980), Publication of scientific-information is not identical with communication. *Scientometrics*, **2** (4), 303-308.

Full Text: [1960-80\Scientometrics2, 303.pdf](1960-80/Scientometrics2,%20303.pdf)

Abstract: Primary papers of international relevance do not always get published in media which have good international dissemination. Samples of literature in animal science, judged by scientists active in that subject field, indicate that this discrepancy may be a truly serious one.

? Sullivan, D., Koester, D., White, D.H. and Kern, R. (1980), Understanding rapid theoretical change in particle physics: A month-by-month co-citation analysis. *Scientometrics*, **2** (4), 309-319.

Full Text: [1960-80\Scientometrics2, 309.pdf](1960-80/Scientometrics2,%20309.pdf)

Abstract: While co-citation analysis has proved a powerful tool in the study of changes in intellectual loci in science, the technique has never been used to study very rapid changes in the theoretical structure of a scientific field. In this paper we present month-by-month co-citation analyses of key phases in the weak-electromagnetic unification research program within particle physics and show that these analyses capture and illuminate very rapid intellectual changes. These data provide yet another illustration of the utility of co-citation analysis for understanding the history of *science.*

? Zuckerman, H. and Miller, R.B. (1980), Science indicators - implications for research and policy - Social-Science-Research-Council conference, May 1978. *Scientometrics*, **2** (5-6), 327-330.

Full Text: [1960-80\Scientometrics2, 327.pdf](1960-80/Scientometrics2,%20327.pdf)

? Brooks, H. (1980), Science indicators and science policy. *Scientometrics*, **2** (5-6), 331-337.

Full Text: [1960-80\Scientometrics2, 331.pdf](1960-80/Scientometrics2,%20331.pdf)

Abstract: the relation of science indicators to science policy raises several questions. First is the clef’tuition of the system, whether just academic science or the entire system of technical innovation from research through manufacturing and marketing or government policy and operations. Second is society’s expectations whose realization depends more on political social factors than on sdenee itself. Third is how the output of research can be compared with the imputs into it if there is no norm other than comparative international performance.

Averch, H. (1980), Science indicators and policy analysis. *Scientometrics*, **2** (5-6), 339-345.

Full Text: [1960-80\Scientometrics2, 339.pdf](1960-80/Scientometrics2,%20339.pdf)

Abstract: This paper discusses the use of science indicators by public policy analysts with limited time and resources. Using the example of innovation policy, it describes what kind of policy relevant propositions can be extracted from science indicators and shows the inherent limits of indicators as instruments for policy making. It shows how science indicators can and must be combined with other sources to construct alternative strategies for decision making. It closes with a discussion of the use of science indicators in constructing consistent lines of argument and reasoning for making policy and for checking past policy.

? Zuckerman, H. and Miller, R.B. (1980), Indicators of science: Notes and queries. *Scientometrics*, **2** (5-6), 347-353.

Full Text: [1960-80\Scientometrics2, 347.pdf](1960-80/Scientometrics2,%20347.pdf)

Abstract: Some science indicators can be found in *Social Indicators 1976* as well as *Science Indicators--1976,* but the coverage of science is limited. Neither volume contains data on cognitive aspects of science and technology or on their social consequences. The authors make suggestions for then-and-there assessments of cognitive advance in science and for prospective and retrospective cheeks on the validity of these assessments.

? Mcculloch, R. (1980), International indicators of science and technology: How does the United-States compare? *Scientometrics*, **2** (5-6), 355-367.

Full Text: [1960-80\Scientometrics2, 355.pdf](1960-80/Scientometrics2,%20355.pdf)

Abstract: Because the basic determinants of innovative success are poorly understood, the data in SI-76 cannot support an unambiguous summary assessment of U. S. science. While some nations now rival the U. S. in relative expenditure for R&D, U.S. absolute: expenditure still dwarfs that of any nation except the U. S. S. R., and the U. S. remains preeminent by most measures of technological capacity. However, the technology gap continues to narrow, bringing both costs and benefits to the U.S. Advances abroad threaten the U. S. position in some markets and exacerbate the nation’s trade adjustment problems. But the nation may also benefit substantially from new opportunities to import as well as export advanced technology.

Keywords: United States

? Mansfield, E. (1980), International indicators of science and technology: Comments. *Scientometrics*, **2** (5-6), 369-373.

Full Text: [1960-80\Scientometrics2, 369.pdf](1960-80/Scientometrics2,%20369.pdf)

Abstract: *Science Indicators--1976* has been prepared with a great deal of skill and is a valuable document. The fact that it reflects the unsatisfactory state of basic knowledge of the ways in which science and technology affect, and are affected by, various economic, social, and political variables of interest to policy makers is no fault of its authors. Nonetheless, in handling some topics, the report might have gone further in indicating the limitations of the measures used. Also, several topics omitted from the report might be considered for inclusion in subsequent editions.

? Freeman, R.B. (1980), Indicators of the impact of R and D on the economy. *Scientometrics*, **2** (5-6), 375-385.

Full Text: [1960-80\Scientometrics2, 375.pdf](1960-80/Scientometrics2,%20375.pdf)

Abstract: This paper reviews the literature on the economic effects of R&D and then examines the gaps in our knowledge. While most micro-studies show that R&D raises economic growth, existing knowledge of the mechanisms by which R&D affects productivity and output is sparse, and it is unclear whether the micro-studies can be generalized to the national economy. The paper concludes by examining some possible consequences of the reduced R&D effort by the United States.

? Rosenberg, N. (1980), Indicators of the impact of R and D on the economy: Comments. *Scientometrics*, **2** (5-6), 387-393.

Full Text: [1960-80\Scientometrics2, 387.pdf](1960-80/Scientometrics2,%20387.pdf)

Abstract: These comments assert that the relationships between R&D expenditures and productivity growth are far more complex than they are ordinarily made out to be. R&D expenditures include several very different components, and only a rather small percentage of the total consists of expenditures upon basic science. One should not expect a very close association over time, or among countries, between spending upon R&D and the observed growth in economic productivity.

? Kuh, C.V. (1980), Indicators of scientific manpower. *Scientometrics*, **2** (5-6), 395-403.

Full Text: [1960-80\Scientometrics2, 395.pdf](1960-80/Scientometrics2,%20395.pdf)

Abstract: Although the statistics on science and engineering personnel in *Science Indicators - 1976* can be used to trace changes in the supply and utilization of these personnel, very little is presented that would allow readers to discern the emergence of strengths or weaknesses in this area. The author suggests that the inclusion of a variety of indicators relating to age, quality and mobility of scientific personnel would be a useful addition to the chapter. Additional indicators of labor market change, such as salaries, would also be helpful for policy purposes.

? Cole, S. (1980), Comments on ‘Indicators of scientific manpower’. *Scientometrics*, **2** (5-6), 405-409.

Full Text: [1960-80\Scientometrics2, 405.pdf](1960-80/Scientometrics2,%20405.pdf)

Abstract: In this examination of the implications of the decline in the demand for scientists, research on two questions is discussed. The first is the effect of age upon scientific creativity and the second is the relationship between the number of scientists and the growth of scientific knowledge.

? Ben-David, J. (1980), U. S. science in international perspective. *Scientometrics*, **2** (5-6), 411-421.

Full Text: [1960-80\Scientometrics2, 411.pdf](1960-80/Scientometrics2,%20411.pdf)

Abstract: This is an investigation of the relationship between the institutional structure of American science and its position in world science, as shown by *Science Indicators - 1976.* It concludes that, compared to other countries, the distinct characteristics of American institutions are consistent with, and may actually explain, the leading American position according to the indicators. However recent changes in those institutions may have weakened American science in ways not reflected by the present indicators.

Keywords: United States

? de Solla Price, D. (1980), Comments on ‘U. S. science in an international perspective’. *Scientometrics*, **2** (5-6), 423-428.

Full Text: [1960-80\Scientometrics2, 423.pdf](1960-80/Scientometrics2,%20423.pdf)

Abstract: International data show that the scientific development of the United States is neither better nor worse than expected for its size and industry. Its position is, however, deteriorating rapidly. The postwar expansion in federal funding of research seems to be a response to continued exponential growth rather than a cause. The science indicators volumes, all criticism notwithstanding, are rapidly provoking new understanding of these questions of scientific and technological change.

Keywords: United States

? Bowers, R. (1980), Indicators of basic research in the physical sciences. *Scientometrics*, **2** (5-6), 429-433.

Full Text: [1960-80\Scientometrics2, 429.pdf](1960-80/Scientometrics2,%20429.pdf)

Abstract: Information on basic research in the physical sciences is not readily available in *Science Indicators - 1976,* but it can be synthesized from many chapters of the report. The indicators show that there has been a greater decline in real support by the federal government for the physical sciences than for engineering, the social sciences, or the life sciences. Additional information is needed on the response to this reduction in funding. The author concludes by calling for an accounting of the costs and benefits to basic research of reduced funding and suggests items which should be included in such an accounting.

? Riecken, H.W. (1980), Vital signs for basic research in the behavioral and social sciences. *Scientometrics*, **2** (5-6), 435-437.

Full Text: [1960-80\Scientometrics2, 435.pdf](1960-80/Scientometrics2,%20435.pdf)

Abstract: Notably missing from *Science Indicators* are output measures of the status of basic research in the behavioral and social sciences. Two such measures are suggested. Citation indexes appear to yield estimates of quality as well as productivity that are comparable to peer judgments in various fields of science. A variety of measures of employment of scientific personnel may indicate the growth or decline of scientific activity in specific fields.

? Laporte, T.R. and Chisholm, D. (1980), Indicators of public attitudes toward science and technology. *Scientometrics*, **2** (5-6), 439-448.

Full Text: [1960-80\Scientometrics2, 439.pdf](1960-80/Scientometrics2,%20439.pdf)

Abstract: the use of attitude surveys in *Science Indicators - 1976* is reviewed and found sufficiently flawed to limit the utility of survey results. The primary confusion throughout is the treatment of science and technology as if they were indistinguishable activities. Suggestions for conceptual improvement are presented both for describing attitudes and for predicting changes in them.

? Moravcsik, M.J. (1980), Science and science policy in the Arab world - Zahlan, AB. *Scientometrics*, **2** (5-6), 449-450.

Full Text: [1960-80\Scientometrics2, 449.pdf](1960-80/Scientometrics2,%20449.pdf)

? Heffner, A.G. (1981), Funded research, multiple authorship, and subauthorship collaboration in four disciplines. *Scientometrics*, **3** (1), 5-12.

Full Text: [1981\Scientometrics3, 5.pdf](1981/Scientometrics3,%205.pdf)

Abstract: Increased financial support for science has contributed to a change in the social structure of research, as evidenced by the increase in collaborative research. The present paper examines the relationship between financial support, multiple authorship, and subauthorship in four disciplines. It is shown that financial support for research is associated with an increase in the total number of persons involved in the production of knowledge per journal article. However, the impact of funding is not the same for all modes of collaboration nor the same for all disciplines.

? Marshakova, I.V. (1981), Citation networks in information science. *Scientometrics*, **3** (1), 13-25.

Full Text: [1981\Scientometrics3, 13.pdf](1981/Scientometrics3,%2013.pdf)

Abstract: the method of Co-citation analysis is used to build citation networks in information science. As data base the first 13 volumes (1961 - 1973) of the leading Soviet journal in the field *(Nauchno-tekhnicheskaya Informatsiya)* were used. The results reveal the topical structure of information science, the communities of authors and the names of single leading scientists. The evaluation of scientists’ work is based on two measures: productivity (with or without co-authorship) and popularity (popularity of authors and popularity of papers).

? Leydesdorff, L. and Van Erkelens, H. (1981), Some social-psychological aspects of becoming a physicist. *Scientometrics*, **3** (1), 27-45.

Full Text: [1981\Scientometrics3, 27.pdf](1981/Scientometrics3,%2027.pdf)

Abstract: A group of academic scientists and a group of industrial scientists in the field of solid state physics are compared with regard to their view of ‘the physicist’ in general. In the same way two groups of students in different phases of their training are interviewed in order to get insight into social conflicts present in the educational system. Differences between the groups are found in the importance they attach to the socilal aspect of the research and in the degree to which they feel ‘the physicist’ to be a normative concept.

? de Solla Price, D. (1981), The analysis of scientometric matrices for policy implications. *Scientometrics*, **3** (1), 47-53.

Full Text: [1981\Scientometrics3, 47.pdf](1981/Scientometrics3,%2047.pdf)

Abstract: A method is explained for analysing matrices of statistics where each element should be approximately proportional to some column coefficient and also to some row coefficient. Using U. S. patent data as an example it is shown that entries are usually proportional to country ‘size’ and patent category ‘size’. Deviations from proportionality expectations when tabulated often suggest policy implications.

? de Solla Price, D. (1981), The analysis of square matrices of scientometric transactions. *Scientometrics*, **3** (1), 55-63.

Full Text: [1981\Scientometrics3, 55.pdf](1981/Scientometrics3,%2055.pdf)

Abstract: A method is explained for analysing square matrices of statistics giving transactions between each member of a set of nations, papers, journals, etc. In general self-transactions are different in kind to other exchanges of money, citations, etc., and a special method is given to compute row and column coefficients without relying on the diagonal elements. It is shown that this method yields very satisfactory analyses for journal and national citation data, enabling the members of the set to be assigned measures of size, quality and self-interest and a fuzzy set of clustered members from which all data may be derived.

? Mcallister, P.R. (1981), A guidebook for technology assessment and impact analysis - Porter, AL, Rossini, FA, Carpentier, SR, Roper, AT, Larson, RW, Tiller, JS. *Scientometrics*, **3** (1), 65-66.

Full Text: [1981\Scientometrics3, 65.pdf](1981/Scientometrics3,%2065.pdf)

? Oromaner, M. (1981), Cognitive consensus in recent mainstream American sociology: An empirical analysis. *Scientometrics*, **3** (2), 73-84.

Full Text: [1981\Scientometrics3, 73.pdf](1981/Scientometrics3,%2073.pdf)

Abstract: A number of observers have commented that American sociology has recently experienced a shift in its cognitive structure. In order to empirically investigate these observations, citations in the two most prominent sociological journals during 1955 and 1970 are examined. The data indicate that (a) various theory groups account for a relatively small percentage of authors cited during either period, (b) a number of the earlier theory groups are less prominent than they once were, and (c) there is evidence of the emergence of one new theory group.

? Bindon, G. (1981), Output measures of cooperative research: the case of the pulp and paper research institute of Canada. *Scientometrics*, **3** (2), 85-106.

Full Text: [1981\Scientometrics3, 85.pdf](1981/Scientometrics3,%2085.pdf)

Abstract: Applying various quantitative techniques, this paper attempts to describe and analyze the scientific output of a cooperative industrial research institute (Pulp and Paper Research Institute of Canada, PAPRICAN) by comparing its impact on the employment patterns of McGill graduate students who have done their thesis research under the auspices of the industrial laboratory with graduate students from the same departments who have not worked at PAPRICAN; and a comparison of the publication practices of three groups: PAPRICAN staff not associated with the university (McGilI), The PAPRICAN staff who also hold academic appointments at McGill, and the faculty of the Chemistry Department at McGill who do not hold staff positions at PAPRICAN.

It is found that the academic association with PAPRICAN during graduate research has a significant impact on the number of students who go on to careers in industry. However, close examination of those who remain in Canada indicates that the impact is increasingly felt in only the Pulp and Paper industry. Different ‘macro’ standards are applied to this ‘micro’ example, and policy implications are discussed.

The publication record is again compared to various ‘macro’ standards so as to judge various qualities of the scientific output of the different groups. The PAPRICAN staff performs as would be expected of industrial researchers and the McGill faculty show normal characteristics for an academic group. However, those who holdpositions in both the industrial institute and the academic sector, reveal the special role they play in linking the ‘science’ of the second with the ‘technology’ of the first.

Keywords: Canada

? Malecki, E.J. (1981), A note on the geographical concentration of scientific personnel in the USA. *Scientometrics*, **3** (2), 107-114.

Full Text: [1981\Scientometrics3, 107.pdf](1981/Scientometrics3,%20107.pdf)

Abstract: Theories of urban size and growth have assumed that innovativeness is more common to larger cities. This paper tests the relationship between three measures of scientific employment, and the population of U.S. metropolitan areas. Elasticities of scientific employment with respect to city size and nonlinear functions of city size suggest that innovative ability of the largest urban areas declined somewhat from 1966 to 1972. Diseconomies of size for scientific activity may be becoming dominant in the largest cities in contrast to prevailing assumptions about the advantages of urban size.

Notes: UUniversity

? Frieze, I.H., Knoble, J.M. and Mitroff, I.I. (1981), American university students’ beliefs about success in science: A case study. *Scientometrics*, **3** (2), 115-126.

Full Text: [1981\Scientometrics3, 115.pdf](1981/Scientometrics3,%20115.pdf)

Abstract: Attribution theory as a new perspective for studying the psychology of science and scientists is introduced through use of a case study of college students’ attributions for success and failure in science. The attributional perspective incorporates views of one’s own competence as well as beliefs about the importance of effort for success in science. It also provides a framework for analyzing differences in attitudes about various fields of science. Sex differences in science participation are a further area which can be analyzed from an attributional perspective. Results from the college student study are discussed along with suggestions for future research.

? Chernogorenko, V.B. and Muchnik, S.V. (1981), Scientometric estimation of present-day study on phosphides. *Scientometrics*, **3** (2), 127-134.

Full Text: [1981\Scientometrics3, 127.pdf](1981/Scientometrics3,%20127.pdf)

Abstract: A scientometric analysis of the publications and of the information flow on all phosphides shows that: the bulk of the publications on semieonducting phosphides relates to gallium phosphide. for non-semiconducting phosphides, most of the articles are connected with phosphides of transition metals. Tile bulk of the studies feature crystal structure, phase equilibria, diagrams of state and electrophysical and magnetic properties. Most of the articles on phosphides are published in English (53.4%) and in Russian (24.4%). There is a tendency lbr research to be carried out by groups of researchers of two, three, four or more persons. The present scientometric analysis helps establish the trend of investigations on phosphides.

? Folly, G., Hajtman, B., Nagy, J.I. and Ruff, I. (1981), Some methodological problems in ranking scientists by citation analysis. *Scientometrics*, **3** (2), 135-147.

Full Text: [1981\Scientometrics3, 135.pdf](1981/Scientometrics3,%20135.pdf)

Abstract: A sample of 80 Hungarian scientists, authors or co-authors of a total number of 6273 papers - published between 1930-1976 - has been analysed. Citation data to each *paper* were collected form the 1964-76 SCI’s by manual search. Citation counts were distinguished with respect to the following categories: (I) the set of cited authors has element(s) common with the set of citing authors (self citation), (II) condition I is not satisfied, but the cited author under study and at least one of the citing authors were co-authors prior to the publication of the cited paper, (III) none of the former criteria is satisfied. The yearly average citation frequency of a paper was not corrected for obsolescence, since there is no evidence that the decay of citation frequency with time is independent of the absolute citedness of the paper. Individual performance has been measured (a) by the sum of the yearly average type *111* fractional citation frequencies over all of the author’s papers, (b) by the sum of the yearly average citation frequency normalized to one single-authored paper per year over the period of the author’s activity, (c)- by the same as in a, but summed up only over the most highly cited papers ‘scattering upwards’ from the individual’s own average, (d) by the fractional authorship, and (e) by the number of items in the author’s publication list. The first three parameters seem to be applicable in measuring the utility of the individual’s scientific contribution With slightly different emphasis on different aspects. These parameters are uncorrelated with those measuring the output of individuals.

? Frame, J.D. and Prokrym, D.R. (1981), Counts of U.S. and Soviet science and technology journals. *Scientometrics*, **3** (3), 159-175.

Full Text: [1981\Scientometrics3, 159.pdf](1981/Scientometrics3,%20159.pdf)

Abstract: A detailed examination is made of the 1973 US and Soviet serials holdings of the British Library Lending Division (BLLD), The most comprehensive collection of active scientific and technological serials in the world. In total, 6075 US and 2399 Soviet serials were identified. These serials were then assigned on the basis of their titles to over 200 scientific and technological specialty areas. These assignments clearly show that the US is substantially more active than the USSR in the life sciences and social sciences, while the USSR is relatively more active in the physical and engineering sciences. When comparing the absolute size of the US and Soviet serial counts, it is seen that the US outpublishes the USSR in all major fields (i.e., clinical medicine, biomedical research, biology, chemistry, physics, earth/space science, engineering/technology, mathematics/statistics, psychology, and the social sciences).

Keywords: United States

? Turner, C.F. and Kiesler, S.B. (1981), The impact of basic research in the social sciences: the case of education. *Scientometrics*, **3** (3), 177-190.

Full Text: [1981\Scientometrics3, 177.pdf](1981/Scientometrics3,%20177.pdf)

Abstract: Recent expert evaluations of the condition and funding of educational research in the USA assume that basic research in the social sciences is a~ crucial factor in increasing our understanding and ultimately improving the practice of education (see, for example, the 1977 reporP of the National Academy of Sciences’ Committee on Fundamental Research Relevant to Education), Past tests of this assumption, however, have generally relied upon argument by example or anecdote. In the present study, we analyze citation patterns in the education literature to test the corollary proposition that basic research in the social sciences has had a substantial impact on the literature in education. Empirical data collected on citation patterns in the education literature are found to be largely consistent with this proposition.

? Hubert, J.J. (1981), A rank-frequency model for scientific productivity. *Scientometrics*, **3** (3), 191-202.

Full Text: [1981\Scientometrics3, 191.pdf](1981/Scientometrics3,%20191.pdf)

Abstract: If f(r) is the number of contributions of an author or rank r, then it is shown that f(r) is proportional to r -#, where ~ > 0. The model is dependent on the definitions of ‘a contribution’ and ‘rank’ of an author. Three estimation procedures are illustrated and four other scientific productivity studies, and two data sets on Canadian Mathematicians are shown to adequately fit this rank-frequency relationship.

? Nadel, E. (1981), Citation and co-citation indicators of a phased impact of the BCS theory in the physics of superconductivity. *Scientometrics*, **3** (3), 203-221.

Full Text: [1981\Scientometrics3, 203.pdf](1981/Scientometrics3,%20203.pdf)

Abstract: An intellectual account of of the physics of superconductivity was compared with citation and co-citation daga during two historical periods that coincided wkh the introduction of its central explanatory theory (BCS). Factor analysis is used to investigate the co-citation data. The results give prelh-ninary support to a hypothesis that distinguishes ~pact phases in the effect of the theory on the cognitive organization of the speciaRy. It is also observed that citation and co-citation data are separate types of information which, under scene Mstorical conditions, give diffe~ng resuks.

? Yanovsky, V.I. (1981), Citation analysis significance of scientific journals. *Scientometrics*, **3** (3), 223-233.

Full Text: [1981\Scientometrics3, 223.pdf](1981/Scientometrics3,%20223.pdf)

Abstract: the application of methods of quantitative analysis makes it possible to evaluate the impact of scientific journals on one another. These methods are used to determine the significance of similar scientific journals by their cross-citations, taking into account data from the *Journal Citation Reports (JCR). The*y also help to improve the *Journal Citation Reports* structure and widen its uses for the evaluation of scientific journals. The above methods are applied to analyse critically the principles of ranking journals in package 1 and the tabular contents of *JCR’s* packages 2 and 3, as well as to study frequency distributions of the journals both in time and space.

? Shaw, W.M. (1981), Information theory and scientific communication. *Scientometrics*, **3** (3), 235-249.

Full Text: [1981\Scientometrics3, 235.pdf](1981/Scientometrics3,%20235.pdf)

Abstract: Informal and formal communication processes are documented in the primary journal literature. Both processes impose structures on the authors who publish their research, and the formal process imposes a structure on the journals which publish scientific papers. In this paper, it is shown that information theory can he applied to these structures for the purpose of evaluating the contribution that authors and journals make to the communication of scientific information. Experimental results identify the most communicative authors and journals in an area of active research.

? Griffith, B.C. (1981), The scientific journal - Meadows, AJ. *Scientometrics*, **3** (3), 251-252.

Full Text: [1981\Scientometrics3, 251.pdf](1981/Scientometrics3,%20251.pdf)

? Kochen, M. and Blaivas, A. (1981), A model for the growth of mathematical specialties. *Scientometrics*, **3** (4), 265-273.

Full Text: [1981\Scientometrics3, 265.pdf](1981/Scientometrics3,%20265.pdf)

Abstract: A mathematical model for the growth of two coupled mathematical specialties, differential geometry and topology, is analyzed. The key variable is the number of theorems in use in each specialty. Obsolescences of theorems-in-use due to replacement by more general theorems introduces non-linear terms of the differential equations. The stability of stationary solutions is investigated. The phase portrait shows that the number of theorems in low-dimensional topology relative to those in differential geometry is increasing. The model is qualitatively consistent with the growth of publications in these two specialties, but does not give quantitative predictions, partly because we do not use an explicit solutions as a function of time and partly because only two specialties are used. The methods of analysis and some of the concepts can be extended to the development of more general and realistic models for the growth of specialties.

Notes: UUniversity

? Rushton, J.P. and Meltzer, S. (1981), Research productivity, university revenue, and scholarly impact (citations) of 169 British, Canadian and United States universities (1977). *Scientometrics*, **3** (4), 275-303.

Full Text: [1981\Scientometrics3, 275.pdf](1981/Scientometrics3,%20275.pdf)

Abstract: One hundred and sixty-nine universities, comprising three separate samples from Britain, Canada, and the United States were evaluated in terms of their productivity across all disciplines. The 1977 *Arts and Humanities, Social Science, and Science Citation Indices* were used as the basis for counting the total number of publications from each of the universities. The 10 overall most productive universities were Harvard University; the University of Texas; the University of California, Los Angeles; the University of London, England; the University of Wisconsin; the University of. Illinois; the University of Minnesota; the University of California, Berkeley; Stanford University; and the University of Washington, Seattle. Fifteen of the most productive 100 universities were from the United Kingdom while eleven were from Canada. Additional data were collected including: the revenue of the university, the year the university was founded, the number of subscriptions to current periodicals, the number of bound volumes in the library, the aptitude scores and number of both graduate and undergraduate students, the total number of faculty members, and the number of publications of, reputational rating, and citations to, the faculty members in the psychology departments. A powerful general factor was found to permeate the more than 30 disparate measures, i.e., those universities that were high on one measure were high on others. This general factor could be labelled a dimension of wealth, quality, or size.

Keywords: United States

? Van Heeringen, A. (1981), Dutch research groups: Output and collaboration. *Scientometrics*, **3** (4), 305-315.

Full Text: [1981\Scientometrics3, 305.pdf](1981/Scientometrics3,%20305.pdf)

Abstract: In the Netherlands the research worker in the universities on an average publlsiaes in scientific journals three times as much as the scientist in industry. However, the universities differ considerably regarding their publications score per scientists; although this difference is diminishing. Furthermore this study shows per discipline the level of co-operation between Dutch and foreign research establishments. In general the level of co-operation with other research institutes has no positive effect on output. The analysis does show that the institutions with the largest financial support from the Research Council (an organization with the task of improving the output of research by means of fostering co-operation between research workers) are also the most productive ones.

Adamson, I. (1981), The size of science in the old Nigerian universities: A preliminary analysis. *Scientometrics*, **3** (4), 317-324.

Full Text: [1981\Scientometrics3, 317.pdf](1981/Scientometrics3,%20317.pdf)

Abstract: the scientific productivity of six old Universities in Nigeria has been computed over the period 1970-79. The order of contribution is by University of Ibadan, Ahmadu Bello University, Universities of Ire, Nigeria, Lagos and Benin. While there is a real growth in Scientific research in Nigeria as a whole, some of the Universities have problems which have put their research efforts on a downward trend. A new order of Scientific contributions by the Universities appears to be emerging. Constant Scientific growth analysis will help the new bodies involved in formulating and coordinating Science policy in Nigeria.

? Gieryn, T.F. (1981), The aging of a science and its exploitation of innovation: Lessons from X-ray and radio astronomy. *Scientometrics*, **3** (4), 325-334.

Full Text: [1981\Scientometrics3, 325.pdf](1981/Scientometrics3,%20325.pdf)

Abstract: Analysis of the growth of radio and X-ray astronomy in the 1960s suggests that future reductions in the size of entering cohorts of new doctorates in astronomy may lengthen the time needed to exploit future innovations, discoveries or breakthroughs. This may well tead to slower rates of advancement in astronomical knowledge. Most scientists making up the early growth of these two problem areas had *recently* earned their Ph. D’s, and, it was found, the probability of initiating research in radio or X-ray astronomy declined with the age of the scientist. Since smaller entering cohorts of new scientists would imply an overall aging of the astronomical community, the rate at which scientists will move in to exploit future innovations will probably be slower than during the periods of peak growth in the 1960s.

? Bruer, J.T. (1981), The cancer mission: Social contexts of biomedical research - Studer, KE, Chubin, DE. *Scientometrics*, **3** (4), 335-337.

Full Text: [1981\Scientometrics3, 335.pdf](1981/Scientometrics3,%20335.pdf)

? Hall, D.H. (1981), The earth and planetary sciences in science during the twentieth century. *Scientometrics*, **3** (5), 349-362.

Full Text: [1981\Scientometrics3, 349.pdf](1981/Scientometrics3,%20349.pdf)

Abstract: the earth and planetary sciences have shown remarkable changes during the present century. The relative coverage of earth and earth-planetary science in the journal *Science* (from the USA) was studied quantitatively at 5-year intervals for the period 1900-1976. Similar data, but more widely spaced, (10-year intervals) were obtained from the journal *Nature* (from Great Britain) as corroboration.

It was found in both journals that the relative attention given to earth science and to the combination of earth and planetary sciences dropped through the century to a low point about 1955. Thereafter the trend reversed, with both of these elements rising almost twice as rapidly as they had previously failer. A comparison with previous work on the production of American periodical literature showed similar trends but a consistently greater proportion of coverage of these subjects in *Science* than that in the literature, suggesting that the former is reflecting a wider spectrum of impact of these subjects than is the latter. General science journals may be a better indicator of impact of a science than is the specialized literature. The sim’flarity of results in the two journals indicates that the idea of patterns in world science is a valid one, in which the USA and Great Britain belong to a common pattern.

? Burke, C.E. and de Solla Price, D. (1981), The distribution of citations from nation to nation on a field by field basis: A computer calculation of the parameters. *Scientometrics*, **3** (5), 363-377.

Full Text: [1981\Scientometrics3, 363.pdf](1981/Scientometrics3,%20363.pdf)

Abstract: Following the methodology established by *Price,* this paper analyzes the empirical evidence of citation matrices. Using the data cleaned and tabulated by Computer Horizons, Inc. from the Science Citation Index data banks, it is shown that the non-diagonal elements of the square citation matrices can be accounted for very satisfactorily by assigning each nation a characteristic output and input coefficient in each field measured; the ratio of these coefficients provides a measure of quality. Deviations from this simple model give measures of particular linkage strengths between nations showing some evidence of preferences and avoidances that exist for reason of language, social structure, etc. It is also shown that the diagonal data can be accounted for by the measurable phenomenon that each nation seems to publish partly for the international knowledge system and partly for its own domestic purposes. Thus, three parameters and a cluster map can parsimoniously describe the citation data within the limits of random error.

? Schubert, A. and Braun, T. (1981), Some scientometric measures of publishing performance for 85 Hungarian research institutes. *Scientometrics*, **3** (5), 379-388.

Full Text: [1981\Scientometrics3, 379.pdf](1981/Scientometrics3,%20379.pdf)

Abstract: A sample comprising the three years publication output (1976–1978) of 85 Hungarian research institutes was subjected to scientometric analysis. Values of and correlations between some measures of publishing performance, scientific manpower, and citation impact were compared across the following research fields: mathematical and physical sciences, chemical sciences, biological and medical sciences, agricultural sciences, and engineering. A new quality measure of publishing performance, thetotal impact of the journal papers of individual institutes has been suggested.

? Hastings, T. (1981), A note on the utility of international publication data. *Scientometrics*, **3** (5), 389-396.

Full Text: [1981\Scientometrics3, 389.pdf](1981/Scientometrics3,%20389.pdf)

Abstract: This note focuses on a possible lh-nitation of international publication data as a measure of research activity. It is argued that differences in the ~pressure’ and/or ‘capacity’ to publish may exist between countries which would necessitate the standardization of publication data on a country basis. The argument is supported by statistical tests performed on data recently utilized to measure agricultural scientific research activity.

? Marton, J. (1981), Changes in the time distribution of biochemical article references from 1962 to 1977. *Scientometrics*, **3** (5), 397-400.

Full Text: [1981\Scientometrics3, 397.pdf](1981/Scientometrics3,%20397.pdf)

Abstract: Beside the continuous gtowth of the number of references per biochemical article from 1962 to 1977, an equalization tendency can be observed in the R/A values of the fi.ve leading biochemical journals investigated. While from 1962 to 1969 the number of more recent references (0-5 year old) had a hi~her growth rate than that of the older ones (6 § year old), from 1969 to 1977 the situation turned to the opposite. The number of very recent (0- I year old) references reached a saturation near the end of the sLxtJes.

? Inhaber, H. (1981), Essays of An Information Scientist, Vol 3, 1977-1978 - Garfield, E. *Scientometrics*, **3** (5), 401-402.

Full Text: [1981\Scientometrics3, 401.pdf](1981/Scientometrics3,%20401.pdf)

? Morse, P.M. (1981), The underlying characteristics of the Bradford distribution. *Scientometrics*, **3** (6), 415-436.

Full Text: [1981\Scientometrics3, 415.pdf](1981/Scientometrics3,%20415.pdf)

Abstract: the Bradford distribution, differs from most probability distributions in that it is concerned with the.rank-order S of the elements in terms of their productivity (from highest down to lowest) rather than with the numerical values n of the element’s productivity. The defining relationship is that S is exponentially related to G, the Cumulative production of the elements of rank-order S or less. This implies a Zipf-like relationship between mean’ productivity and rank-order, which is analogous to the Weber-Fechner law of Psychophysics. A variational specification of the distribution is given, and it is pointed out that the relationship betweeen the construction of the Bradford and that of the usual distributions is roughly analogous to the relationship between Lebesgue and Riemann integration.

It has been pointed out in the past that many informational data fit the approximate formula for the Bradford distribution (where n is considered to be a continuous variable). It is shown that when the exact Bradford distribution is used (with productivity taken to be an integer, as it actually is) then the fit with the data is even better, clear down to n = 3, 2 and even 1. This is demonstrated by fits with data from the scatter of articles on operations research among journals and also with data on the citations to a single medical journal by articles in other journals. The paper also includes tables and formulas to enable the reader to fit the distribution to data of his choice.

? Brunk, G.G. and Jason, G.J. (1981), The impact of warfare on the rate of invention: A time series analysis of United States patent activity. *Scientometrics*, **3** (6), 437-455.

Full Text: [1981\Scientometrics3, 437.pdf](1981/Scientometrics3,%20437.pdf)

Abstract: the outbreak of war is generally thought to shift the fields in which research is conducted. As a result, military conflict has historically been credited with being the catalyst which has caused decisive technological advances. It is also generally suggested that warfare has a systematic impact on the intensity of inve~ative activity. Most scholars have claimed that wars increase inventiveness, although a few argue that conflict is a hinderance to research. This question has not received extensive empirical examination. Using United States data, we show that a basic pattern is repeatedly observed. Immediately after the outbreak of a war, there is a significant decline in inventiveness, which is followed by a marked surge. The average net result is a virtual negation of the two trends.

Keywords: United States

? Hurt, C.D. (1981), A test of differences in the literature history of four historical accounts of the quantum mechanics problem. *Scientometrics*, **3** (6), 457-466.

Full Text: [1981\Scientometrics3, 457.pdf](1981/Scientometrics3,%20457.pdf)

Abstract: This paper examines four historical accounts of the quantum mechanics problem in physics. The purpose is to describe the litrature used by the histories quantitatively using frequency of date of publication. Additionally, one of tile histories was tested against the or-her three, to determine differences’ A .Moments Test ~and a t Test were employed; the results indicated the literature history of quantum mechanics, when plotted as a function of frequency of publication date is non-normal, negatively skewed, avd is platykurtic. The test for difference between the one history and the cumulative histories was non-significant. Interpretations of the results are discussed.

? Cohen, J.E. (1981), Publication rate as a function of laboratory size in three biomedical research institutions. *Scientometrics*, **3** (6), 467-487.

Full Text: [1981\Scientometrics3, 467.pdf](1981/Scientometrics3,%20467.pdf)

Abstract: In three biomedical research institutions, there is no indication of a single laboratory size at which the number of publications per,scientist is maximal or minimal, In a scattergram of the numbe r of publications of a laboratory, against laboratory size, .the horizontal coordinate measures the number of scientists in a laboratory, the vertical axis measuresthe number of publications from the laboratory (counting each publication once regardless of the number of authors), and each laboratory is represented by one point. Scattergrams for the Rockefeller Ur~iversity (RU), New York, the National Institute for Medical Research (NIMR), London, and the National Cancer Institute ~(NCI), Bethesda, ~are each described well by a straight line through the origin. The slopes of the lines for the three institutions axe not significantly different. In these laboratories, ranging in, size from 1 to 46 scientists, one additional scientist increases the expected manual number of publications of a laboratory by approximately 1.1, regardless of the size of the laboratory. Although the three institutions have significantly different mean laboratory sizes, the frequency distribution of laboratory size in each institutior/is described well by a 0-truncated negative binomial distribution, as predictedby a simple model of laboratory population dynamics,

? Moravcsik, E.A. (1981), In the labyrinths of language: A mathematicians journey - Nalimov, VV. *Scientometrics*, **3** (6), 489-490.

Full Text: [1981\Scientometrics3, 489.pdf](1981/Scientometrics3,%20489.pdf)

? Menkes, J. (1981), Synthesis and analysis-methods for safety and reliability studies - Apostolakis, G, Garribba, S, Volta, A. *Scientometrics*, **3** (6), 491-492.

Full Text: [1981\Scientometrics3, 491.pdf](1981/Scientometrics3,%20491.pdf)

? Haitun, S.D. (1982), Stationary scientometric distributions: Part I. Different approximations. *Scientometrics*, **4** (1), 5-25.

Full Text: [1982\Scientometrics4, 5.pdf](1982/Scientometrics4,%205.pdf)

Abstract: Stationary distributions, i.e. distributions involving no time dependence, are analysed. The rank and frequency forms of statistical distributions are considered. On the basis of this consideration the approximations of stationary scientometric distributions are reviewed.

? Dobrov, G.M. and Dziekovskaya, I.V. (1982), Methods and results of studying the flow of information in the field of thin-film superconductivity. *Scientometrics*, **4** (1), 27-44

Full Text: [1982\Scientometrics4, 27.pdf](1982/Scientometrics4,%2027.pdf)

Abstract: This paper deals with a physical-statistical analysis on the information flows in the field of superconductive thin films for 1949 to 1977. The classification of scientific research is done and an attempt is made to determine the correlations between the different types. The dynamics of growth of the number of publications is considered, and changes of researchers’ scientific interests concerning the application of various chemical materials and structures in superconductive thin films are studied. The problems of professional mobility are also investigated. Conclusions are drawn on the development of the described field.

? Kochen, M., Crickman, R. and Blaivas, A. (1982), Distribution of scientific experts as recognized by peer consensus. *Scientometrics*, **4** (1), 45-56

Full Text: [1982\Scientometrics4, 45.pdf](1982/Scientometrics4,%2045.pdf)

Abstract: Peex review plays an important role in maintaining the quality of science. Selection of peers is at the heart of the process by which science advances Editors and others responsible for selecting a group of peers often rely on their position in a network by which experts in a field are linked to one another by bonds of common interest and recognized expertise. In this paper, we report one aspect of a study aimed at characterizing the structure of this network: the asymmetry of the fraction of experts receiving varying numbers of nominations as experts by peers. The distribution of such nominations is very skew, and we have found that a law of cumulative advantage provides the best theoretical approximation for the distribution of nominations, expecially when the overall pool of data is broken down into well-defined specialties.

? Zsindely, S., Schubert, A. and Braun, T. (1982), Editorial gatekeeping patterns in international science journals. A new science indicator. *Scientometrics*, **4** (1), 57-68.

Full Text: [1982\Scientometrics4, 57.pdf](1982/Scientometrics4,%2057.pdf)

Abstract: Significant correlations were found between the number of science journal editors from different countries, on the one hand, and the number of scientists, the number of science journals and the number of science papers produced by these countries on the other. We argue for using the extent of participation in the editorial board of international science journals as a new science indicator. The deviations from the regression lines between the new indicator and other publication indicators allow one to assess the ‘open’ or ‘closed’ character of the scientific life of a given country.

? Zsindely, S., Schubert, A. and Braun, T. (1982), Citation patterns of editorial gatekeepers in international chemistry journals. *Scientometrics*, **4** (1), 69-76.

Full Text: [1982\Scientometrics4, 69.pdf](1982/Scientometrics4,%2069.pdf)

Abstract: A significant correlation was found between the mean number of citations to the editors of international chemistry journals and the impact factor of the journals in question. A much weaker correlation was found if citations to the editor(s)-in-chief only were considered; this suggests that the professional profile of the journal is determined by the editorial board rather than the person of the editor(s)-in-chief. The number of citations to the editors of international chemistry journals may be used for characterizing a country’s chemical research activity.

? Haitun, S.D. (1982), Scientometric analysis of information flows in chemistry - Granovsky, YV. *Scientometrics*, **4** (1), 77-79.

Full Text: [1982\Scientometrics4, 77.pdf](1982/Scientometrics4,%2077.pdf)

? Frame, J.D. (1982), Management of research and innovation - Dean, BV, Goldhar, JL. *Scientometrics*, **4** (1), 79-80.

Full Text: [1982\Scientometrics4, 79.pdf](1982/Scientometrics4,%2079.pdf)

? Griffith, B.C. (1982), New technology developments, in the communication of research during the 1980s - Meadows, AJ. *Scientometrics*, **4** (1), 80-81.

Full Text: [1982\Scientometrics4, 80.pdf](1982/Scientometrics4,%2080.pdf)

? Haitun, S.D. (1982), Stationary scientometric distributions: Part II. Non-gaussian nature of scientific activities. *Scientometrics*, **4** (2), 89-104.

Full Text: [1982\Scientometrics4, 89.pdf](1982/Scientometrics4,%2089.pdf)

Abstract: Stationary distributions, i.e. distributions involving no time dependence, are considered. It is shown that all these distributions in scientometrics can be approximated by the Zipf distribution at high values of variables. The sample moments appear to depend significantly on the sample size. Accordingly, the approximation of these observational data by probability distributions converging to a stable distribution different from the normal one proves to be the only correct approximation. The conclusion is formulated that the use of non-Gaussian statistics is necessary in the science of science and other social sciences.

? Chapman, I.D. and Farina, C. (1982), Concentration of resources: the National-Research-Council’s (Canada). *Scientometrics*, **4** (2), 105-117.

Full Text: [1982\Scientometrics4, 105.pdf](1982/Scientometrics4,%20105.pdf)

Abstract: Concentration of resources continues to be an important issue in the formulation of policy for the support of university research. In this paper, techniques for quantitatively assessing two dimensions of this issue, ‘between’ and ‘within’ committee concentrations, are developed. These techniques are applied in an analysis of the peer-adjudicated grants of the National Research Council of Canada for the years 1964-1974 inclusive. Results indicate that although ‘between’ committee concentrations have responded to changing priorities for university research, ‘within’ committee concentrations have remained remarkably stable over this decade. This is seen as having important implications for recent attempts at re-orienting university research in Canada.

Keywords: Canada

? Jagodzinski-Sigogneau, M., Courtial, J.P. and Latour, B. (1982), How to measure the degree of independence of a research system. *Scientometrics*, **4** (2), 119-133.

Full Text: [1982\Scientometrics4, 119.pdf](1982/Scientometrics4,%20119.pdf)

Abstract: the French bibliographic data-base PASCAL is used to study relations between Research Systems in terms of dependance of a periphery upon a Center.

The deployment of disciplines, the productivity and the use of mother tongue of 9 developped countries are quantified (on the Life Science file only).

This dependance is also quantified by reference to who studies whom, and in which language the results are available. A search in Life Science and Earth Science files by means of subject terms added by PASCAL indexers at input to papers published by 5 developped countries working on fourteen Latino-american and African countries.

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Full Text: [1982\Scientometrics4, 135.pdf](1982/Scientometrics4,%20135.pdf)

Abstract: Although such indicators exhibit only certain aspects of the contribution of science to a country, the number of scientific authors in a given year is plotted for every year between 1971 and 1976, inclusive, and the number of scientific authors divided by the population of the country is also given for those years. The number of scientific authors is the number of scientists who published at least one article in a journal in that given year. The data were taken from a survey which, although it covers only about 4000 scientific journals, includes a large fraction of all articles published.

The results are given in 43 graphs, the first 17 of which show the number of authors and the second 16 the authors per capita. The graphs are divided according to geographical areas: Latin America, Africa, the Middle East, and Asia, and within each region countries with roughly comparable output or output per capita are grouped together.

The last ten graphs show the growth rates of authors and of authors per capita, compared to the 1971 values, for groups of countries aggregated according to various parameters with which correlation is being investigated. Continent, size of population literacy rate about 25 years before, the percentage of gross national product spent on military expenditures, and colonial past.

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Full Text: [1982\Scientometrics4, 171.pdf](1982/Scientometrics4,%20171.pdf)

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Full Text: [1982\Scientometrics4, 172.pdf](1982/Scientometrics4,%20172.pdf)

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Full Text: [1982\Scientometrics4, 181.pdf](1982/Scientometrics4,%20181.pdf)

Abstract: the non-Gaussian character of scientific activity is discussed. This character makes correct only non-Gaussian approximations of stationary distributions of scientific activity. Deviation of different non-Gaussian approximations from the Zipf distribution can be explained in some cases by distortion introduced by the observer. The hypothesis that latent stationary distributions of scientific (and generally human) activity for separate person are always described by the Zipf distribution is formulated using the considerations connected with the variational entropy and the Zigler principles.

Keywords: Zipf

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Full Text: [1982\Scientometrics4, 195.pdf](1982/Scientometrics4,%20195.pdf)

Abstract: A comparison of sources cited in the Japanese language Geographical Review of Japan and six western language, Japanese geographical serials reveals that while both cite the same proportion of foreign sources (a third), authors tend to select Japanese sources which are written in the language of the host publication. Foreign sources in the Japanese literature are overwhelmingly from the English language world, especially the United States, with a small admixture in German, from the F.R. Germany. The proportion of foreign sources in the Japanese literature appears to be in decline.

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Full Text: [1982\Scientometrics4, 205.pdf](1982/Scientometrics4,%20205.pdf)

Abstract: Scientific articles may be represented as points in a space whose spatial pattern reflects some of the substantive and social structures of science. The proximity of articles and the documents they reference leads to a eentroid sealling method proposed in this paper. This method scales citing articles as close as possible to the articles they reference. The simultaneous scaling of citing and cited articles in a common space aids in the interpretation of the resultant configuration.

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Full Text: [1982\Scientometrics4, 233.pdf](1982/Scientometrics4,%20233.pdf)

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Full Text: [1982\Scientometrics4, 241.pdf](1982/Scientometrics4,%20241.pdf)

Keywords: Bibliometrics

? Bonitz, M. and Schmidt, P. (1982), Transition from the macrolevel to the microlevel of information at rank distribution investigations of the report literature of an international information-system. *Scientometrics*, **4** (4), 283-295.

Full Text: [1982\Scientometrics4, 283.pdf](1982/Scientometrics4,%20283.pdf)

Abstract: the coincidence method proposed earlier by one of the authors is applied to rank distribution studies of the report literature of the International Nuclear Information System, INIS, and a two-level concept is used to discuss the results of the present and previously reported investigations. Transitions between’ macrolevel and microlevel of information for constant forms of eommuhication as well as transitiong between different forms of commu; nication at constant levels are compared. Escape of the information avalanche for the highly specialized single scientist, greater efficiency of the report literature compared with journal literature in the field of nuclear research, non-compatibility of macrolevel and microlevel of information could be confu-med quantitatively. It is an open question how to transform microlevel distributions into mactolevel distributions.

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Full Text: [1982\Scientometrics4, 297.pdf](1982/Scientometrics4,%20297.pdf)

Abstract: Modeling the number of citations from one journal to another may be done by assuming independent contributions from the referencing journal and from the cited journal. Empirical and theoretical evidence, however, indicates that self-citations are different from interjournal citations. for this reason a model is proposed that separates the analysis of selfcitations from inter-citations. In addition, a model is proposed that adjusts the expected citation counts by the journal to journal similarity. Computational procedures for fitting coefficients of the models to the observed citation pattern are described along with a statistical method for evaluating the validity of the model.

? Shelishch, P.B. (1982), A quantitative study of biologists in the 18th and 19th centuries. *Scientometrics*, **4** (4), 317-329.

Full Text: [1982\Scientometrics4, 317.pdf](1982/Scientometrics4,%20317.pdf)

Abstract: In recent literature dealing with the study of science and history of science increasing attention has been given to quantitative research of science as a special social institution. Main objects of these studies are the dynamics of quantity and structure of scientists, as well as change in forms of their professional organization. The understanding of regularities in the development of the scientific community is essential for the formulation of reasonable scientific policies. However, the experience shows that tendencies of this kind cannot be revealed if the study of science is restricted to the last two or three decades. It is necessary to examine sufficiently long periods of history during which several generations of scientists changed, large variations occured both in the internal scientific situation and in the socio-economic and concrete historical conditions of the development of science.

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Full Text: Scientometrics4, 331

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Full Text: Scientometrics4, 345.pdf

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Full Text: [1982\Scientometrics4, 349.pdf](1982/Scientometrics4,%20349.pdf)

Abstract: the Consumption Factor has been proposed.as a new measure of the significance/quahty of scientific journals. The scientometric properties of this measure and its relationship to other commonly used measures of journal significance were examined. The results indicate a high correlation between the two component measures used to construct the Consumption Factor and a weak relationship between the Consumption Factor and other measures traditionally used to assess journal significance. The implications of these results are discussed in the context of the need for multiple measures of the significance of scientific journals.

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Full Text: [1982\Scientometrics4, 361.pdf](1982/Scientometrics4,%20361.pdf)

Abstract: the relationship between indicators of and expert Judgement of, research performance were compared in the context of mission oriented pharmaceutical research. Expert judgment is very highly correlated with measures of publication activity, much more so than with very plausible measures of research output and research quality. Furthermore, expert judgement appears to be an additive function of publication size (another name for which might be visibility) and publication quality, with the principal component being size/visibility. These results are very similar to those found by *Anderson, Narin, and MeAllister* in the context of academic research, but these findings emerge froma context which allows other variables to compete in predicting expert Judgement, and are therefore to that degree more robuts. In addition this study finds a clear pattern of subject specificity, which implies that visibility is a function of the judge’s subject field.

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Full Text: [1982\Scientometrics4, 379.pdf](1982/Scientometrics4,%20379.pdf)

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Full Text: [1982\Scientometrics4, 389.pdf](1982/Scientometrics4,%20389.pdf)

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Full Text: [1982\Scientometrics4, 397.pdf](1982/Scientometrics4,%20397.pdf)

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Full Text: [1982\Scientometrics4, 399.pdf](1982/Scientometrics4,%20399.pdf)

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Full Text: [1982\Scientometrics4, 400.pdf](1982/Scientometrics4,%20400.pdf)

Keywords: Europe

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Full Text: [1982\Scientometrics4, 401.pdf](1982/Scientometrics4,%20401.pdf)

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Full Text: [1982\Scientometrics4, 403.pdf](1982/Scientometrics4,%20403.pdf)

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Full Text: [1982\Scientometrics4, 411.pdf](1982/Scientometrics4,%20411.pdf)

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Full Text: [1982\Scientometrics4, 417.pdf](1982/Scientometrics4,%20417.pdf)

Abstract: Several studies have demonstrated that such factors as area of specialization, and the age, rank, years of experience and prestige background of authors affect the publication of scientific research. This study examines the impact of these variables on the probability that published articles will receive critical comment. The data for the study are based on information gathered on the authors of 477 articles and comments published in the *American Sociological Review* over a 33 year period (1947-1979). Results show that area of specialization is a major factor influencing the probability of an article being commented on. Articles written in the areas of theolT/history of social thought and quantitative methods receive a disproportionately higher percentage of comments; while articles in such areas as community, social psychology and marriage and family receive far fewer comments. None of the five demographic and prestige characteristics of article authors was found to significantly discriminate between those articles that either had or had not been commented on. and f’mally, journal article comments are shown to either enhance or diminish an article’s likelihood of later being cited, depending upon the speciality area in which that article is written.

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Full Text: [1982\Scientometrics4, 431.pdf](1982/Scientometrics4,%20431.pdf)

Abstract: Some peculiarities and tendencies of the productivity of publication and invention activities for a large group of academic institutions of different scientific type of the Ukrainian SSR conducting research in the field of natural and technical sciences have been revealed.

? Braun, T. and Nagy, J.I. (1982), A comparative-evaluation of some Hungarian and other national biology, chemistry, mathematics and physics journals. *Scientometrics*, **4** (6), 439-455.

Full Text: [1982\Scientometrics4, 439.pdf](1982/Scientometrics4,%20439.pdf)

Abstract: This paper analyses the publication process of journal papers using a comparative methodology based on two indicators: the publishing delay of the manuscripts and the nationality of authors publishing in the journals under study. Using these indicators Hungarian foreign language journals are compared with some national journals of other countries

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Full Text: [1983\Scientometrics5, 5.pdf](1983/Scientometrics5,%205.pdf)

Abstract: A complex structure measure for social groups was established with a view to reflecting the degree of interaction within a social group. The quantitative degrees of relationship between two group members each and their distributions within the group are considered. These distributions can be characterized quantitatively on different hierarchical levels to which a specific meaning can be attributed. The complex structure measure is a combination of measures for the different hierarchical levels. A stratification of scientists based on the number of publications in a journal is reflected in the results obtained by the complex structure measure. Specific information is provided both by the complex structure measure and by the measure on different levels.

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Full Text: [1983\Scientometrics5, 31.pdf](1983/Scientometrics5,%2031.pdf)

Abstract: Foreign patenting activity in some of the world major patent systems is being compared between countries and industries and is found to be, with a few notable exceptions, relatively unbiased. Furthermore, a brief dynamic analysis of the foreign patenting activity in the USA of a number of OECD-countries in 41 industrial sectors in terms of ‘Revealed Technological Advantage’ indices suggests that foreign patent data might provide a very useful addition to the arsenal of Science and Technology Output Indicators.

? Slater, P.B. (1983), Hierarchical-clustering of mathematical journals based upon citation matrices. *Scientometrics*, **5** (1), 55-58.

Full Text: [1983\Scientometrics5, 55.pdf](1983/Scientometrics5,%2055.pdf)

Abstract: Journal-to-journal citation matrices can be examined with a two-stage double-standardization and hierarchical clustering procedure that has been widely applied to other transaction flow tables. An illustration is given, using 1967-1975 citations between 22 mathematical journals. Groups oriented to analysis and to algebra are discerned. Certain journals, such as the *Proceedings of the American Mathematical Society, are* shown to have broad, nonspecialized ties with the other periodicals.

? Schubert, A. and Glänzel, W. (1983), Statistical reliability of comparisons based on the citation impact of scientific publications. *Scientometrics*, **5** (1), 59-74.

Full Text: [1983\Scientometrics5, 59.pdf](1983/Scientometrics5,%2059.pdf)

Abstract: A method for estimating the standard error of mean citation rates per publication is proposed and examplified on journal impact factors. The use of the standard error values in statistical tests is also illustrated.

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Full Text: [1983\Scientometrics5, 77.pdf](1983/Scientometrics5,%2077.pdf)

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Full Text: [1983\Scientometrics5, 78.pdf](1983/Scientometrics5,%2078.pdf)

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Full Text: [1983\Scientometrics5, 78.pdf](1983/Scientometrics5,%2078.pdf)

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Full Text: [1983\Scientometrics5, 80.pdf](1983/Scientometrics5,%2080.pdf)

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Full Text: [1983\Scientometrics5, 81.pdf](1983/Scientometrics5,%2081.pdf)

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Full Text: [1983\Scientometrics5, 81.pdf](1983/Scientometrics5,%2081.pdf)

Notes: UUniversity

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Full Text: [1983\Scientometrics5, 93.pdf](1983/Scientometrics5,%2093.pdf)

Abstract: Two separate studies were undertaken of the personality characteristics associated with research creativity and teaching effectiveness in university psychology professors. In the first study, 52 professors at the University of Western Ontario were evaluated on 29 trait dimensions using four assessment techniques: faculty peer ratings, student ratings, self ratings, and objective questionnairees. A composite criterion of reseach creativity was generated from publication and citation counts. A composite for teaching effectiveness was created from 5 years of archival data based on formal student evaluations. The personality measures demonstrated considerable convergence across modes of assessment for many traits. In turn, several traits differentiated between most and least creative researchers and most and least effective teachers. A second study, using a self report survey sent to 400 professors in graduate psychology departments at 9 Canadian universities, revealed substantial replications of the findings of Study 1. Limiting ourselves to those personality traits that reliably loaded on Research and Teaching factors in both studies, we may describe the creative researcher as ambitious, enduring, seeking definiteness, dominant, showing leadership, aggressive, independent, non-meek, and non-supportive. The effective teacher is best described as liberal, sociable, showing leadership, extraverted, nonanxious, objective, supporting, non-authoritarian, non-defensive, intelligent, and aesthetically sensitive.

? Roy, R., Roy, N.R. and Johnson, G.G. (1983), Approximating total citation counts from 1st author counts and from total papers. *Scientometrics*, **5** (2), 117-124.

Full Text: [1983\Scientometrics5, 117.pdf](1983/Scientometrics5,%20117.pdf)

Abstract: ]his paper is an attempt to improve on the approximation. First author itations (Cf) ~ Total citations (Ct) of an author’s publications without the work of making the complete citation count under the author and all co-author names.

Using the bibliographies of all faculty from each of four large departments: Physics, Chemistry, Materials Sciences, and Biosciences, in the same university, both first author and complete citation counts were made, care being taken to avoid the most common errors in such counts. It is shown that the function Cf T/F (where T and F are the total number of papers and F thosc with subject author’s namc first) correlates strongly (> 90%) with C t. We find also that C t correlates strongly with T.

The data also may be used as one more line of evidence to obtain normalizing ratios for possible comparisons of productivity *across* different disciplinary universes. A very tentative ratio from different studies would be 8 (Chem.) = 4 (Physics) = 2.5 (Mat. Sci.) = 2 (Mathematics) = 4.5 (Biophysics-Biochemistry).

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Full Text: [1983\Scientometrics5, 125.pdf](1983/Scientometrics5,%20125.pdf)

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Full Text: [1983\Scientometrics5, 135.pdf](1983/Scientometrics5,%20135.pdf)

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Full Text: [1983\Scientometrics5, 137.pdf](1983/Scientometrics5,%20137.pdf)

Notes: MModel

? Kretschmer, H. (1983), The reflection of Lotka’s law in the structure of citations of a journal. *Scientometrics*, **5** (2), 85-92.

Full Text: [1983\Scientometrics5, 85.pdf](1983/Scientometrics5,%2085.pdf)

Abstract: A complex structure measure for social groups was applied to the structure of citations in a journal. The citation structure reflected Lotka’s law on the various levels of group structure measure. On the first structure level the reciprocal effect of social and cognitive factors became discernible. The different hierarchical levels of the structure measure were a reflection of the logarithm of number of publications per author obtained in a group of authors with a definite number of publications.

Keywords: Lotka

? Blickenstaff, J. and Moravcsik, M.J. (1983), The profile of an international meeting. *Scientometrics*, **5** (3), 143-154.

Full Text: [1983\Scientometrics5, 143.pdf](1983/Scientometrics5,%20143.pdf)

Abstract: the aim of this study was to investigate the professional profile of participants in the ‘ACAST Colloquium’, one of the preliminary conferences leading to the United Nations Advisory Committee on Application of Science and Technology to Development (UNCSTD) meeting in Vienna in August of 1979, in order to study the different profile parameters of developing and ‘developed’ country participants. We found that the developing countries seem to have a higher proportion of women and younger people than the “developed’ countries. Participants on the whole tended to be older than a cross-section of the scientific and technological community. Approximately three-quarters considered themselves to be scientists rather than technologists. The scientists tended to be involved in some way with R & D, scientific or technological education, as well as management and administration. On the whole, the distribution of various parameters investigated was quite similar for developing and ‘developed’ countries. Some interpretations of these results are offered.

? Snizek, W.E. and Hughes, M. (1983), An empirical assessment of the validity of mullins theory group classifications. *Scientometrics*, **5** (3), 155-162.

Full Text: [1983\Scientometrics5, 155.pdf](1983/Scientometrics5,%20155.pdf)

Abstract: Using a random sample of 79 theorists selected from among six of Mullins’ theory groups, this study attempts to empirically assess the validity of Mullins’ theory group classifications. The procedure involved utilizes multiple discriminant analysis based on four demographic-academic variables standardized relative to the publication date of the first major work written by each theorist. Results of the discriminant analysis indicate 70 percent of 40 cases, for whom complete data were available, are correctly classified, based on Mullins’ initial categorizations. These results show Mullins’ classification schema as having considerable construct validity, as well as demonstrating the utility of using multiple discriminant analysis as a technique for assessing other classificatory systems.

? Davis, C.H. (1983), Institutional sectors of mainstream science production in subsaharan Africa, 1970-1979: A quantitative-analysis. *Scientometrics*, **5** (3), 163-175.

Full Text: [1983\Scientometrics5, 163.pdf](1983/Scientometrics5,%20163.pdf)

Abstract: the place of production of ‘mainstream’ scientific authors in Subsaharan Africa is examined in terms of institutional sectors for the period 1970 through 1979. Patterns of production of ‘mainstream’ scientific literature and the citation visibility of this literature are also examined, for a shorter period of time, in terms of institutional sectors. It is shown that the university and public sectors predominate in the production of ‘mainstream’ authors. These same sectors also assure more consistent intra-African visibility of research results than do other sectors. However, the growth of the university and public sectors appears to have slowed considerably since the mid-1970s. Research conducted within regional and subregional cooperative organizations declined dramatically during the decade. A growing emphasis on external interventions under multilateral (rather than bilateral) auspices is noted.

? Schubert, A., Zsindely, S. and Braun, T. (1983), Scientometric analysis of attendance at international scientific meetings. *Scientometrics*, **5** (3), 177-187.

Full Text: [1983\Scientometrics5, 177.pdf](1983/Scientometrics5,%20177.pdf)

Abstract: International scientific meetings represent important channels for communicating research results. Based on data from more than 500 proceedings of scientific meetings, organization and participation patterns of several countries (or geopolitical regions) were analyzed. Some new indicators were derived and proved to be useful in characterizing the scientific activity of the countries. Particularly, the ‘open’ and ‘closed’ nature of national scientific communities, as well as ‘attraction’ and ‘repulsion’ between certain pairs of countries could be revealed by this method.

? Schubert, A. (1983), Quantitative studies of science: A current bibliography. *Scientometrics*, **5** (3), 189-194.

Full Text: [1983\Scientometrics5, 189.pdf](1983/Scientometrics5,%20189.pdf)

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Full Text: [1983\Scientometrics5, 195.pdf](1983/Scientometrics5,%20195.pdf)

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Full Text: [1983\Scientometrics5, 197.pdf](1983/Scientometrics5,%20197.pdf)

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Full Text: [1983\Scientometrics5, 199.pdf](1983/Scientometrics5,%20199.pdf)

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Full Text: [1983\Scientometrics5, 202.pdf](1983/Scientometrics5,%20202.pdf)

Keywords: India, Kenya

? Peritz, B.C. (1983), Are methodological papers more cited than theoretical or empirical ones? the case of sociology. *Scientometrics*, **5** (4), 211-218.

Full Text: [1983\Scientometrics5, 211.pdf](1983/Scientometrics5,%20211.pdf)

Abstract: the objective of this study is to f’md out whether methodological papers published in core sociological journals are more frequently cited than theoretical or empirical (substantive) papers. The results indicate that such is indeed the ease; moreover, this result is not due to a few ‘outlying’, very highly cited papers. These findings are based on all the methodological and theoretical papers, and a sample of the empirical papers, published in 1972 and 1973 in three high-impact sociological journals. The citation counts for these papers were compiled from the *Social Science Citation lndex for the* years 1972-1981. The data were analyzed separately for each journal and year of publication.

? Eto, H. and Makino, K. (1983), Stochastic-model for innovation and resulting skew distribution for technological concentration with verification in Japanese industry. *Scientometrics*, **5** (4), 219-243.

Full Text: [1983\Scientometrics5, 219.pdf](1983/Scientometrics5,%20219.pdf)

Abstract: Technological resources are shown to be more concentrated to a few firms than economic wealth. To explain such concentrations, the self-multiplication process with cycle between the innovative and stagnant ages is modeled in terms of the stochastic process. This yields a family of new distributions which is named the ultra-Yule distribution. This new distribution which is quite skew is shown to fit the real distributions of patents and of R & D expenditure in the Japanese industry better than the Yule distribution. The properties of this new distribution is discussed.

? Baldauf, R.B. and Jernudd, B.H. (1983), Language use patterns in the fisheries periodical literature. *Scientometrics*, **5** (4), 245-255.

Full Text: [1983\Scientometrics5, 245.pdf](1983/Scientometrics5,%20245.pdf)

Abstract: A cross-sectional examination of the fisheries literature for 1978 was made to see how language use patterns were related to communicating research information. An analysis of 884 articles indicated that despite the dominance of English as an international communicative medium, there was a strong national language Usage pattern. National language Usage was not confined to local fisheries problems, but cut across issues of international importante. for most of the articles the language of publication was directly predictable from the first author’s country of residence. However the mismatch between these variables for about six percent of the sample suggested the need for a detailed study of individual cases.

? Vanhouten, J., Vanvuren, H.G., Lepair, C. and Dijkhuis, G. (1983), Migration of physicists to other academic disciplines: Situation in the Netherlands. *Scientometrics*, **5** (4), 257-267.

Full Text: [1983\Scientometrics5, 257.pdf](1983/Scientometrics5,%20257.pdf)

Abstract: ‘Field switchers’ are an interesting group of people to study ff one wants to find out to what extent and the ways in which the various scientific disciplines influence each other. In this paper we present and discuss the results of an inquiry that was conducted at Dutch universities among one particular type of field switchers, namely migrated physicists. By migrated physicists we mean physicists working in universities but not in physics departments. Although migrated physicists form a very heterogeneous group one can draw some general conclusions about their attitudes, characteristics and capacities. Migrated physicists apparently continue to feel themselves to be physicists, and they think that physics or natural sciences should play a greater role in their ‘adopted’ fields. At least in the case of *physicists,* field-mobility seems to be linked with general mobility. Migrants parform a useful and important service.

Keywords: the Netherlands

? Moravcsik, M.J. (1983), Organization for economic cooperation and development: Science and technology policy for the 1980s. *Scientometrics*, **5** (4), 269-270.

Full Text: [1983\Scientometrics5, 269.pdf](1983/Scientometrics5,%20269.pdf)

? Moravcsik, M.J. (1983), Quality in science: Lafollette, MC. *Scientometrics*, **5** (4), 270-272.

Full Text: [1983\Scientometrics5, 270.pdf](1983/Scientometrics5,%20270.pdf)

? Mccain, K.W. (1983), The author co-citation structure of macroeconomics. *Scientometrics*, **5** (5), 277-289.

Full Text: [1983\Scientometrics5, 277.pdf](1983/Scientometrics5,%20277.pdf)

Abstract: Cocitations of the work of 42 prominent macroeconomists (past and present) were examined, using multidimensional scaling and clustering techniques. Author clusters, corresponding primarily to current schools of thought in macroeconomics, are arranged along two dimensions of scholarly style; 1) a relative orientation toward quantitative or *mathematical models and issues and* 2) a *continuum of active concern* with older scholarship in the field. Social relationships demonstrated by these techniques include joint journal editorship, mentor-student links and institutional affiliation. New to this study is evidence of the eocitation of prominent authors as ‘concept symbols’.

? Todorov, R. (1983), Condensed matter physics journals. *Scientometrics*, **5** (5), 291-301.

Full Text: [1983\Scientometrics5, 291.pdf](1983/Scientometrics5,%20291.pdf)

Abstract: On the basis of a citation/reference criterion, 20 core journals are selected in the field of condensed matter physics. Citation data and indicators from *1980Journal Citation Reports* reveal their different characteristic features such as applied orientation, communication function and longevity. The manually obtained data for the core journals are written into a matrix in order to determine an appropriate ranking parameter. The method of *Price* is used first to reduce the diagonal elements and then, following the method of *Geller,* influence weights are calculated for the core journals. Influence weights are determined also for non-core journals using only the references received from the core.

? Peritz, B.C. (1983), A Classification of citation roles for the social-sciences and related fields. *Scientometrics*, **5** (5), 303-312.

Full Text: [1983\Scientometrics5, 303.pdf](1983/Scientometrics5,%20303.pdf)

Abstract: the paper proposes a classification scheme for the roles of citations in empirical studies from the social sciences and related fields. The use of the classification, which has eight categories, is illustrated in sociology, education, demography, epidemiology and librarianship; its association with the citations’ location within the paper is presented. The question of repeated citations of the same document is discussed. Several research questions to which this classification is relevant are proposed. The need for further critique, validation and experimentation is pointed out.

? Gregory, J.G. (1983), Citation study of a scientific revolution: Sudden infant death syndrome. 1. The new paradigm. *Scientometrics*, **5** (5), 313-327.

Full Text: [1983\Scientometrics5, 313.pdf](1983/Scientometrics5,%20313.pdf)

Abstract: the sudden infant death syndrome (SIDS) provides an example of a scientific revolution something like that proposed by Thomas Kuhn. In the early 70s a variety of theories within the paradigm that SIDS affects ‘normal’ children were superseded by the sleep apnea hypothesis, which is the main theory associated with the new paradigm, that some infants have respiratory abnormalities which put them at risk of ‘near misses’ of S1DS. Quantitative and qualitative studies of the literature and citations of the work of the scientists considered to be responsible for the new paradigm are used to describe the revolution.

? Roche, M. (1983), Sciences and cultures - Mendelsohn, E, Elkana, Y. *Scientometrics*, **5** (5), 329-331.

Full Text: [1983\Scientometrics5, 329.pdf](1983/Scientometrics5,%20329.pdf)

? Kochen, M. (1983), The cognitive paradigm: Demey, M. *Scientometrics*, **5** (5), 331-333.

Full Text: [1983\Scientometrics5, 331.pdf](1983/Scientometrics5,%20331.pdf)

? Rajeswari, A.R. (1983), A quantitative-analysis of Indian science and technology manpower employment and economic-development. *Scientometrics*, **5** (6), 343-359.

Full Text: [1983\Scientometrics5, 343.pdf](1983/Scientometrics5,%20343.pdf)

Abstract: In this paper an attempt has been made to analyse the science & technology (simply S & T) manpower employment in relation to economic development based on quantitative analysis. The results derived from various analyses have shown the existence of correlation between S & T employment generation and economic development. A number of multiple regression analyses have indicated in quantitative terms the extent of growth expected in the Gross National Product (GNP), industrial output and R & D expenditure to absorb the available supply of S & T personnel.

? Midorikawa, N. (1983), Citation analysis of physics journals: Comparison of subfields of physics. *Scientometrics*, **5** (6), 361-374.

Full Text: [1983\Scientometrics5, 361.pdf](1983/Scientometrics5,%20361.pdf)

Abstract: In this study, half-life, citation degree, form dispersion and title dispersion of physic journals were investigated, and they were compaired in each subfield with those in other subfields.

The results from this study were that, on the whole, in physics the most preferred medium for physicists is the ‘journal’; however, in the subfields in which large experimental or observational devices are used, the use of ‘reports’ and ‘letter journals’ is going to increase.

? Haitun, S.D. (1983), The “rank distortion” effect and non-gaussian nature of scientific activities. *Scientometrics*, **5** (6), 375-395.

Full Text: [1983\Scientometrics5, 375.pdf](1983/Scientometrics5,%20375.pdf)

Abstract: the “rank distortion” of statistical distribution and its effect on the non-Gaussian nature of scientific activities is discussed. Examples are presented and in particular, the dispersion of publications by journals (the Bradford distribution) is discussed in detail. The data supporting the thesis of non-Gaussian nature of science are reexamined, and the empirical basis of the thesis is extended.

? Schubert, A. (1983), Quantitative studies of science: A current bibliography. *Scientometrics*, **5** (6), 397-403.

Full Text: [1983\Scientometrics5, 397.pdf](1983/Scientometrics5,%20397.pdf)

? Eisemon, T. (1983), The manufacture of knowledge: An essay on the constructivist and contextual nature of science - Knorrcetina, KD. *Scientometrics*, **5** (6), 405-406.

Full Text: [1983\Scientometrics5, 405.pdf](1983/Scientometrics5,%20405.pdf)

? Moravcsik, M.J. (1983), Science in context: Barnes, B, Edge, D. *Scientometrics*, **5** (6), 406-407.

Full Text: [1983\Scientometrics5, 406.pdf](1983/Scientometrics5,%20406.pdf)

? Griffith, B.C. (1984), Price, D (1922-1983) and the social-studies of science. *Scientometrics*, **6** (1), 5-7.

Full Text: [1984\Scientometrics6, 5.pdf](1984/Scientometrics6,%205.pdf)

? Zhao, H.Z. (1984), An intelligence constant of scientific work. *Scientometrics*, **6** (1), 9-17.

Full Text: [1984\Scientometrics6, 9.pdf](1984/Scientometrics6,%209.pdf)

Abstract: A susceptibility parameter called the ‘intelligence constant’ by which it is possible to assess the complexity of scientific research in the different periods in history is suggested. In scientific sense, the intelligence constant measures creative energy expended in the achievement of a major scientific result. It is demonstrated that the sudden change of intelligence constant signalizes a scientific revolution and so the law of intelligence constant change might provide a particular method to forecast scientific revolutions in the future.

? Qurashi, M.M. (1984), Publication rate as a function of the laboratory group-size. *Scientometrics*, **6** (1), 19-26.

Full Text: [1984\Scientometrics6, 19.pdf](1984/Scientometrics6,%2019.pdf)

Abstract: In view of conflict with the conclusions of several earlier studies, a fresh analysis has been made of *Cohen’s* data on publication-rate for various lab. group sizes in the National Cancer Institute (USA) and the National Institute of Medical Research (U.K.) for 1976-77. The present analysis is based on subdividing the data into successive ranges of lab. Group size, 1-3, 4-6, 7-9., .and calculating the relevant publication rate person (R) for each range.

When plotted, this yields graphs with an *initial* linear rise of per-capita publication rate, R, followed by well-marked maxima of publication rates (maxima/minima N1.6) at group size of 6,16, and 27 • persons, which are confirmed through analyses with ranges of two different group sizes. The group size at the peaks presumably correspond to optimum efficiency, in general agreement with the findings of the present author on samples from various countries published several years ago. Our conclusions fall somewhere between the findings of *Cohen* (publication rate independent of size) and those of *lCallmark* et al. (research efficiency increases exponentially with size).

? Cohen, J.E. (1984), Statistical theory AIDS inference in scientometrics Comments to publication rate as a function of the laboratory/group size by M. M. Qurashi. *Scientometrics*, **6** (1), 27-32.

Full Text: [1984\Scientometrics6, 27.pdf](1984/Scientometrics6,%2027.pdf)

Keywords: Scientometrics

? Hopkins, F.L. (1984), New caUSAl theory and ethnomethodology: Cocitation patterns across a decade. *Scientometrics*, **6** (1), 33-53.

Full Text: [1984\Scientometrics6, 33.pdf](1984/Scientometrics6,%2033.pdf)

Abstract: Twenty-one authors were selected from Nicholas *Mullins’* 1972 lists of leaders in two emergent sociological theory groups, new caUSAl theory and ethnomethodology. Data on cocitation of their works for the periods 1972-1976 and 1977-1981 were extracted from the *Social Scisearch* database and subjected to factor analysis and multidimensional scaling programs. Interpretation of the results, based on examination of a sample of the cited literature, confirmed Mullins’ division of these authors into two distinct groups. The evidence indicates that ethnomethodology is neither dying out nor becoming more alienated from mainstream sociology.

? Schubert, A. (1984), Quantitative studies of science: A current bibliography. *Scientometrics*, **6** (1), 55-59.

Full Text: [1984\Scientometrics6, 55.pdf](1984/Scientometrics6,%2055.pdf)

? Lyon, W.S. (1984), Winning the games scientists play - Sinderman, CJ. *Scientometrics*, **6** (1), 61-62.

Full Text: [1984\Scientometrics6, 61.pdf](1984/Scientometrics6,%2061.pdf)

? Baldauf, R.B. (1984), Correction. *Scientometrics*, **6** (1), 67.

Full Text: [1984\Scientometrics6, 67.pdf](1984/Scientometrics6,%2067.pdf)

? Moravcsik, M.J. (1984), Life in a multidimensional world. *Scientometrics*, **6** (2), 75-85.

Full Text: [1984\Scientometrics6, 75.pdf](1984/Scientometrics6,%2075.pdf)

Abstract: the methodology of the science of science is claimed to be plagued by one-dimensional thinking, and it is urged that a multi-dimensional view be adopted instead. In a onedimensional model ‘cause’ is a meaningful word, superlatives Can be used, dichotomous thinking is realistic, with a resultant ‘zero-sum’ mentality, and the ‘make a hypothesis - find a correlation’ method makes sense. In the multidimensional framework these four characteristics are unsuitable, and instead a quite different set of questions arise as appropriate. This is illustrated on five examples taken from among currently interesting questions in the science of science. Following some remarks about simplicity and about the role and limitations of multiple regression analyses, it is concluded that, among other things, more purely phenomenological studies are needed to make progress in the science of science.

? Gordon, M.D. (1984), Methodological pluralism in a multidimensional world: A comment to the special report. *Scientometrics*, **6** (2), 87-92.

Full Text: [1984\Scientometrics6, 87.pdf](1984/Scientometrics6,%2087.pdf)

? Haitun, S.D. (1984), Life in a multidimensional world: A comment to the special report. *Scientometrics*, **6** (2), 93-96.

Full Text: [1984\Scientometrics6, 93.pdf](1984/Scientometrics6,%2093.pdf)

? Frame, J.D. (1984), Multidimensionality is alive and well in applied statistics: A comment to the special report. *Scientometrics*, **6** (2), 97-101.

Full Text: [1984\Scientometrics6, 97.pdf](1984/Scientometrics6,%2097.pdf)

? Nalimov, V.V. (1984), Life in a multidimensional world: A comment to the special report. *Scientometrics*, **6** (2), 103-104.

Full Text: [1984\Scientometrics6, 103.pdf](1984/Scientometrics6,%20103.pdf)

? Inhaber, H. (1984), Life in a multidimensional world: A comment to the special report. *Scientometrics*, **6** (2), 105-107.

Full Text: [1984\Scientometrics6, 105.pdf](1984/Scientometrics6,%20105.pdf)

? Sengupta, I.N. (1984), The place of phenomenological studies in scientometrics: A comment to the special report. *Scientometrics*, **6** (2), 109-113.

Full Text: [1984\Scientometrics6, 109.pdf](1984/Scientometrics6,%20109.pdf)

Keywords: Scientometrics

? Hurt, C.D. (1984), An examination of the literature distributions of 3 scientific specialties. *Scientometrics*, **6** (2), 115-126.

Full Text: [1984\Scientometrics6, 115.pdf](1984/Scientometrics6,%20115.pdf)

Abstract: An examination was conducted of the distributions produced by historical treatments of three scientific specialties: quantum mechanics, plate tectonics, and endocrinology. A citation analysis approach was employed to generate a frequency distribution for year of publication of literature referenced by historians. The observed values were normalized and tested for goodness of fit to each other using a Pearson goodness of fit test. The results indicated that the three distributions were not equivalent. Other parameters of the three distributions did show similarities using a *Dunn* planned comparison approach. The skewness of the three distributions was very similar and plate tectonics and endocrinology were similar in terms of kurtosis. The major conclusion reached was that there were major differences in the three distributions but some similarities in particular parameters were evident. Additional work is necessary to determine caUSAl factors for the differences as well as similarities.

? Todorov, R. (1984), Determination of influence weights for scientific journals: An example from elementary particle physics. *Scientometrics*, **6** (2), 127-138.

Full Text: [1984\Scientometrics6, 127.pdf](1984/Scientometrics6,%20127.pdf)

Abstract: A new citation matrix is proposed for the computation of journal influence weights applying Gelter’s methodology. Instead of self-citations, references to fringe journals are introduced and the proportions of all references (without self-citations) are used as matrix elements. On the basis of the determined weights, relative weights for fringe journals are calculated, i.e. The initial set (core) of journals is extended and simultaneously a rank order is obtained (by total influence and influence per article). The procedure is examplified on elementary particle physics (EPP) journals. Using first a reference/citation criterion, eight core journals were determined by iteration and then influence weights were calculated. A ranking by total influ6nce and influence per article is presented for core and fringe journals in EPP.

? Schubert, A. and Glänzel, W. (1984), A dynamic look at a class of skew distributions: A model with scientometric applications. *Scientometrics*, **6** (3), 149-167.

Full Text: [1984\Scientometrics6, 149.pdf](1984/Scientometrics6,%20149.pdf)

Abstract: A theoretical model of repetitive events is presented and applied to the scientific publication process. Based on three simple postulates, a relation between population growth and distribution of authors by publication productivity in a scientific community is established. Predictions of the model are supported by empirical evidences.

? Simonton, D.K. (1984), Scientific eminence historical and contemporary: A measurement assessment. *Scientometrics*, **6** (3), 169-182.

Full Text: [1984\Scientometrics6, 169.pdf](1984/Scientometrics6,%20169.pdf)

Abstract: In some studies of scientific creativity it has proved useful to assess the differential eminence of scientists according to their presence in historical record (as registered by scholarly works). To determine the research utility of such indicators, a sample of 2026 scientists spanning several centuries and nationalities was taken from three biographical dictionaires of science. The eminence of each scientist was gauged 23 distinct ways using a diversity of reference works (e.g., histories, biographical dictionaires, encyclopedias, etc.) and variable operationalizations (e.g., space measures, ratings, rankings, etc.). Despite minor discrepancies due mainly to the degree of timewise bias and reference work type, a factor analysis demonstrated the existence of a pervasive concensus. A linear composite of these measures had an c~ reliability of 0.78. Further, it was shown that (a) the reliability of assessed eminence somewhat declines as it is applied to more recently born scientists, (b) the reliability remains high within separate disciplines and nationalities, and (c) assessed eminence, once complex time trends are controlled, correlates positively with the more commonly used citation counts, especially the number of cited publications. Hence, archival indicators or’ scientific eminence axe both reliable and consistent with other scientometric procedures.

? Eto, H. (1984), Bradford Law in R and D expending of firms and R and D concentration. *Scientometrics*, **6** (3), 183-188.

Full Text: [1984\Scientometrics6, 183.pdf](1984/Scientometrics6,%20183.pdf)

Abstract: the applicability of the Bradford law 1o the R ~ D expending of firms is examined and its usefidness is proved. It successfully identifies core firms, peripheral firms and minor firms. It also provides a measure to evaluate the degree of R & D concentration lo a small number of firms.

? Diamond, A.M. (1984), An economic-model of the life-cycle research productivity of scientists. *Scientometrics*, **6** (3), 189-196.

Full Text: [1984\Scientometrics6, 189.pdf](1984/Scientometrics6,%20189.pdf)

Abstract: Scientific productivity is constant as a scientist ages according to recent studies relying mainly on quantity measures of productivity. An economic model of the life-cycle productivity of scientists is presented which implies that the number of citations made to a scientist’s previous work will decline with age. The implication could be consistent with the finding of constant quantity output with age if the decline in quality (as measured by number of citations per article) is large enough.

? Schubert, A. (1984), Quantitative studies of science: A current bibliography. *Scientometrics*, **6** (3), 197-202.

Full Text: [1984\Scientometrics6, 197.pdf](1984/Scientometrics6,%20197.pdf)

? Brown, W.B. (1984), International-business and global technology - Frame, JD. *Scientometrics*, **6** (3), 203-204.

Full Text: [1984\Scientometrics6, 203.pdf](1984/Scientometrics6,%20203.pdf)

? Nalimov, V.V. (1984), Scientometrics - State and prospects - Russian - Haitun, SD. *Scientometrics*, **6** (3), 204-205.

Full Text: [1984\Scientometrics6, 204.pdf](1984/Scientometrics6,%20204.pdf)

Keywords: Scientometrics

? Snizek, W.E. (1984), Casting the 1st rock: Some observations on the bestowers and recipients of journal article comments in sociology. *Scientometrics*, **6** (4), 215-222.

Full Text: [1984\Scientometrics6, 215.pdf](1984/Scientometrics6,%20215.pdf)

Abstract: This study examines the patterns of evaluation surrounding journal article comments which have appeared in the *ASR* from 1970 through 1979. The data analyzed represent a complete enumeration of the demographic and prestige characteristics of 560 senior authors of articles, and 172 authors of comments written on 138 of the 560 articles published during the decade. Upon comparison, authors whose articles have been commented on are shown to be affiliated with significantly less prestigious institutions, than are authors whose articles have not been commented on. Furthermore, a significant inverse relationship is shown to exist between the academic ranks of article authors and comment writers.

? Frame, J.D. (1984), Quantitative management of technology. *Scientometrics*, **6** (4), 223-232.

Full Text: [1984\Scientometrics6, 223.pdf](1984/Scientometrics6,%20223.pdf)

Abstract: the paper examines a not too comprehensive set of quantitative aspects of technology. It concentrates mainly on the quantification of management tools.

? Karmeshu, Lind, N.C. and Cano, V. (1984), Rationales for Bradford Law. *Scientometrics*, **6** (4), 233-241.

Full Text: [1984\Scientometrics6, 233.pdf](1984/Scientometrics6,%20233.pdf)

Abstract: Two models of the mechanism responsible for the distribution of scientific papers in an area over periodicals are given. Empirical distributions following Bradford’s law are shown to agree quite closely with a lognonnal distribution. This distribution arises, in one model, by taking the probability of a paper being published in a particular journal as the product of many independent factors It can also arise, according to an alternative mechanism, by random subdivision of the papers in a field over the journals. The mechanisms are compared with other models in the literature.

? Lerner, J. and Roy, R. (1984), Numbers, origins, economic value and quality of technically trained immigrants into the United-States. *Scientometrics*, **6** (4), 243-259.

Full Text: [1984\Scientometrics6, 243.pdf](1984/Scientometrics6,%20243.pdf)

Abstract: This study updates the data on the numbers and the changing origins of immigrants into the U.S. with technical qualifications and ability, and the economic gain to the U.S. Therefrom. It also provides new data on the quality of such personnel by examining the number of immigrants who are elected to the U.S. National Academies of Engineering and of Science, and also win Nobel prizes. It is shown that this immigration is a major continuing contribution to the U.S.; constituting substantial fractions (one third to one-half) of certain categories of advanced degrees. Using different methods of calculating the value of the education thus transferred one arrives at the general conclusion that it is roughly in balance with the total economic aid from the U.S. (i.e. in the order of several billion i/year in the last two decades). Immigrant engineers/scientists constitute about a fifth of National Academy membership and between 20 and 50% of the Nobel prize winners, depending on the discipline involved, with chemistry appearing as the native national strength of the U.S.

Keywords: United States

? Gieryn, T.F. (1984), Polish contributions to the science of science: Walentynowicz, B. *Scientometrics*, **6** (4), 261-262.

Full Text: [1984\Scientometrics6, 261.pdf](1984/Scientometrics6,%20261.pdf)

? Moravscik, M.J. (1984), Sociology of sciences: An annotated-bibliography on invisible-colleges, 1972-81 - Chubin, DE. *Scientometrics*, **6** (4), 263.

Full Text: [1984\Scientometrics6, 263.pdf](1984/Scientometrics6,%20263.pdf)

? Suppe, F. (1984), Faces of science - Nalimov, VV. *Scientometrics*, **6** (4), 264-266.

Full Text: [1984\Scientometrics6, 264.pdf](1984/Scientometrics6,%20264.pdf)

? Pyenson, L. and Singh, M. (1984), Physics on the periphery: A world survey, 1920-1929. *Scientometrics*, **6** (5), 279-306.

Full Text: [1984\Scientometrics6, 279.pdf](1984/Scientometrics6,%20279.pdf)

Abstract: We provide a quantitative, historical survey of physics on the periphery (that is, beyond Europe and the United States) during the crucial decade of the I920s. Our population derives from Henry mall’s *Physics Citation Index~ 1920-1929,* 2 vols (Philadelphia, 1981), which organizes the content of sixteen of the world:s most important physics journals into the alphabetical lists familiar to users of the products of the Institute for Scientific Information. The 319 authors are situated in eleven separate political entities. Both expected and surprising results emerge from considering the educational trajectories, publishing patterns, and citation visibility of our sample.

? Gregory, J.G. (1984), Citation study of a scientific revolution: Sudden infant death syndrome. 2. The superseded paradigm. *Scientometrics*, **6** (5), 307-326.

Full Text: [1984\Scientometrics6, 307.pdf](1984/Scientometrics6,%20307.pdf)

Abstract: Nutrition hypotheses associated with the old paradigm for the cause of sudden infant death syndrome (SIDS) have been investigated by a qualitative and quantitative analysis of citations It is shown that they are reasonable and that they have not definitely been refuted, but that interest in them has declined. The social and political background of infant feeding is outlined, and the scientific revolution is discussed in relation to Kuhn’s precepts and external influences on the course of research.

Poikolainen, K. (1984), Organization and funding of medical-research in 10 European-countries. *Scientometrics*, **6** (5), 327-358.

Full Text: [1984\Scientometrics6, 327.pdf](1984/Scientometrics6,%20327.pdf)

Abstract: Information on the organization and funding of medical research were obtained by a questionnaire from 10 member countries of the European Medical Research Councils. Responses how that the ratio of medical research expenditure to Gross Domestic Product varied from 0.1 to 0.2 per cent between these countries. In many countries, the largest shtgle source of funds was pharmaceutical industry; its share of the total expenditure varied between one and 58 per cent. Excluding pharmaceutical industry, the contribution of Medical Research Councils (MRCs) varied from 2 to 22 per cent of the remaining expenditure- the present figures, derived directly from the national research organizations, were considerably higher than the respective OECD figures. A great deal of variation between the national MRCs in the distribution of funds by field of research, type of activity, and type of cost was observed. The average cost era research project varied between 4800-97000 U.S. dollars. The variation is probably explained to a great extent by availability of other sources of funds. All MRCs used peer review in the assessment of research proposals. Criteria for peer review varied much. Only two MRCs mentioned specifically the needs of the society among the criteria. The various medical research organizations are described in detail inthis report.

? Schubert, A. (1984), Quantitative studies of science: A current bibliography. *Scientometrics*, **6** (5), 359-367.

Full Text: [1984\Scientometrics6, 359.pdf](1984/Scientometrics6,%20359.pdf)

? Holmfeld, J.D. (1984), Politics and the restraint of science: Cole, LA. *Scientometrics*, **6** (5), 369-370.

Full Text: [1984\Scientometrics6, 369.pdf](1984/Scientometrics6,%20369.pdf)

? Rip, A. and Courtial, J.P. (1984), Co-word maps of biotechnology: An example of cognitive scientometrics. *Scientometrics*, **6** (6), 381-400.

Full Text: [1984\Scientometrics6, 381.pdf](1984/Scientometrics6,%20381.pdf)

Abstract: To analyze developments in scientific fields, scientometrics provides useful tools, provided the content of scientific articles is taken into account. Such cognitive scientometrics is illustrated by using as data a 10-yr period of articles from a biotechnology core journal. After coding with key words, the relations between articles are brought out by co-word analysis. Maps of the field are given, showing connections between areas and their change over time, and with respect to the institutions in which research is performed. Other approaches are explored, including an indicator of theoretical level of bodies of articles.

Keywords: Biotechnology, Scientometrics

? Studer, K.E., Barboni, E.J. and Numan, K.B. (1984), Structural-analysis using the input-output model: With special reference to networks of science. *Scientometrics*, **6** (6), 401-423.

Full Text: [1984\Scientometrics6, 401.pdf](1984/Scientometrics6,%20401.pdf)

Abstract: Social science network analysis originated in the small group sociometric tradition, thus many of the common assumptions of network models are inappropriate theoretically and formally for the analysis of open systems of social relationships. Five common assumptions of network analysis are identified, discussed and criticized: (a) generators are homogeneous, (b) relationships are dichotomous, (c) groups have fixed boundaries, (d) relationships are symmetric, and (e) networks are static. It is suggested that an open input-output model overcomes many of the difficulties inherent in the more common network analytical techniques. After a formal treatment of input-output analysis, and its relationship to network analysis, some interpretations from exchange theory are suggested. This model helps the analyst overcome many of the theoretical difficulties encountered in other models and allows the researcher to specify how subsets of individuals are ‘embedded’ within larger social contexts. Specifically, because society is comprised of numerous interacting subsystems, this model is particularly beneficial in describing how groups of scientists interface with each other and with the larger social domains.

? Richards, Jr., J.M. (1984), Structure of specialization among American population scientists. *Scientometrics*, **6** (6), 425-432.

Full Text: [1984\Scientometrics6, 425.pdf](1984/Scientometrics6,%20425.pdf)

Abstract: Studies of journal citation patterns suggest that specialty areas within disciplines may be the most appropriate structural units for understanding the social organization of science. Citation studies necessarily are limited to scientists who publish, however, and studies of all members of particular disciplines would provide more general specialty structure data. Accordingly, this research applied factor analytic procedures previously used in studies of the structure of specialization among psychologists to all members of the Population Association of America. Four principal components derived from the self-designated specialties of these population scientist were rotated to a final solution by the varimax procedure and were interpreted as measuring, respectively, *Social Emphasis, Geographic Emphasis, Formal Emphasis, and Epidemiological Emphasi~* These results partially confirm the distinction sometimes made by population scientists between social demography and formal demography, but suggest this typology is incomplete. The results also illustrate techniques that could provide a useful alternative to citation analysis for researchers studying specialty s~uctures in other disciplines.

? Schubert, A., Zsindely, S., Telcs, A. and Braun, T. (1984), Quantitative-analysis of a visible tip of the peer-review iceberg: Book reviews in chemistry. *Scientometrics*, **6** (6), 433-443.

Full Text: [1984\Scientometrics6, 433.pdf](1984/Scientometrics6,%20433.pdf)

Abstract: Book reviews are practically unique in being public, ‘visible’ manifestations of the peer review process. Two hundred reviews of 39 books on chemical topics were subjected to statistical context analysis. Dominance of attitudes, consensus among reviewers, correlation between the reviewers’ evaluations and the subsequent citation rate of the reviewed book were analysed.

? Schubert, A. (1984), The visual-display of quantitative information: Tufte, ER. *Scientometrics*, **6** (6), 445-446.

Full Text: [1984\Scientometrics6, 445.pdf](1984/Scientometrics6,%20445.pdf)

? Moravcsik, M.J. (1984), Would we be better off without research: the influence of natural-science on society - German - Perutz, MF. *Scientometrics*, **6** (6), 446-447.

Full Text: [1984\Scientometrics6, 446.pdf](1984/Scientometrics6,%20446.pdf)

? Restivo, S. (1984), Antipositivist theories of the sciences: Stockman, N. *Scientometrics*, **6** (6), 447-448.

Full Text: [1984\Scientometrics6, 447.pdf](1984/Scientometrics6,%20447.pdf)

? (1984), Indicators of measurement of impact of science and technology on socio-economic development objectives: Report of the panel of specialists of the united-nations-advisory-committee-on-science-and-technology-for-developm ENT held in Graz, Austria from 2-7 May 1984. *Scientometrics*, **6** (6), 449-463.

Full Text: [1984\Scientometrics6, 449.pdf](1984/Scientometrics6,%20449.pdf)

Keywords: Austria

? Oromaner, M. (1985), The ortega hypothesis and influential articles in American sociology. *Scientometrics*, **7** (1-2), 3-10.

Full Text: [1985\Scientometrics7, 3.pdf](1985/Scientometrics7,%203.pdf)

Abstract: In the *Revolt of the Masses,* Jose *Ortega y Gasset* suggests that the work of average or mediocre researchers plays a role in the advancement of science. In order to examine the ‘Ortega hypothesis’ in sociology, lifework citations to scholars referred to in 5 of the most highly cited contemporary sociological articles are examined. The findings do not support the hypothesis. That is, few average scholars received citations to their work in these influential articles. This finding is consistent with similar analyses for physics and criminology.

? Bakker, P. and Rigter, H. (1985), Editors of medical journals: Who and from where. *Scientometrics*, **7** (1-2), 11-22.

Full Text: [1985\Scientometrics7, 11.pdf](1985/Scientometrics7,%2011.pdf)

Abstract: the representation of scientists from different countries in the editorial boards of the most influential journals from 48 fields of biomedical and clinical research was studied. Scientists from the USA were best represented, followed by scientists from the UK, FRG, Switzerland, Japan, Sweden, Canada, the Netherlands and Italy. The scientifically most productive countries provided most of the editors. for Dutch editors a strong correlation wa~ found between the number of editorships held and the number of papexs--~trth~-r~d or measures of scientific eminence. Conceivably, scientific productivity and eminence may be important reasons for being asked as an editor. However, national biases play a role too in the composition of editorial boards.

? Nederhof, A.J. (1985), Evaluating research output through life work citation counts. *Scientometrics*, **7** (1-2), 23-28.

Full Text: [1985\Scientometrics7, 23.pdf](1985/Scientometrics7,%2023.pdf)

Abstract: the total number of citations to all previous publications (‘the life work’ has often been used to evaluate the research output of target units such as persons or depa\_qments. However, a study of a sample of Dutch full professors of sociology shows that simple counting of citations may lead to unretiable results. Dependent upon recency of publication period, large variations in rankings and citation scores were observed. Other pitfalls of using life work citation counts were discussed, as well as how to avoid them. for fine-tuned assessment of research output, longitudinal analysis seems to be called for.

? Leary, R.A. (1985), A Framework for assessing and rewarding a scientists research productivity. *Scientometrics*, **7** (1-2), 29-38.

Full Text: [1985\Scientometrics7, 29.pdf](1985/Scientometrics7,%2029.pdf)

Abstract: A contest for werld leadership in science and technology exists. New ways to motivate scientists seem as important to contest outcome as new sources of funds. A framework formed by cross-tabulating question difficulty and answer generality should help to identify the contribution of a research scientist, A reward relationship based on this framework should help to ensure that scientists will work on the most difficult research problems, a necessity for a high quality research program.

? Kretschmer, H. (1985), Cooperation structure, group-size and productivity in research groups. *Scientometrics*, **7** (1-2), 39-53.

Full Text: [1985\Scientometrics7, 39.pdf](1985/Scientometrics7,%2039.pdf)

Abstract: A research group is considered to be a system and the scientists the elements in this system. The degree of interaction among scientists is determined by means of a complex structure measure for groups. It is shown that optimum cooperation structures depend on group size. In addition, it was possible to determine an optimum group size. Various hypotheses have been verified employing the same data material by using several levels of the structure measure.

? Mcallister, P.R. and Condon, T. (1985), Econometric-analysis of biomedical-research publishing patterns. *Scientometrics*, **7** (1-2), 55-75.

Full Text: [1985\Scientometrics7, 55.pdf](1985/Scientometrics7,%2055.pdf)

Abstract: An econometric-type model was developed that describes the relationship between federal biomedical funding and the number, subject area and research level (clinical to basic) of published papers in biomedical journals. The study covered federal biomedical funding over the period 1962-1979 and biomedical literature counts over the period 1965-1979. A unique feature of the model was the explicit incorporation of the citation-based interrelationships among the various subfields and research levels of biomedicine. Publication counts in a particular subject area were modeled as a function of federal funding to the area and publication activity in related subject areas. In general, publication activity in related subject areas was found to be a significant explanatory variable over and above funding alone. Moreover, clinically oriented subject areas most often had publication counts in related basic research areas as explanatory variables.

? Pavitt, K. (1985), Patent statistics as indicators of innovative activities: Possibilities and problems. *Scientometrics*, **7** (1-2), 77-99.

Full Text: [1985\Scientometrics7, 77.pdf](1985/Scientometrics7,%2077.pdf)

Abstract: Advances in information technology have increased actual and potential uses of patent statistics as proxy measures of innovative activitie~ Analytical contributions have come out of economics, bibliometrics, and descriptive comparisons for policy purposes. They show achievement of promise in analysing (1) international patterns of innovative activities and their effects on trade and production; (2) patterns of innovative activities amongst firms, and their effects on firm performance and industrial structure; (3) rates and directions of innovative activities in different technical fiieds and industrial sectors; (4) links between science and technology. However, systematic biases remain in patent statistics, the full assessment of which require further econometric, classificatory and survey research.

? Balog, C. (1985), The distribution of reference citations in 2 agricultural journals. *Scientometrics*, **7** (1-2), 101-104.

Full Text: [1985\Scientometrics7, 101.pdf](1985/Scientometrics7,%20101.pdf)

Abstract: the average numbers of references cited in papers published *in N. Z. Journal of Experimental Agriculture (.YEA/*and *N. Z. Journal of Agricultural Research (JAR) are* compared. The papers in *JAR* have a greater number of references per paper than do,*YEA* papers, probably because *.YAR* papers are longer. for *.YEA* papers there is a steady increase in the average number of references per paper as the number of authors per paper increases. F0r *.YAR* there is no such steady increase but there is a marked increase in the average number of references per paper for 3- and 4+-author papers There is a clear difference between.yEA and *JAR* papers in the distribution of references between the different sections of the text. for *.YEA* papers 49% of references are cited in the Introduction and 52% are cited in the Results & Discussion sections for *JAR the* f~gures are 38% and 65% respectively. It is suggested that the distribution of cited references in the different sections of the text may be an indicator of the ‘apptiedness’ of a paper or of a journal.

? Balog, C. (1985), Authorship of papers dealing with different subjects in an agricultural journal. *Scientometrics*, **7** (1-2), 105-109.

Full Text: [1985\Scientometrics7, 105.pdf](1985/Scientometrics7,%20105.pdf)

Abstract: It has been shown 2 that there is little change in the subject areas covered by papers published inN. Z. *Journal of Agricultural Research* from 1958 to 1978. Over the same period there has been a marked increase in the number of multiple author paperspublished in the same journal (See Ref. 1). It was considered possible that the subjects covered by single and multiple author papers could be different but these differences could be masked by the changes in multiple authorship over the 21 years from 1958 to 1978. This paper considers the subject areas of papers published *in N. Z. Journal of Agricultural Research* over the years 1958 (volume 1) to 1978 (volume 21) and compares single and multiple author papers.

? Schubert, A. (1985), Quantitative studies of science: A current bibliography. *Scientometrics*, **7** (1-2), 111-117.

Full Text: [1985\Scientometrics7, 111.pdf](1985/Scientometrics7,%20111.pdf)

? Moravcsik, M.J. (1985), The arab construction-industry: Zahlan, AB. *Scientometrics*, **7** (1-2), 119-120.

Full Text: [1985\Scientometrics7, 119.pdf](1985/Scientometrics7,%20119.pdf)

? Medows, J. (1985), How to write and publish a scientific paper: Day, RA. *Scientometrics*, **7** (1-2), 120-121.

Full Text: [1985\Scientometrics7, 120.pdf](1985/Scientometrics7,%20120.pdf)

? (1985), Price, Derek, John, Desolla memorial issue: Instead of a preface. *Scientometrics*, **7** (3-6), 137.

Full Text: [1985\Scientometrics7, 137.pdf](1985/Scientometrics7,%20137.pdf)

Moravcsik, M.J. (1985), Address at the presentation of the first Derek de Solla Price Award to Eugene Garfield on December 20, 1984. *Scientometrics*, **7** (3-6), 143-144.

Full Text: [1985\Scientometrics7, 143.pdf](1985/Scientometrics7,%20143.pdf); [1985\Scientometrics7, 143a.pdf](1985/Scientometrics7,%20143a.pdf)

? Marton, J. (1985), Obsolescence or immediacy: Evidence supporting price hypothesis. *Scientometrics*, **7** (3-6), 145-153.

Full Text: [1985\Scientometrics7, 145.pdf](1985/Scientometrics7,%20145.pdf)

Abstract: the time distributions of references given by five leading journals in each of seven life science disciplines revealed that the decrease in the frequency of references is faster in the early years (5-10 years) than later. The rate of decrease is in good correlation with the 3 and 4 year-old references per article values, with the discipline impact factor sums and with the ratio of the 3-year-old references to the 4-year-old ones. The results are discussed as evidence supporting *Price’s* immediacy factor, i.e. The fall of citations in time does not mean obsolescence.

? Schubert, A., Zsindely, S. and Braun, T. (1985), Scientometric indicators for evaluating medical-research output of mid-size countries. *Scientometrics*, **7** (3-6), 155-163.

Full Text: [1985\Scientometrics7, 155.pdf](1985/Scientometrics7,%20155.pdf)

Abstract: the medical research output of eleven mid-size countries were compared with the aid of scientometric indicators. Papers published by clinical medicine journals and those of professors working at clinical faculties were used for comparison. The professors proved to be more productive authors than ‘average scientists’ of the same country, but no particular eminence of the professors could be revealed. A correlation was found between the quality of clinical medicine papers (as reflected by their relative citation rate) and the infant mortality of the countries in question.

? Moravcsik, M.J. (1985), Applied scientometrics: An assessment methodology for developing-countries. *Scientometrics*, **7** (3-6), 165-176.

Full Text: [1985\Scientometrics7, 165.pdf](1985/Scientometrics7,%20165.pdf)

Abstract: A United Nations sponsored project is described to formulate a practicable method for assessing the impact of science and technology in the developing countries and to propose further research to improve the development of such indicators. After a discussion of the importance of the project, the aims of science and technology are summarized, followed by the elements that need to be considered in such an assessment procedure, and the structure of the relationships among these elements. The first step in the assessment process is to make a map of the part of the system to be assessed. The types of indicators that can be used are then listed, and it is suggested that the status of these indicators is weak, especially with respect to their applicability to developing countries. It is proposed that a small number of specific pilot projects be undertaken to test the general ideas contained in the discussion and to experiment with novel kinds of indicators.

Keywords: Scientometrics

? Stefaniak, B. (1985), Periodical literature of information science as reflected in referativnyi zhurnal section 59 informatika. *Scientometrics*, **7** (3-6), 177-194.

Full Text: [1985\Scientometrics7, 177.pdf](1985/Scientometrics7,%20177.pdf)

Abstract: the paper presents results of a study of information science periodical literature included into RZh-Informatika in 1977-1983. The distribution of papers among periodicals and their language pattern are shown. The list of 95 periodicals that rendered at least 12 papers yr is also presented. The results are compared with some data taken from the SSCI-JCR database. Connections between information science and scientometerics are investigated by the overlap of periodical literature in both fields.

? Todorov, R. (1985), Distribution of Physics Literature. *Scientometrics*, **7** (3-6), 195-209.

Full Text: [1985\Scientometrics7, 195.pdf](1985/Scientometrics7,%20195.pdf)

Abstract: Percentage distributions of physics papers in 36 countries over ten subfields are compared. Factor and cluster analyses are applied to data from 1978 *Physics Abstracts.* Countries load highly on seven factors. Their meaning~s estimated by factor scores. Clusters of countries with similar publishing patterns are presented in a tree diagram.

? Glänzel, W. and Schubert, A. (1985), Price distribution: An exact formulation of price square root law. *Scientometrics*, **7** (3-6), 211-219.

Full Text: [1985\Scientometrics7, 211.pdf](1985/Scientometrics7,%20211.pdf)

Abstract: An exact probabilistic formulation of the ‘square root law’ conjectured by *Price* is given and a probability distribution satisfying this law is defined, for which the name *Price distribution* is suggested. Properties of the *Price* distribution are discussed, including its relationship with the laws of *Lotka and Zipf.* No empirical support of applicability of *Price* distribution as a model for publication productivity could be found.

? Chubin, D.E. (1985), Beyond invisible-colleges: Inspirations and aspirations of post-1972 social-studies of science. *Scientometrics*, **7** (3-6), 221-254.

Full Text: [1985\Scientometrics7, 221.pdf](1985/Scientometrics7,%20221.pdf)

Abstract: An exact probabilistic formulation of the ‘square root law’ conjectured by *Price* is given and a probability distribution satisfying this law is defined, for which the name *Price distribution* is suggested. Properties of the *Price* distribution are discussed, including its relationship with the laws of *Lotka and Zipf.* No empirical support of applicability of *Price* distribution as a model for publication productivity could be found.

? Long, J.S. and Mcginnis, R. (1985), The effects of the mentor on the academic career. *Scientometrics*, **7** (3-6), 255-280.

Full Text: [1985\Scientometrics7, 255.pdf](1985/Scientometrics7,%20255.pdf)

Abstract: the mentor plays an important role in initiating a process of cumulative advantage for the student. Our analyses present a c/ear and systematic pattern of effects of the mentor on the careers of biochemists. The influence of the mentor begins with collaboration, which is the single most important factor affecting the student’s predoctoral productivity. for those who collaborate, the effects of both eminence and performance further increase the student’s predoctoral productivity. The mentor’s performance has weak effects on the productivity of noncollaborating students. for those who collaborate with their mentor, the mentor continues to influence the careerwith a positive effect of the mentor’s performance on academic placement, an effect not found for noncollaborators. Even though the mentor’s performance affects the student’s placement, the student’s performances does *not* affect that placement, suggesting a process of ascription. for those who collaborate with their mentor, the mentor’s performance increases the student’s later publications and citations. for noncollaborators, whose mentors are much less productive during the student’s period of doctoral study, the mentor’s eminence has a smaUer, but significant effect on later productivity. Overall, the advantages of a strong mentor are drawn upon and enhanced through processes of both achievement and ascription.

? Irvine, J. and Martin, B.R. (1985), Evaluating big science: Cerns past performance and future-prospects. *Scientometrics*, **7** (3-6), 281-308.

Full Text: [1985\Scientometrics7, 281.pdf](1985/Scientometrics7,%20281.pdf)

Abstract: After explaining the reasons why science policy-makers face a growing need for more rigorous forms of research evaluation, we outline an approach combining bibliometric and peer-evaluation data that has been developed at the Science Policy Research Unit in the course of a programme of studies of Big Science specialties. The paper describes the results obtained when this ‘method of converging partial indicators’ is applied to compare the past research performance of the accelerators at CERN - the joint European Laboratory for Particle Physics - with that of the world’s other main accelerators. The paper concludes by demonstrating how, on the basis of an analysis of the factors that have structured research performance in the past, it is possible to arrive at a systematic set of conclusions about the future prospects for a major new research facility such as an accelerator.

? Dobrov, G.M. and Tonkal, V.E. (1985), Comparative-analysis and estimation of competence of research units. *Scientometrics*, **7** (3-6), 309-325.

Full Text: [1985\Scientometrics7, 309.pdf](1985/Scientometrics7,%20309.pdf)

Abstract: the UNESCO International Comparative Study on the Organization and Performance of Research Unists (ICSOPRU)\*\* has entered the period of drawing the theoretical and methodological conclusions from and starting the practical application of its results. Based on the experience of the 3 rounds of ICSOPRU, the national team of the Ukrainian SSR has attempted to broaden the scope and methodology of this international project. The main features of our studies are as follows. 1. The comparative analysis is performed among research units working or intending to work on common research topics. 2. The complex characteristics determining the level of competence of the research units in achieving their research aims is evaluated by criteria specific to the given problems. 3. In order to gain the above mentioned results, certain additional material had been included into ‘The National Addendum’ and the national part of ‘External Evaluations Questionnaire’. Some additional software had also been developed)-3 This paper concentrates on some methodological aspects of this approach and refers also to some problems of more intensive use of science and technology.

? Kochen, M. and Lansing, J. (1985), On maps for discovery: Did the periodic table guide elemental discovery. *Scientometrics*, **7** (3-6), 327-339.

Full Text: [1985\Scientometrics7, 327.pdf](1985/Scientometrics7,%20327.pdf)

Abstract: the metaphor of ‘maps’ as cognitive tools aiding scientific discovery may be particularly appropriate for discussing the role of the periodic table of the elements in the progress of chemistry. In a tribute to the contributions of *Derek Price, the* use of maps, their advantages and disadvantages, and changes in the table are explored. The authors conclude that the table did serve as a general guide to discovery but that more insightful models of a different sort also played an important role.

? Mombers, C., Van Heeringen, A., Van Venetië, R. and Le Pair, C. (1985), Displaying strengths and weaknesses in national R-and-D performance through document cocitation. *Scientometrics*, **7** (3-6), 341-355.

Full Text: [1985\Scientometrics7, 341.pdf](1985/Scientometrics7,%20341.pdf)

Abstract: Document cocitation analysis, as developed by Small and Griffith, was employed as a means of assessing current Dutch participation in science. The method compared overall Dutch published contributions to science (1-2%) with the percentage of Dutch papers in both the cited ‘cores’ of clusters and the citing ‘margins’ of clusters (newly published papers). It was possible to identify clusters ranging form ones with strong Dutch participation to those without Dutch cited or citing papers. The method may help policymakers to detect areas of special concern. The technique can be used for any nation, but may be particularly helpful ibr the smaller developed countries. We consider the ide.al distribution of scientific productivity for those countries.

? Mullins, N.C. (1985), Invisible-colleges as science elites. *Scientometrics*, **7** (3-6), 357-368.

Full Text: [1985\Scientometrics7, 357.pdf](1985/Scientometrics7,%20357.pdf)

Abstract: An intensive investigation of the American science advisory system failed to find indications of elite structure in the selection or patterns of service of advisors. Advisory groups cannot act as elements of the invisible college circuits that *Price* refered to. The only long term advisors are *ex officio* members.

Advisory committee growth and activity is marked by three periods: 19.51 to 1957, slow growth; 1957 to 1966, rapid growth; and 1967 to 1972, no growth. Combined with the pattern of growth in numbers of eligible scientists, a perception of elite control may have been created.

? Narin, F. and Noma, E. (1985), Is technology becoming science? *Scientometrics*, **7** (3-6), 369-382.

Full Text: [1985\Scientometrics7, 369.pdf](1985/Scientometrics7,%20369.pdf)

Abstract: Citation and referencing data from recent biotechnology patients and bioscience papers is used to show that the bibliometric properties in these 2 realms are quite similar. Specifically, it is shown that the time distribution of references from both patients and papers are similar, with peak citing at 2-4 yr prior to publication or issue. This is shown to hold for patents citing patents, for papers citing papers, and for patents citing papers. There is a very skewed distribution of cited material in both patents and papers, with a relatively small number of highly cited patents and papers, and a relatively large number of documents which are cited only once or twice, or not at all. There is a substantial amount of citation from biotechnology patents to the central scientific literature. Science and technology are far more closely linked today than is normally perceived, and in fact, the division between leading edge biotechnology and modern bioscience has almost completely disappeared.

Aversa, E.S. (1985), Citation patterns of highly cited papers and their relationship to literature aging: A study of the working literature. *Scientometrics*, **7** (3-6), 383-389.

Full Text: [1985\Scientometrics7, 383.pdf](1985/Scientometrics7,%20383.pdf)

Abstract: Citation patterns of 400 very highly cited scientific papers are identified and the relationship of citation patterns to literature aging rates is investigated. Standardized citation counts for 1972 through 1980 are used as variables in a cluster analysis which groups papers with similar citation patterns and a discriminant analysis is used to refine the descriptions of clusters and to confirm the results. Among highly cited papers published in 1972, two basic citation patterns are identified: one group is highly cited in the first years following publication and declines in citedness thereafter; the second group reaches its citation peak in the sixth year following publication and declines in citedness in the seventh, eighth, and ninth years of the series. Both groups show general evidence of aging. *Price’s* suggestion that less highly cited papers age more rapidly than more highly cited papers is confernmed.

? Small, H. and Sweeney, E. (1985), Clustering the Science Citation Index using co-citations. 1. A comparison of methods. *Scientometrics*, **7** (3-6), 391-409.

Full Text: [1985\Scientometrics7, 391.pdf](1985/Scientometrics7,%20391.pdf)

Abstract: Earlier experiments in the use of co-citations to cluster the *Scienee Citation Indey (SCI)* database are reviewed. Two proposed improvements in the methodology are introduced: fractional citation counting and variable level clustering with a maximum cluster size limit. Results of an experiment using the 1979 *SCI* are described comparing the new methods with those previously employed. It is found that fractional citation counting helps reduce the bias toward high referencing fields such as biomedicine and biochemistry inherent in the use of an integer citation count threshold, and increases the range of subject matters covered by clusters. Variable level clustering, on the other hand, increases recall as measured by the percentage of highly cited items included in clusters. It is concluded that the two new methods used in combination will improve our ability to generate comprehensive maps of science as envisioned by *Derek Price.* This topic will be discussed in a forthcoming paper.

Keywords: Science Citation Index

? Christovão, H.T. (1985), The aging of the literature of biomedical sciences in developed and developing-countries. *Scientometrics*, **7** (3-6), 411-430.

Full Text: [1985\Scientometrics7, 411.pdf](1985/Scientometrics7,%20411.pdf)

Abstract: the analysis of the references contained in documents published by developed and underdeveloped countries indicate that developed and underdeveloped countries age the literature of ‘international’ areas of science in a similar pattern; underdeveloped countries age the literature reflecting ‘local’ problems slower than developed countries age the same literature, and the communication patterns among Regions follow a center-periphery model.

? Cozzens, S.E. (1985), Using the archive: Price, Derek theory of differences among the sciences. *Scientometrics*, **7** (3-6), 431-441.

Full Text: [1985\Scientometrics7, 431.pdf](1985/Scientometrics7,%20431.pdf)

Abstract: *Derek Price’s* theory of variation among the sciences stressed that the essential differences lay in the process through which scientists use each other’s results. He maintained that the critical processes were those which took place within small groups of scientists who shared an intellectual focus, and proposed that an indication of those processes could be found in referencing patterns. Later research, reviewed in this paper, has corroborated *Price* in these observations. Several bodies of evidence point to the desirability of further application of the basic concepts *Price* introduced for the purpose he proposed: as diagnostic tools to describe and compare processes of knowledge growth in the sciences.

? Cole, S. and Meyer, G.S. (1985), Little science, big science revisited. *Scientometrics*, **7** (3-6), 443-458.

Full Text: [1985\Scientometrics7, 443.pdf](1985/Scientometrics7,%20443.pdf)

Abstract: One of the basic dependent variables in the sociology of science is the rate at which scientific knowledge advances. Sociologists of science have in the past assumed that the rate of scientific advance was a function of the number of talented people entering science. This assumption was challenged by Derek Price who argued that as the number of scientists increased the number of ‘high quality’ scientists would increase at a slower rate. This paper reports the results of an empirical study of changes in the size of academic physics in the U.S. between 1963 and 1975. In each year we count the number of new Assistant Professors appointed in Ph. D.-granting departments. During the early 1960s there was a sharp increase in the size of entering cohorts followed by a sharp decline. A citation analysis indicates that the proportion of each cohort publishing work which was cited at least once in the first three years after appointment was relatively constant. This leads to the conclusion that the number of scientists capable of contributing to the advance of scientific knowledge through their published research is a linear function of the total number of people entering science.

? Yablonsky, A.I. (1985), Stable non-gaussian distributions in scientometrics. *Scientometrics*, **7** (3-6), 459-470.

Full Text: [1985\Scientometrics7, 459.pdf](1985/Scientometrics7,%20459.pdf)

Abstract: A mathematical treatment is given for the family of scientometric laws (usually referred to as the Zipf-Pareto law) that have been described byPrice and do not conform with the usual ‘Gaussian’ view of empirical distributions. An analysis of the Zipf-Pareto law in relationship with stable non Gaussian distributions. An analysis of the Zipf-Pareto law in relationship with stable non Gaussian distributions reveals, in particular, that the truncated Cauchy distribution asymptotically coincides with Lotka’s law, the most well-known frequency form of the Zipf-Pareto law. The mathematical theory of stable non Gaussian distributions, as applied to the analysis of the Zipf-Pareto law, leads to several conclusions on the mechanism of their genesis, the specific methods of processing empirical data, etc. The use of non-Gaussian processes in scientometric models suggests that this approach may result in a general mathematical theory describing the distribution of science related variables.

Keywords: Scientometrics

? Bonitz, M. (1985), Journal ranking by selective impact: New method based on SDI results and journal impact factors. *Scientometrics*, **7** (3-6), 471-485.

Full Text: [1985\Scientometrics7, 471.pdf](1985/Scientometrics7,%20471.pdf)

Abstract: Selecting an appropriate set of scientific journals which best meets the users’ needs and the dynamics of science requires Usage of weight parameters by which journals can be ranked. Previous methods are based on the simple counting of relevant articles, or hits in SDI runs. The new method proposed combines hit numbers in SD! runs and journals’ impact factors to a weight parameter called Selective Impact. The experimental results obtained show that ranking by Selective Impact leads to a higher quality of the conclusions to be drawn from journal rank distributions.

? Garfield, E. (1985), In tribute to Price, Derek, John, Desolla: A citation analysis of little science, big science. *Scientometrics*, **7** (3-6), 487-503.

Full Text: [1985\Scientometrics7, 487.pdf](1985/Scientometrics7,%20487.pdf)

Abstract: *Derek John de Solla Price* died on September 3, 1983. The loss of this exciting and dynamic man is one which is felt not just by his friends, but by the scientific community as a whole. This article was originally planned as part of an essay for *Current Contents | (CC| ~* But I was delighted by the opportunity to contribute it to this special tribute issue of *Scientornetrics.*

Vlachý, J. (1985), Citation histories of scientific publications: the data sources. *Scientometrics*, **7** (3-6), 505-528.

Full Text: [1985\Scientometrics7, 505.pdf](1985/Scientometrics7,%20505.pdf)

Abstract: Some 160 data-containing studies on the citation aging of scientific literature are reviewed. The hitherto proposed time-distribution models are examined for relevant parameter values.

? Braun, T. and Zsindely, S. (1985), Growth of scientific literature and the barnaby rich effect. *Scientometrics*, **7** (3-6), 529-530.

Full Text: [1985\Scientometrics7, 529.pdf](1985/Scientometrics7,%20529.pdf)

Abstract: the Barnaby Rich effect is defined as a high output of scientific writings accompanied by complaints on the excessive productivity of other authors.

? Szabó, A.T. (1985), Alphonse de Candolle’s early scientometrics (1883, 1885) with references to recent trends in the field (1978–1983). *Scientometrics*, **8** (1-2), 13-33.

Full Text: [1985\Scientometrics8, 13.pdf](1985/Scientometrics8,%2013.pdf)

Abstract: *De Candolle* analyzed in 1883 and 1885, respectively two important fields of human cultural evolution: the domestication of crop plants and the emergence of modern science. In his *Histoire de science et des savants depuis deux sciecles*, principles were established, science indicators outlined, interactions examined and mathematical methods applied to the study of a selected data set related to scientific development. In order to compare national and international scientific communities twenty standard factors were considered and national participation in international scientific societies was analysed for 14 European countries and the United States.*De Candolle* was the first to analyse mathematically the number, dynamics and national distribution of scientists in their professional organisations, the specialization and professionalization of scientists and characterized the scientific potential of different countries with the number of international science society members per inhabitant per period (1750–1884). The role of *de Candolle* as a forerunner of modern scientometrics and the science of science is revealed in a comparison of his work with recent trends. In the first five volumes of the journal *Scientometrics* 51 papers were identified dealing with topics related to those dealt with by*de Candolle*.

? Moed, H.F., Burger, W.J.M., Frankfort, J.G. and Van Raan, A.F.J. (1985), A comparative study of bibliometric past performance analysis and peer judgment. *Scientometrics*, **8** (3-4), 149-160.

Full Text: [1985\Scientometrics8, 149.pdf](1985/Scientometrics8,%20149.pdf)

Abstract: A comparison is made between two types of research past performance analysis: the results of bibliometric indicators and the results of peer judgment. This paper focuses on two case studies: the work of Dutch National Survey Committees on Chemistry and on Biology, both compared with our bibliometric results for research groups in these disciplines at the University of Leiden. The comparison reveals a serious lack of agreement between the two types of past performance analysis. This important, science-policy relevant observation is discussed in this paper.

? Porter, A.L. and Chubin, D.E. (1985), An indicator of cross-disciplinary research. *Scientometrics*, **8** (3-4), 161-176.

Full Text: [1985\Scientometrics8, 161.pdf](1985/Scientometrics8,%20161.pdf)

Abstract: Study of interdisciplinary research processes and performance is hampered by a lack of data. This project investigated possible indicators based in the open scientific literature to measure such processes. Focusing on the Journal Citation Reports as a suitable data base, alternative indicators were validated on a sample of 383 articles drawn from 19 journals. The results support the use of Citations Outside Category as an indicator of cross-disciplinary research activity. An estimated version of this indicator is used to examine three research categories - Demography, Operations Research/Management Science, and Toxicology - as to the extent of cross-disciplinary citation occurring by the journals in these categories and to them. Results suggest that Citations Outside Category can be a quite informative bibliometric measure. A key substantive finding is that citation across broad field categories (engineering, life sciences, physical sciences, and social sciences) is extremely infrequent.

? Moed, H.F., Burger, W.J.M., Frankfort, J.G. and Vanraan, A.F.J. (1985), The application of bibliometric indicators: Important field-dependent and time-dependent factors to be considered. *Scientometrics*, **8** (3-4), 177-204.

Full Text: [1985\Scientometrics8, 177.pdf](1985/Scientometrics8,%20177.pdf)

Abstract: An analysis of three major problems in the application of bibliometric research performance indicators is made in three separate sections. In the first section, the influence of field-dependent citation practices is analysed. The results indicate that rankings of publications from different fields, based on citation counts, can be affected seriously by differences between citation characteristics in those fields. If certain assumptions hold, one should expect high (short term) citation levels in Biochemistry, Celbiology and Biophysics. Medium citation levels are to be expected in Experimental and Molecular Physics, Physical and Organic Chemistry, Pharmacology and Plant Physiology, and low citation levels in Mathematics, Taxonomy, Pharmacognosy and Inorganic Solid State Chemistry. In the second section time-dependent factors are studied. It is shown that trend-analyses of output and impact based on bibliometric scores can be disturbed by changes in the SCI-database and in publication and citation practices. One of the disturbing factors is shown to be the inclusion of so called Books into the SCI data-base in 1977. Finally, in the third section a case is presented which illustrates the consequences of operating on incomplete bibliometric data in the evaluation of scientific performance. A completeness percentage of 99% for publication data is proposed as a standard in evaluations of the performance of small university research groups.

? Lange, L. (1985), Effects of disciplines and countries on citation habits: An analysis of empirical papers in behavioral-sciences. *Scientometrics*, **8** (3-4), 205-215.

Full Text: [1985\Scientometrics8, 205.pdf](1985/Scientometrics8,%20205.pdf)

Abstract: the theoretical introductions in empirical journal articles have been analyzed looking for factors determining citation habits. Own-country-biases and English-American predominance in citations were not regularly found. Preferred language of the cited publications and absolute citation frequencies were dependent upon both the disciplines and the countries where the journals are published. However, relative citation frequencies (citations related to the length of the text available) have been found to be rather constant across countries (within psychology and psychiatry, respectively) which indicates no such dependence.

? Libkind, A.N. (1985), One approach to study communication in science. *Scientometrics*, **8** (3-4), 217-231.

Full Text: [1985\Scientometrics8, 217.pdf](1985/Scientometrics8,%20217.pdf)

Abstract: the hypothesis proposed by the author expresses that Zipf’s law is only fulfilled on rank distributions which correspond to highly integrated (closed) subject fields. This hypothesis was tested on vast amount of empirical data. It was shown that document files in integrated fields are characterised by thematic, chronological (and sometimes geographical) closedness, as well as closedness by citation. Relationships were found between empirical facts usually considered in isolation within the frameworks of different scientometric and bibliometric theories (the theory of information concentration and scattering, obsolescence theory, theory of changing source productivity).

? Pravdic, N. and Pekorari, R. (1985), The citing practices of the authors to the national journals in mathematics, physics, and chemistry. *Scientometrics*, **8** (3-4), 233-246.

Full Text: [1985\Scientometrics8, 233.pdf](1985/Scientometrics8,%20233.pdf)

Abstract: In this essentially empirical study a comparative analysis of the age of references in scientific papers in three subject fields is performed. Comparisons ate made: 1. Among national and leading journals in the same scientific field, 2.for a number of high quality journals in physics and chemistry, and 3. between several groups of authors (according to the countries of origin), contributing to the same journals in chemistry, variations found in the journals ‘citing half-life’ values suggest that, if properly interpreted, the citing half-life might reflect the journal’s quality and might serve as a certain indicator for the citing practices of specific groups of authors.

Note: TTopic

? Rothman, H. and Lester, G. (1985), The use of bibliometric indicators in the study of insecticide research. *Scientometrics*, **8** (3-4), 247-262.

Full Text: [1985\Scientometrics8, 247.pdf](1985/Scientometrics8,%20247.pdf)

Abstract: This paper reports part of a historical study of insecticide development. We analysed accumulated references to specific insecticide groups in text books, and index references to a large number of specific insecticides in the Review of Applied Entomology (Ser. A) over the period 1916-1970. The paper describes our techniques for analysing the resulting research publication growth curves for these compounds. Our data did not fit the ‘classical’ S-curves, and possible explanations for this are discussed. Bibliometric time series data may exhibit various inconsistencies, and we describe an approach to handling such ‘dirty data’. We concluded that; our quantitative approach produces a picture of the development of insecticides that fits the accepted view derived by qualitative historiography, is very sensitive to trends in pesticide research, and might be a useful adjunct to technology forecasting as well as to historical studies.

Keywords: Science

Arunachalam, S. and Hirannaiah, S. (1985), Has journal of astrophysics and astronomy a future. *Scientometrics*, **8** (1-2), 3-11.

Full Text: [1985\Scientometrics8, 3.pdf](1985/Scientometrics8,%203.pdf)

Abstract: A numbqr of new science journals are born every year. Many of them survive for a long time but do not make a significant impact on the subjects which they try to serve. There are others which make an impression right from their first issues. In the last decade several new journals have been started in India, many of them by the Indian Academy of Sciences. The first of these new journals, Pramgna, which was established in 1973, turned out to be a good national medium for Indian physicists but has so far failed to achieve the high international standing aimed at by its founders. The NationaI Academy of Sciences Letters. started by another academy of sciences, proved to be a non-starter as far as international standing is concerned. In 1980 astronomers and astrophysicists in India sought and obtained a medium for themselves, thanks to the cooperation of the Indian Academy of Sciences which agreed to publish an inexpensive quarterly journal. The first issue of Journal of Astrophysics and Astronomy appeared in September 1980.

? Szabo, A.T. (1985), Decandolle, alphonse early scientometrics (1883, 1885) with references to recent trends in the field (1978-1983). *Scientometrics*, **8** (1-2), 13-33.

Full Text: [1985\Scientometrics8, 13.pdf](1985/Scientometrics8,%2013.pdf)

Abstract: *De Candolle* analyzed in 1883 and 1885, respectively two important fields of human cultural evolution: the domestication of crop plants and the emergence of modern science. In his *Histoire de science et des savants depuis deux sciecles,* principles were established, science indicators outlined, interactions examined and mathematical methods applied to the study of a selected data set related to scientific development. In order to compare national and international scientific communities twenty standard factors were considered and national participation in international scientific societies was analysed for 14 European countries and the United States. *De Candolle* was the first to analyse mathematically the number, dynamics and national distribution of scientists in their professional organisations, the specialization and professionalization of scientists and characterized the scientific potential of different countries with the number of international science society members per inhabitant per period (1750-1884). The role of *de Candolle* as a forerunner of modern scientometrics and the science of science is revealed in a comparison of his work with recent trends. In the first five volumes of the journal *Scientometrics* 51 papers were identified dealing with topics related to those dealt with by *de Candolle.*

Keywords: Scientometrics

? Shrum, W. (1985), Quality judgments of technical fields: Bias, marginality, and the role of the elite. *Scientometrics*, **8** (1-2), 35-57.

Full Text: [1985\Scientometrics8, 35.pdf](1985/Scientometrics8,%2035.pdf)

Abstract: Most accounts of scientific and technological development stress the importance of quality judgments for particular technical fields. This study investigates social psychological and: structural factors associated with such judgments for nineteen fields in nuclear waste and solar cell research. The results of the analysis indicate a tendency toward positive bias for fields in which researchers have been active, for this bias to be stronger in less innovative fields, and for elite membership to affect this bias in different ways depending on the nature of the system. In addition, there was no tendency for those with a high level of social contacts to others working in a field to display a positive bias, except in consensually innovative fields.

? Zhao, H.Z. and Jiang, G.H. (1985), Shifting of worlds’ scientific center and scientists’ social ages. *Scientometrics*, **8** (1-2), 59-80

Full Text: [1985\Scientometrics8, 59.pdf](1985/Scientometrics8,%2059.pdf)

Abstract: This paper proposes to take the age at which a scientist achieved his first success as his famous-becoming age; uses a statistical method to obtaine the optimum age of scientists for making scientific discoveries; uses the same to find the experiential formula that explains the relationship between the number of scientific achievement and the number of scientists and their ages. Employing this formula, it expounds to some extent the Yuasa Phenomenon. for conclusion it analyzes the scientific value of experiential formula and the reliability of its scope of prediction.

? Balog, C. (1985), Agricultural-research in New-Zealand. *Scientometrics*, **8** (1-2), 81-89.

Full Text: [1985\Scientometrics8, 81.pdf](1985/Scientometrics8,%2081.pdf)

Abstract: A study of the subject areas of pacts published in *New Zealand Journal of Agricultural Research* shows that there has been little variation in the major areas of agrieultttral research over 21 years. In a specific area of research, the use and effects of fertflisers, there is little change in the number of papers published on this subject until 1972 when there is a slight decrease in the number of published articles.

? Swales, J.M. (1985), English-language papers and authors 1st language: Preliminary explorations. *Scientometrics*, **8** (1-2), 91-101.

Full Text: [1985\Scientometrics8, 91.pdf](1985/Scientometrics8,%2091.pdf)

Abstract: the paper argues for greater linguistic sensitivity in seientometric research, discusses *Baldauf and Jernudd,* 11~13 *and* raises issues of North/South, English/non-English imbalance in research communication. It then proposes a procedure for identifying native/non-native speaker status of authors in English periodical literature on textual evidence. Preliminary application to 623 articles is reported and evaluated. The Health Science NNS percentage was 23%; in Economics half tliat. In both there were few papers of Third World provenance, thus supporting *Baldaufand Jernudd.* It is suggested that Scientometries could contribute to the teaching of Research English, against a background of adjusting suspected imbalance.

? Davies, B.R. and Lazniarz, J.M. (1985), A site selection model for high technology manufacturing firms in the United-States. *Scientometrics*, **8** (1-2), 103-116.

Full Text: [1985\Scientometrics8, 103.pdf](1985/Scientometrics8,%20103.pdf)

Abstract: This article offers a quantitative model for site selection by high technology manufacturing firms. In the past, site selection studies have usually been qualitative in nature, and very subjective. This is an attempt to introduce a more objective quantitative approach. The site selection factors most important to high technology manufacturing firms were identified, ranked and weighted based on a US Joint Economic Committee survey of such firms. The eight most important factors were: the availability of technical and professional workers, labor costs, tax climate, academic institutions, cost of living, transportation for people, and access to markets. Demographic data on these factors were collected and analyzed for 32 developing high technology areas in the United States. By using the quantitative model, a score was developed for each area, allowing them to be ranked as R & D manufacturing environments. This model should prove a useful tool for both regional planners and high-tech companies seeking to relocate.

Keywords: United States

Amir, S. (1985), On the degree of interdisciplinarity of research programs: A quantitative assessment. *Scientometrics*, **8** (1-2), 117-136.

Full Text: [1985\Scientometrics8, 117.pdf](1985/Scientometrics8,%20117.pdf)

Abstract: It is widely maintained that the study of policy alternatives, particularly if they are associated with introducing new tehcnologies that may engender vast social and environmental repercussions, ought to be interdisciplinary. There is, however, much confusion in the literature as to what exactly is meant by the term interdisciplinary. In the present paper, we quantitatively assess the extent of interdisciplinarity of studies and of research programs. First, we propose several working definitions of the concept of interdisciplinarity. Second, we consider the construction of indicators that quantify these definitions. Third, as an example, we examine whether or not a given policy oriented research program is truly interdisciplinary.

? Schubert, A. (1985), Quantitative studies of science: A current bibliography. *Scientometrics*, **8** (1-2), 137-140.

Full Text: [1985\Scientometrics8, 137.pdf](1985/Scientometrics8,%20137.pdf)

? Moravcsik, M.J. (1985), How the laws of physics lie: Cartwright, N. *Scientometrics*, **8** (1-2), 141-142.

Full Text: [1985\Scientometrics8, 141.pdf](1985/Scientometrics8,%20141.pdf)

Abstract:

? Moravcsik, M.J. (1985), Science and scientific researchers in modern society: Dickinson, JP. *Scientometrics*, **8** (1-2), 143.

Full Text: [1985\Scientometrics8, 143.pdf](1985/Scientometrics8,%20143.pdf)

Aloni, M. (1985), Patterns of information transfer among engineers and applied scientists in complex organizations: A partial review. *Scientometrics*, **8** (5-6), 279-300.

Full Text: [1985\Scientometrics8, 279.pdf](1985/Scientometrics8,%20279.pdf)

Abstract: This review discusses studies of informal communication of scientific and technical information published in the American management literature between 1976 and 1982. While investigated formerly by information scientists, the subject has been mentioned only infrequently in the literature and abstracts of information science in recent years. Management scientists view the informal information transfer as a special type of organizational communication. Among the papers reviewed, special attention is accorded to the publications by *Tushman* who has extended and developed *Allen’s* approach. The implications of the insights gained for the information worker and information scientist are discussed in the conclusions.

Note: CCountry

Arunachalam, S. and Garg, K.C. (1985), A small country in a world of big science: A preliminary bibliometric study of science in Singapore. *Scientometrics*, **8** (5-6), 301-313.

Full Text: [1985\Scientometrics8, 301.pdf](1985/Scientometrics8,%20301.pdf)

Abstract: An analysis of 258 papers published from Singapore and covered in Science Citation Index (SCI) 1979 and 1980 indicates that (1) much of R&D in Singapore pertains to medical research, (2) almost all the papers are published in English language periodicals published from the western world, (3) nearly two-thirds of Singapore’s publication output is accounted for by the University of Singapore, and (4) by the large papers from Singapore are rarely cited, even if many of them have appeared in journals having impact factor greater than one.

? Diamond, Jr., A.M. (1985), The money value of citations to single-authored and multiple-authored articles. *Scientometrics*, **8** (5-6), 315-320.

Full Text: [1985\Scientometrics8, 315.pdf](1985/Scientometrics8,%20315.pdf)

Abstract: This note presents evidence for the surprising conclusion that a citation to a multiple-authored article is worth more to its author than a citation to a single-authored article.

? Small, H., Sweeney, E. and Greenlee, E. (1985), Clustering the Science Citation Index using co-citations. 2. Mapping science. *Scientometrics*, **8** (5-6), 321-340.

Full Text: [1985\Scientometrics8, 321.pdf](1985/Scientometrics8,%20321.pdf)

Abstract: Previous attempts to map science using the co-citation clustering methodology are reviewed, and their shortcomings analyzed. Two enhancements of the methodology presented in Part I of the paper-fractional citation counting and variable level clusteringare briefly described and a third enhancement, the iterative clustering of clusters, is introduced. When combined, these three techniques improve our ability to generate comprehensive and representative mappings of science across the multidisciplinary *Science Citation Index (SCI)* data base. Results of a four step analysis of the 1979 *SCI* are presented, and the resulting map at the fourth iteration is described in detail. The map shows a tightly integrated network of approximate disciplinary regions, unique in that for the first time links between mathematics and biomedical science have brought about a closure of the previously linear arrangement of disciplines. Disciplinary balance between biomedical and physical science has improved, and the appearance of less cited subject areas, such as mathematics and applied science, makes this map the most comprehensive one yet produced by the co-citation methodology. Remaining problems and goals for future work are discussed.

Keywords: Science Citation Index

? Doreian, P. (1985), A measure of standing of journals in stratified networks. *Scientometrics*, **8** (5-6), 341-363.

Full Text: [1985\Scientometrics8, 341.pdf](1985/Scientometrics8,%20341.pdf)

Abstract: the concept of a stratified journal network is advanced where the nodes are journals and the relation is citation aggregated over the articles in these journals. The standing of the journals in the network can be measured through tools based on input-output models. These measures can be used to chart the changing status of journals at different time points.

Note: TTopic

? Sengupta, I.N. (1985), The growth of biophysical literature. *Scientometrics*, **8** (5-6), 365-376.

Full Text: [1985\Scientometrics8, 365.pdf](1985/Scientometrics8,%20365.pdf)

Abstract: the enormous growth of biophysical literature has created great difficulties in tracking out the significant literature of the subject. To cope with this unprecedented growth of literature, a new bibliometric technique has been applied to rank periodicals in the field based on 4228 citation data collected from the bibliographic data base published in the source journal namely, Annual Review of Biophysics. This list is expected to reflect the impact of literature on the advancement of knowledge in the field of biophysics. A striking feature of the ranking list is the high positions occupied by multidisciplinary science journals and biochemical journals as compared to journals exclusively and specifically devoted to biophysics or any particular aspects of it. Other remarkable findings are the wide scatter of biophysics literature; dominance of the USA journals and status attained by English as the preferred medium of communications of the working biophysicists. The data are also analysed according to subject categorization of the ranked periodicals. The results of the present study have been discussed in relation to Bradford’s Law of Scattering and validity of the extension of the law, suggested earlier, has been well established. It is expected that the present ranking list will enable the working biophysicists to select journals from the viewpoint of their significance to the active areas of present-day biophysical research.

? Snizek, W.E. (1986), A reexamination of the ortega hypothesis: the Dutch case. *Scientometrics*, **9** (1-2), 3-11.

Full Text: [1986\Scientometrics9, 3.pdf](1986/Scientometrics9,%203.pdf)

Abstract: Using data collected for a sample of 69 Dutch physicists, the present study employs a. multivariate approach in order to re-examine the Ortega hypothesis. Stated succinctly, the Ortega hypothesis maintains that, in large measure, science has progressed through the efforts of many quite average scientists. Based on a combined citation search of 2763 source and reference authors, eminent scientists are shown to cite other eminent scientists, although not to the extent reported among American physicists in earlier research by the *Coles. The* tendency for eminent scientists to cite other eminent scientists is a rather recent occurrence in the Netherlands, and may signal a major trend in the differential allocation of facilities and resources .which, in turn, impact on the development of science in that country. In addition to the citation rate of source author’s year of article’s publication and length of source author’s professional experience, are also shown to be significantly related to the eminence of reference authors cited, thereby signaling caution concerning rejection of the Ortega hypothesis.

? Lawani, S.M. (1986), Some bibliometric correlates of quality in scientific research. *Scientometrics*, **9** (1-2), 13-26.

Full Text: [1986\Scientometrics9, 13.pdf](1986/Scientometrics9,%2013.pdf)

Abstract: the following kinds of data were collected on three samples of cancer research literature representing three levels of quality: (1) collaboration as measured by the number of authors per paper, (2) quantitative productivity of countries, (3) diachronous citations covering the first five years of publicaiton, (4) total self-citations, (5) proportions of self-citations made by first-named authors, and (6) the extent of dispersion of articles among journals. Analyses showed that as the number of authors per paper increases, the proportion of high quality papers also increases and the Collaborative Index can be used to measure quality in the aggregate. It was found that the quantity and quality of cancer research done in a country are positively related. All analyses of the citation data confirmed the hypotheses that highly rated papers are significantly more highly cited than average papers and the rates of uncitedness decline with quality. The proportion of self-citations to total citations decreases with increasing quality and, on average, first-named authors of quality papers cite them proportionally fewer times than first-named authors of run-of-the-mill papers do. This study also shows that, as quality increases, the extent of literature scatter or dispersion increases.

? Zhao, H.Z. and Jiang, G.H. (1986), Life-Span and precocity of scientists. *Scientometrics*, **9** (1-2), 27-36.

Full Text: [1986\Scientometrics9, 27.pdf](1986/Scientometrics9,%2027.pdf)

Abstract: Studies on the life-span of past scientists according to data of the *Chronicle of Major Events of Natural Sciences* have found that the age of optimum peak value of scientific discovery is about half the peak value of their life-span. Achievements of those scientists who made a name before 25 years old are 44 percent more than average and their life efficiency is 1.7 times that of the average. Therefore it is an effective measure to train precocious scientists for a nation in her strive to catch up with or surpass world level in science.

? Frijdal, A. and Degreve, J.P. (1986), Communication activities in scientific disciplines in Belgium. *Scientometrics*, **9** (1-2), 37-49.

Full Text: [1986\Scientometrics9, 37.pdf](1986/Scientometrics9,%2037.pdf)

Abstract: the communication behaviour of Belgian university scientists is investigated over the period of 1977-1979. for 5 broad scientific domains the general characteristics are given and the distribution of the scientists over groups with 1 to 20 communications per three year is discussed. for two domains, Arts and Basic Sciences, an analysis is given of constituent disciplines. The present investigation presents a background profile of the communication activities, enabling evaluation of extreme activity in the disciplines discussed.

Keywords: Belgium

? Balog, C. (1986), Information-flow to genetics journals. *Scientometrics*, **9** (1-2), 51-57.

Full Text: [1986\Scientometrics9, 51.pdf](1986/Scientometrics9,%2051.pdf)

Abstract: the origin of information for 5 genetics journals was traced for the years 1975, 1978 and 1982. Maps of the interrelationships between cited journals indicate that the information for genetics journals originates with the biochemical journals and passes down to the genetics journals via the multidisciptinary science journals. The 5 genetics journals can be divided into 2 levels: Level 1 - those journals that never cite each other but cite level 2 journals; Level 2 - those journals that serve as a source of information for level 1 journals. The use of level 2 journals by level 1 journals declines from 1975 to 1982 because of a decline in citations by two of the level 1 journals.

? Pontigo, J. and Lancaster, F.W. (1986), Qualitative aspects of the Bradford distribution. *Scientometrics*, **9** (1-2), 59-70.

Full Text: [1986\Scientometrics9, 59.pdf](1986/Scientometrics9,%2059.pdf)

Abstract: A study was performed to determine whether the quality of journal articles declines as one moves through successively less productive Bradford zones. Two measures of quality - rate of citation and expert judgement - were used. It was found that articles in the least productive zone were cited significantly less than those in the most productive zone. However, experts did not judge them to be of lesser quality.

? Velho, L. (1986), The meaning of citation in the context of a scientifically peripheral country. *Scientometrics*, **9** (1-2), 71-89.

Full Text: [1986\Scientometrics9, 71.pdf](1986/Scientometrics9,%2071.pdf)

Abstract: This paper reports an investigation into the referencing pattern of Brazilian agricultural scientists. The study was based on the use of both quantitative data - citations appearing in a sizeable sample of articles pubhshed by these scientists - and qualitative data – interviews with a large number of scientists who authored the source papers. The aim was to explore the extent to which citation counts may be taken as valid indicators of the quality, influence or impact of pubhshed scientific knowledge in the general context of a scientifically peripheral country. The findings presented confirm the view that in this context, citation patterns are significantly influenced by factors ‘external’ to the scientific realm and, thus, reflect neither simply the quality, influence nor even the impact of the research work referred to.

? Nalimov, V.V. (1986), Theories of research, Vol -I-II - Nowakowska, M. *Scientometrics*, **9** (1-2), 91-93.

Full Text: [1986\Scientometrics9, 91.pdf](1986/Scientometrics9,%2091.pdf)

? Moravcsik, M.J. (1986), Science and technology for international development: An assessment of United-States policies and programs - Morgan, RP. *Scientometrics*, **9** (1-2), 93-95.

Full Text: [1986\Scientometrics9, 93.pdf](1986/Scientometrics9,%2093.pdf)

Keywords: United States

? Moravcsik, M.J. (1986), Foresight in science: Picking the winners - Irvine, J, Martin, B. *Scientometrics*, **9** (1-2), 95-97.

Full Text: [1986\Scientometrics9, 95.pdf](1986/Scientometrics9,%2095.pdf)

? Leydesdorff, L. (1986), The development of frames of references. *Scientometrics*, **9** (3-4), 103-125.

Full Text: [1986\Scientometrics9, 103.pdf](1986/Scientometrics9,%20103.pdf)

Abstract: Measurement of the effectiveness of science policies is analyzed as a multi-level problem. Journal-journal citations are discussed as a potential candidate for a domain beyond the control of policy-makers and authors or research groups and therefore may function as a relatively stable and easily accessible baseline for the ‘calibration’ of outputs and outcomes of science policy. A method is developed, using *SCI’s JCRs* which is then applied to the two cases of water pollution and humanisation of labor. This method can also be used as a simple indicator for the development of journal-journal citation patterns over time.

? Simonton, D.K. (1986), Multiples, poisson-distributions, and chance: An analysis of the Brannigan-Wanner model. *Scientometrics*, **9** (3-4), 127-137.

Full Text: [1986\Scientometrics9, 127.pdf](1986/Scientometrics9,%20127.pdf)

Abstract: *Brannigan and Wanner* argue that the empirical distribution of multiple grades can be more adequately explained in terms of a negative contagious poisson model. This alternative is based on a Zeitgeist theory which places emphasis on the role of communication in scientific discovery. Nonetheless, a detailed analysis indicates the following: (a) mathematically, the simple Poisson is the limiting case of the contagious Poisson when the contagion parameter approaches zero; (b) empirically, the mean and variance are so nearly equal (i. e., the contagion effect is very small) that predictions from the contagious Poisson are virtually equivalent to those of the simple Poisson; (c) in particular, both distributions predict that multiples are less common than singletons and even nulltons, the latter occurring with a probability of over one third (thereby implying that chance plays a much bigger part than Zeitgeist or maturational theories would suggest); (d) estimates from the *Simonton, Merton, and Ogburn-Thomas* data sets all concur that the contagion effect is not only small, but positive besides, yielding a modest positive contagious Poisson that contradicts the principal tenet of the communication interpretation.

Note: CCountry

? Yuthavong, Y. (1986), Bibliometric indicators of scientific activity in Thailand. *Scientometrics*, **9** (3-4), 139-143.

Full Text: [1986\Scientometrics9, 139.pdf](1986/Scientometrics9,%20139.pdf)

Abstract: the scientific output of major institutions in Thailand was examined from the number of international publications covered by Science Citation Index (SCI), publications in Journal of the Science Society of Thailand (J. Sci. Soc. Thailand) and abstracts presented at the annual symposium of the Science Society of Thailand. A good correlation (r = 0.92) was observed between the number of publications covered by SCI and in Journal of the Science Society of Thailand, while a poorer correlation (r = 0.73) was observed between the former and the number of symposium abstracts.

Keywords: Thailand

? Hargens, L.L. (1986), Migration patterns of united-states PhDs among disciplines and specialties. *Scientometrics*, **9** (3-4), 145-164.

Full Text: [1986\Scientometrics9, 145.pdf](1986/Scientometrics9,%20145.pdf)

Abstract: Patterns of migration among disciplines and specialties are examined using data from a large survey of U. S. Ph.D. s in a broad range of fields. Mappings of scholarly fields are derived from the migration patterns and these mappings are largely consistent with results from previous studies using citation flows and other measures of field similarities. Migration patterns suggest that there are two boundaries dividing the fields in this analysis, and that hierarchical relations among disciplines are weak or absent. In contrast, specialties within a discipline are more lqkely to exhibit structural hierarchies.

Keywords: United States

? Nesvetailov, G.A. and Gurevich, I.G. (1986), Analysis and planning of a series of multisectional scientific-conferences (heat and mass transfer case). *Scientometrics*, **9** (3-4), 165-176.

Full Text: [1986\Scientometrics9, 165.pdf](1986/Scientometrics9,%20165.pdf)

Abstract: A scientometric method is developed for studying the intersectional communications at scientific conferences. As an example, a series of multisectional Heat and Mass Transfer Conferences held in Minsk, USSR, during the years 1961-1980 are considered. The clusters of the interplay between the sections are constructed on the basis of the data from the registration cards of the Conference participants. The matrix of the topical interrelation of sections enables one to calculate the coefficient of the information impact of a section. A comparison of this coefficient with the resource indicators of sections makes it possible to upgrade the scientific justification of planning a series of multisectional scientific conferences.

? Todorov, R. and Atanassov, K. (1986), Formal communication in science: A model based on generalized nets. *Scientometrics*, **9** (3-4), 177-185.

Full Text: [1986\Scientometrics9, 177.pdf](1986/Scientometrics9,%20177.pdf)

Abstract: A schematic overview of the formal communication process is first presented. Emphasis is placed only on the specific functions and participants required to transfer article manuscripts from the author to the reader of scientific journals. for the description of this process a mathematical model based on generalized nets (GN) is then proposed. Some advantages of the GN as compared to other models are shown. Model application is not included since the programme package which realizes the GN is in a stage of preparation.

? Herrmann, D.B. (1986), Astronomy in the twentieth century. *Scientometrics*, **9** (3-4), 187-191.

Full Text: [1986\Scientometrics9, 187.pdf](1986/Scientometrics9,%20187.pdf)

Abstract: This paper is based on the *Source Book in Astronomy and Astrophysics 1900-1975* which is considered representative of the pioneer research work in the field. The distribution of important scientific achievements over a certain period, their distribution by subject area and sources, single or multiple authorship and age of techniques relevant to these areas are quantitatively examined. In some cases result: are obtained as known from the analysis of the overall output of the sciences (including astronomy). As regards, however, the frequency of published important papers and the role of the latest technique pioneer achievements differ significantly from the total of scientific publications.

? Lipatov, Yu.S. and Denisenko, L.V. (1986), On the behavior of information flows in multicomponent polymer systems research. *Scientometrics*, **9** (5-6), 197-207.

Full Text: [1986\Scientometrics9, 197.pdf](1986/Scientometrics9,%20197.pdf)

Abstract: the behaviour of information flows in multieomponent polymer systems over the 1979-1983 period is analyzed. It has been found that this field of science obeys general relationships valid for other established sciences. Its special features axe a high concentration of information (only 9 journals) and a wide scatter of papers among a great number of peripheral journals. The doubling times for papers and journals as well as the doubling period for papers in a single journal have been determined, they axe 3.2, 4.6 and 5.6 years respectively.

? Jimenez, J., Navarro, M.A. and Rees, M.W. (1986), Scientific-research areas in Mexico: Growth patterns in the late seventies. *Scientometrics*, **9** (5-6), 209-221.

Full Text: [1986\Scientometrics9, 209.pdf](1986/Scientometrics9,%20209.pdf)

Abstract: A longitudinal study of ten Mexican research areas was carried out in the late 1970s. In the study, research institutions were classified by a group of experts as primary and secondary, depending on the quality and quantity of research output. New institutions created during this time period were also classified as primary or secondary. Examination of the data shows a greater growth in the number of research personnel in primary institutions, evidence of uneven distribution of resources. Furthermore, due to the high turnover of qualified personnel observed in secondary institutions, they are at a disadvantage in forming mature, stable research groups, and are often precluded from becoming first rate researeh centers. Sihce the national science and technology system does not facilitate the movement of institutions from secondary to primary positions, it is recommended that whenever a new institution is created, it should be provided with appropriate resources, both human and material, to make sure it will be considered as first rank from its inception. Also, in order to reduce the gap between primary and secondary institutions, long range strategies, including the provision of high quality researchers, should be developed to facilitate the upgrading of the secondary institutions.

Keywords: Mexico

? Simeon, VL., Momčilović, B., Kralj, Z. and Grgas, B. (1986), Multivariate statistical analysis of the bibliographic output from a research institution, in relation to the measures of scientific policy. *Scientometrics*, **9** (5-6), 223-230.

Full Text: [1986\Scientometrics9, 223.pdf](1986/Scientometrics9,%20223.pdf)

Abstract: the publications produced in a medical research institute in a 16 year interval were classified into five categories (scientific papers in the journals covered by *Current Contents* or *Science Citation Index,* scientific papers in other journals, books and monographs, technical papers, congress and symposia communications) and counted for each year separately. The number of researchers and yearly budgets were also recorded. The data were analysed by contingency table, correlation and factor-analytical methods. It was shown that, upon introducing quantitative minimal criteria for job promotions, the proportion of scientific papers increased. Principal component analysis indicated that the data can be approximately represented as linear combinations of three mutually independent factors. The approach used is recommended for evaluating the production of scientific information in research institutions and for assessing the effects of the measures of scientific policy.

? Schubert, A. and Telcs, A. (1986), Publication potential: An indicator of scientific strength for cross-national comparisons. *Scientometrics*, **9** (5-6), 231-238.

Full Text: [1986\Scientometrics9, 231.pdf](1986/Scientometrics9,%20231.pdf)

Abstract: A new indicator, called the *publication potential,* is proposed to measure scientific strength of different countries. The indicator is based on *SC1* author counts and publication frequency distributions, Not depending on national statistical reports, it avoids the ambiguities of statistical definitions and methods, thereby providing a solid ground for cross-national comparisons. Publication based and statistical survey data for 34 countries axe compared and some of the most conspicuous discrepancies are pinpointed.

Note: CCountry, Note: TTopic

? Crouch, D., Irvine, J. and Martin, B.R. (1986), Bibliometric analysis for science policy: An evaluation of the United Kingdom’s research performance in ocean currents and protein crystallography. *Scientometrics*, **9** (5-6), 239-267.

Full Text: [1986\Scientometrics9, 239.pdf](1986/Scientometrics9,%20239.pdf)

Abstract: This paper presents the results of a study of Britain’s scientific performance in the fields of ocean currents and protein crystallography carried out for the Advisory Board for the Research Councils (ABRC). Using a range of publication and citation indicators, the study aimed to explore the potential value to science policy-making of low-cost scientometric approaches to research evaluation.

Keywords: Science, United Kingdom

? Simonton, D.K. (1986), Multiple discovery: Some monte carlo simulations and gedanken experiments. *Scientometrics*, **9** (5-6), 269-280.

Full Text: [1986\Scientometrics9, 269.pdf](1986/Scientometrics9,%20269.pdf)

Abstract: Two major interpretations of multiples have been offered, the traditional one based on the scientific zeitgeist, the more recent one based on chance processes. To clarify the issues involved in any plausible explanation, six successive Monte Carlo simulations were developed. Though all models started with the same underlying probabilistic mechanism, several elaborations were introduced, including,exhaustion, communication of both successes and failures, and variation in success probability. The models yield the same probability distribution for multiple grades, but they disagree on the frequency of nulltons. Additional Gedanken experiments dealt with the zeitgeist notions of a caUSAl link between potential contributions.

Keywords: Monte Carlo

Notes: highly cited

? Schubert, A. and Braun, T. (1986), Relative indicators and relational charts for comparative-assessment of publication output and citation impact. *Scientometrics*, **9** (5-6), 281-291.

Full Text: [1986\Scientometrics9, 281.pdf](1986/Scientometrics9,%20281.pdf)

Abstract: Cross-field comparison of *scientometric indicators* 1 is severely hindered by the differences in publication and citation habits of science fields. However, relating publication and citation indicators to proper field-specific reference standards, *relative indicators* can be built, which may prove rather useful in the comparative assessment of scientists, groups, institutions or countries. The use of *relational charts* in displaying the indicators broadens the scope of such assessments. Relative indicators of chemistry research in 25 countries are presented as an illustrative example.

? Schubert, A. (1986), Quantitative studies of science: A current bibliography. 9. *Scientometrics*, **9** (5-6), 293-304.

Full Text: [1986\Scientometrics9, 293.pdf](1986/Scientometrics9,%20293.pdf)

? Morgan, R.P. (1986), Technology, finance and development: An analysis of the world-bank as a technological institution - Weiss, C, Jequier, N. *Scientometrics*, **9** (5-6), 305-306.

Full Text: [1986\Scientometrics9, 305.pdf](1986/Scientometrics9,%20305.pdf)

? Haitun, S.D. (1986), Problems of quantitative-analysis of scientific activities: the nonadditivity of data. Part 1. Statement and Solution. *Scientometrics*, **10** (1-2), 3-16.

Full Text: [1986\Scientometrics10, 3.pdf](1986/Scientometrics10,%203.pdf)

Abstract: A viewpoint is given, according to which, additivity may be defined only at the intuition level and quantitative latent variables are ‘origin additive’. The proposed solution to the non-additivity problem consists in restricting quantitative indicator scales by the so-called ‘natural’, in particular, open scales.

? Moed, H.F. and Vanraan, A.F.J. (1986), Observations and hypotheses on the phenomenon of multiple citation to a research groups oeuvre. *Scientometrics*, **10** (1-2), 17-33.

Full Text: [1986\Scientometrics10, 17.pdf](1986/Scientometrics10,%2017.pdf)

Abstract: This paper analyses the phenomenon when a publication referring to the oeuvre of a research group (i.e. all the articles published by its members) cites several articles rather than one article from that oeuvre (multiple citations, MC). It is shown that significant differences exist between research groups with respect to the frequency at which MC to their respective oeuvres occur, and that these differences affect to some extent rankings of these groups based on citation counts. In order to find an explanation for our results, four factors are discussed: (1) the impact of a research group; (2) mutual multiple citing arrangements; (3) the size of a group’s oeuvre and (4): the degree of common intellectual interest between the research activities in a group. No definite conclusions can be drawn yet on the extent to which these factors are responsible for the observed patterns in the MC frequency. We conclude however that attempts to identify ‘top’ or ‘sub-top’ groups in comparative evaluations based on citation analysis should be performed with the greatest care.

? Levine, L.O. (1986), Prolific inventors: A bibliometric analysis. *Scientometrics*, **10** (1-2), 35-42.

Full Text: [1986\Scientometrics10, 35.pdf](1986/Scientometrics10,%2035.pdf)

Abstract: Patent information on 7392 inventors who received 9 or more U.S. Patents during 1975-84 was obtained. Analysis of the frequency distribution of patents per inventor reveals an approximately logarithmic decline from 9 to approximately 45 patents per inventor. The rate of decline decreases significantly for patent output above 45 patents per inventor. Patent citation analysis on 45 randomly selected inventors was performed. This sample included inventors who received from 9 to over 100 patents. The group received 1.79 citations per patent, 56.8% of the patents received at least 1 citation, and 2.7% of the patents received 10 or more citations. No statistically significant differences for these averages was found across the range of inventor patent output. No significant decline of patent quality with increased yearly patent output was observed.

? Sen, S.K. and Kundra, R. (1986), Bibliometrics of English-language alcohol fuel literature: A new empirical-equation of scatter. *Scientometrics*, **10** (1-2), 43-54.

Full Text: [1986\Scientometrics10, 43.pdf](1986/Scientometrics10,%2043.pdf)

Abstract: 1460 items of literature in English on alcohol fuel, both technical and non-technical between 1901 and 1980 (only first quarter) collected and published as a bibliography by NAFIC, SERI (USA) were analysed. It was found that the growth pattern is befitting qualitatively with the epidemic growth model. of the 1460 items, 828 are scattered in 288 journals. The pattern of scatter has been fitted in an empirical formula, a linear equation of the form *R(r)---ar-b,* where *R(r) is the* Mean Relative Scatter (MRS) of the articles over a class of ranked journals in increasing productivity and r is the rank of the class, a and b ate the arbitary constants. The formula, ff deductively established, can serve as an effective alternative to Bradford’s law.

Keywords: Bibliometrics

? Egghe, L. (1986), On the 80/20 rule. *Scientometrics*, **10** (1-2), 55-68.

Full Text: [1986\Scientometrics10, 55.pdf](1986/Scientometrics10,%2055.pdf)

Abstract: In a recent paper1 *Burrell* shows that libraries with lower average borrowings tend to require a larger proportion of their collections to account for 80% of the borrowings, than those with higher average borrowings. In that study, the underlying frequency distribution was a negative binomial. We are dealing with a case when the underlying distribution is of Lotka type. It is also shown that the ‘80/20-effect’ is much stronger in this case.

? Persson, O. (1986), Online bibliometrics: A research tool for every man. *Scientometrics*, **10** (1-2), 69-75.

Full Text: [1986\Scientometrics10, 69.pdf](1986/Scientometrics10,%2069.pdf)

Abstract: A method of using of commonly available online services for bibliometric studies is demonstrated. Distributions of papers by subfield, time, author and journal can be generated almost instantly and at very low cost. This article gives information on how to perform such studies.

Keywords: Bibliometrics

? Guay, Y. (1986), Emergence of basic research on the periphery: Organic-chemistry in India, 1907-1926. *Scientometrics*, **10** (1-2), 77-94.

Full Text: [1986\Scientometrics10, 77.pdf](1986/Scientometrics10,%2077.pdf)

Abstract: This study is a quantitative survey of the emergence of organic chemistry in India during the first two decades covered by *Chernical Abstracts.* Chemists that were conducting research in this country were separated in three distincts groups, on the basis of their cultural identity and of their educational background. Important disparities between these three groups have been stated, both in terms of research fields and in terms of publication outlets.

Keywords: India

? Small, H. and Greenlee, E. (1986), Collagen research in the 1970a. *Scientometrics*, **10** (1-2), 95-117.

Full Text: [1986\Scientometrics10, 95.pdf](1986/Scientometrics10,%2095.pdf)

Abstract: the specialty of collagen research is tracked over a ten year period, 1970-1979, using the methodology of co-citation duster strings. Independently obtained annual clusters are linked together over time by the percentage of highly cited documents countinuing from year to year. All inter-year links are clustered by single-linkage to form the strings, one of which corresponds to the collagen specialty. Maps of the individual year clusters within the string reveal an alternating pattern of expansion/innovation followed by contraction/consolidation. *At the* same time the subject focus of research gradually shifts. The institutional affiliation and funding sources for highly cited documents show a trend from early dominance by a few institutions and sources to a multiplicity and collaboration of centers and sources later on, due in part to the migration of researchers from an initially dominant institution.

? Blanpied, W.A. (1986), Modern science and human-values: Lowrance, WW. *Scientometrics*, **10** (1-2), 119-121.

Full Text: [1986\Scientometrics10, 119.pdf](1986/Scientometrics10,%20119.pdf)

? Moravcsik, M.J. (1986), Space, time, and life: Nalimov, VV. *Scientometrics*, **10** (1-2), 121-123.

Full Text: [1986\Scientometrics10, 121.pdf](1986/Scientometrics10,%20121.pdf)

? Haitun, S.D. (1986), Problems of quantitative-analysis of scientific activities: the nonadditivity of data. 2. *Scientometrics*, **10** (3-4), 133-155.

Full Text: [1986\Scientometrics10, 133.pdf](1986/Scientometrics10,%20133.pdf)

Abstract: It is examined to what extent the corollaries of the earlier proposed solution to the non-additivity problem are urgent for modern quantitative science studies. The role of non-linear transformations of indicators and closed scales in these studies is discussed. The distribution statistics and the coefficients of intercormection are investigated for their additivity. The possibilities of empirical verification of the proposed conception of additivity are also considered.

? Vinkler, P. (1986), Evaluation of some methods for the relative assessment of scientific publications. *Scientometrics*, **10** (3-4), 157-177.

Full Text: [1986\Scientometrics10, 157.pdf](1986/Scientometrics10,%20157.pdf)

Abstract: Some bibliometric methods for the assessment of the publication activity of research units are discussed on the basis of impact factors and citations of papers. “Average subfield impact factor” of periodicals representing subfields in chemistry is suggested. This indicator characterizes the average citedness of a paper in a given subfield. Comparing the total sum of impact factors of corresponding periodicals divided by the number of papers published by a research team to the average subfield impact factor a “publication strategy” indicator can be derived. A new bibliometric indicator, “relative subfield impact”, is introduced which compares the number of citations received by papers of a research unit to the average subfield impact factor.

? Moravcsik, M.J. (1986), The classification of science and the science of classification. *Scientometrics*, **10** (3-4), 179-197.

Full Text: [1986\Scientometrics10, 179.pdf](1986/Scientometrics10,%20179.pdf)

Abstract: With a view toward a system of science indicators which is flexible, appropriate, and unambiguous, a brief discussion is given of the theory of classification. This is then applied to three situations arising in input indicators for science, and it is shown how the presently used formalism for such indicators could be improved and thus eliminate unnecessary disputes in the practical application of such indicators.

? Krauskopf, M., Pessot, R. and Vicuna, R. (1986), Science in Latin-America: How much and along what lines. *Scientometrics*, **10** (3-4), 199-206.

Full Text: [1986\Scientometrics10, 199.pdf](1986/Scientometrics10,%20199.pdf)

Abstract: Scientific output in the Caribbean and Latin American countries was studied examining the publications indexed by the Institute for Scientific Information which conform the mainstream literature. The growth patterns of the first-authors-publishing-scientific-papers coming from the five most productive countries of the region were determined. In addition, the scientific publications from each country of the region, as indexed in 1981, were classified per field. It was found that most of the research was done in the life sciences area. However, the small scientific output observed in all fields appears insufficient to assure a positive role of science for the best overall development of each individual society. This situation may reflect a lack of support for the progress of science in these countries and therefore political commitment towards this purpose is considered to be of particular importance.

Keywords: Latin America

? Mendez, A. and Gomez, I. (1986), The Spanish Scientific Productivity Through 8 International Databases. *Scientometrics*, **10** (3-4), 207-219.

Full Text: [1986\Scientometrics10, 207.pdf](1986/Scientometrics10,%20207.pdf)

Abstract: the publications by the Spanish scientists recorded in eight international databases in the years 1978 and 1983 are retrieved. Science indicators able to give a perception of the scientific productivity, the institutions involved, the habits of publishing in foreign or domestic journals and co-authorship are presented. The changes observed in these indicators in the two analysed years are examined and the trend in the evolution of the Spanish science is shown. The time delay in recording items by the databases and coverage of the Spanish journals are also studied.

? Riley, K. (1986), Episodes in ESP: A source and reference book on the development of english for science and technology - Swales, J. *Scientometrics*, **10** (3-4), 221-222.

Full Text: [1986\Scientometrics10, 221.pdf](1986/Scientometrics10,%20221.pdf)

? Multhauf, R.P. (1986), Transformation and tradition in the sciences essays in honor of Cohen, I. Bernard - Mendelsohn, E. *Scientometrics*, **10** (3-4), 222-223.

Full Text: [1986\Scientometrics10, 222.pdf](1986/Scientometrics10,%20222.pdf)

? Donovan, A. (1986), Chemistry in America, 1876-1976: Historical indicators: Thackray, A, Sturchio, JL, Carroll, PT, Bud, R. *Scientometrics*, **10** (3-4), 224-225.

Full Text: [1986\Scientometrics10, 224.pdf](1986/Scientometrics10,%20224.pdf)

? Sengupta, I.N. (1986), Three new parameters in bibliometric research and their application to rerank periodicals in the field of biochemistry. *Scientometrics*, **10** (5-6), 235-242.

Full Text: [1986\Scientometrics10, 235.pdf](1986/Scientometrics10,%20235.pdf)

Abstract: Ranking of scientific periodicals by the method of citation counting provides valuable information about the degree of importance of the ranked periodicals. But such lists suffer from some inherent limitations. This paper discusses various pitfalls of traditional ranking lists and suggests, as a remedial measure, three new bibliometric parameters, namely, (1) scientific interest of a journal in relation to total number of articles published; (2) compactness of information content in a scientific periodical; and (3) scientific value of the papers in relation to compactness of presentation. It is believed that these new parameters, whenever applied to any traditional ranking list, will help to identify the accurate positions of different scientific journals of the parent list in order of their usefulness and importance. As a case study these parameters have been applied to the first ten core journals of biochemistry identified earlier and a revised reranked order of the titles presented and discussed.

? Sengupta, I.N. (1986), Three new parameters in bibliometric research and their application to rerank periodicals in the field of biochemistry. *Scientometrics*, **10** (5-6), 235-242.

Full Text: [1986\Scientometrics10, 235.pdf](1986/Scientometrics10,%20235.pdf)

Abstract: Ranking of scientific periodicals by the method of citation counting provides valuable information about the degree of importance of the ranked periodicals. But such lists suffer from some inherent limitations. This paper discusses various pitfalls of traditional ranking lists and suggests, as a remedial measure, three new bibliometric parameters, namely, (1) scientific interest of a journal in relation to total number of articles published; (2) compactness of information content in a scientific periodical; and (3) scientific value of the papers in relation to compactness of presentation. It is believed that these new parameters, whenever applied to any traditional ranking list, will help to identify the accurate positions of different scientific journals of the parent list in order of their usefulness and importance. As a case study these parameters have been applied to the first ten core journals of biochemistry identified earlier and a revised reranked order of the titles presented and discussed.

? Lancaster, F.W., Porta, M.A., Plagenz, K., Szymborski, K. and Krebs, M. (1986), Factors influencing sources cited by scientists: A case-study for Cuba. *Scientometrics*, **10** (5-6), 243-257.

Full Text: [1986\Scientometrics10, 243.pdf](1986/Scientometrics10,%20243.pdf)

Abstract: A collection of 1316 articles authored by Cuban scientists and published in the period 1950 to 1983 was assembled. The 18 991 bibliographic references in these papers were examined to identify factors that might influence the sources cited by Cuban scientists over the entire period. Degree of collaboration, place of publication and subject matter were among the factors considered. The major objective was to study the effect that the change in political alignment of Cuba (from Western bloc to Eastern bloc influence) has had on the sources cited. It was found that citation to Eastern bloc countries has greatly increased in the period since Castro assumed power. However, no corresponding decline in citation to Western bloc countries can be discerned.

? Pravdic, N. and Oluicvukovic, V. (1986), Dual approach to multiple authorship in the study of collaboration scientific output relationship. *Scientometrics*, **10** (5-6), 259-280.

Full Text: [1986\Scientometrics10, 259.pdf](1986/Scientometrics10,%20259.pdf)

Abstract: This paper presents an empirical study of the relations between scientific output and collaboration performed on two scales: (1) an individual scale, for members of a study model, and (2) a group scale, for three samples varying in the level of productivity. The rank approach was applied in the preparation of the study model resulting in the selection of a set of the most prolific authors. In the course of that process, multiple authorship problem was solved by a dual approach, consisting of “normal count” and “modified straight count” procedures. As shown by the analysis of collaborative patterns, either on individual or on group scales, scientific output is highly dependent on the frequency of collaboration among the same authors. Expressed as “the collaboration measure”, it might serve as an indicator in comparative analyses of scientific productivity in a given field of science.

? Lange, L. (1986), Interactions between disciplines and countries in methodical preferences for empirical-research. *Scientometrics*, **10** (5-6), 281-295.

Full Text: [1986\Scientometrics10, 281.pdf](1986/Scientometrics10,%20281.pdf)

Abstract: Scientific results of empirical research depend on the methods used. The selection of empirical methods by scientists is not solely determined by the subject of research or by theory. Social and historical (in our investigation national) conditions also affect the application of methods. This hypothesis has been corroborated with the help of journals in psychology, psychiatry, and sociology from different countries. The national impact on method preference varies among these disciplines. Conclusions are drawn concerning the generalizability of empirical results beyond disciplines and beyond countries.

? Smart, J.C. and Bayer, A.E. (1986), Author collaboration and impact: A note on citation rates of single and multiple authored articles. *Scientometrics*, **10** (5-6), 297-305.

Full Text: [1986\Scientometrics10, 297.pdf](1986/Scientometrics10,%20297.pdf)

Abstract: the acceptance rate of articles which are collaboratively authored tends to be higher than that for single-authored papers, thereby suggesting a generally positive relationship between collaboration and quality. The analysis of ten-year citation rates of 270 randomly selected articles in three applied fields likewise shows a similar relationship, with somewhat higher citation frequencies for multi-authored papers than for single-authored ones. The relationships persist whether self-citations are included or excluded. However, these differences are not statistically significant for articles in clinical psychology or in educational measurement. Only multi-authored articles in management science show a statistically significant higher citation rate. Other aspects of the collaborative process and effects are discussed.

? Senter, R. (1986), A caUSAl model of productivity in a research facility. *Scientometrics*, **10** (5-6), 307-328.

Full Text: [1986\Scientometrics10, 307.pdf](1986/Scientometrics10,%20307.pdf)

Abstract: the problem addressed concerns the conditions that foster productivity among natural scientists in a large research laboratory. We take several variables identified as important in two major perspectives in the literature on productivity, and use these variables to construct a caUSAl model. Using path analysis, we test the model by employing data from a sample of 295 scientists working at an atomic research facility in West Germany. In general, educational level of the scientists has an important, positive impact on productivity; years of service has a varying and more modest positive effect. Rank of the scientist has an intermediate positive impact on productivity; psychological factors have a negligible effect. Finally, the influence the scientist has on his research endeavors has a modest positive impact on productivity.

? Balaban, A.T. (1987), Avramescu, Aurel (1903-1985). *Scientometrics*, **11** (1-2), 3-5.

Full Text: [1987\Scientometrics11, 3.pdf](1987/Scientometrics11,%203.pdf)

? Blauberg, I.V., Ignatyev, A.A., Mirsky, E.M., Sadovsky, V.N. and Uzdemir, A.P. (1987), Yablonsky, A.I. (1936-1986). *Scientometrics*, **11** (1-2), 7-8.

Full Text: [1987\Scientometrics11, 7.pdf](1987/Scientometrics11,%207.pdf)

Note: CCountry

? Braun, T., Glänzel, W. and Schubert, A. (1987), One more version of the facts and figures on publication output and relative citation impact of 107 countries 1978-1980. *Scientometrics*, **11** (1-2), 9-15.

Full Text: [1987\Scientometrics11, 9.pdf](1987/Scientometrics11,%209.pdf)

? Daniels, W.D. (1987), Choosing input indicators for research managers. *Scientometrics*, **11** (1-2), 17-25.

Full Text: [1987\Scientometrics11, 17.pdf](1987/Scientometrics11,%2017.pdf)

Abstract: This paper focusses on the use of input indicators as a planning tool for research planners and administrators in one research sector. It reviews the experience of a number of developing countries in attempting to develop such indicators for national agricultural research systems. It appears that the more commonality there is in the research subject and environment, the more disaggregated the input data, research managers would find useful. While the paper reviews only one research sector, it concludes with comments on the feasibility of using similar measures in other sectors.

? Eto, H. and Candelaria, P.M. (1987), Applicability of the Bradford distribution to international science and technology indicators. *Scientometrics*, **11** (1-2), 27-42.

Full Text: [1987\Scientometrics11, 27.pdf](1987/Scientometrics11,%2027.pdf)

Abstract: This is to assess the applicability of the Bradford distribution to an international science-technology indicators problem. The Bradford distribution which has been empirically known to be valid for the number of scientific articles on a given research topic across journals is applied to the number of scientific axticles in a given research field across nations. The Bradford distribution is herein found to provide information of the degree of scientifictechnological inequitability between advanced and latecomer nations and, more characteristically, a method for classification of nations into core, middle and peripheral classes with respect to their S&T selfreliance. This may suggest the usefulness of the Bradford distribution for anylsis of international science-technology indicators. Some theoretical discussions on mathematical properties of the Bradford distribution axe given.

? De Stefano, D.A. (1987), Citation analysis and adaptive radiation. *Scientometrics*, **11** (1-2), 43-51.

Full Text: [1987\Scientometrics11, 43.pdf](1987/Scientometrics11,%2043.pdf)

Abstract: Bibliometrics does not allow prediction of the duration of research fronts. Utilizing an analogy with the concept of adaptive radiation, this heuristic article suggests a technique which may permit a measure of predictability to bibliometrics.

? Destefano, D.A. (1987), Citation analysis and adaptive radiation. *Scientometrics*, **11** (1-2), 43-51

Full Text: [1987\Scientometrics11, 43.pdf](1987/Scientometrics11,%2043.pdf)

Abstract: Bibliometrics does not allow prediction of the duration of research fronts. Utilizing an analogy with the concept of adaPtive radiation, this heuristic artiele suggests a technique which may permit a measure of predictability to bibliometries.

? Moravcsik, M.J. (1987), In the beholder eye: A possible reinterpretation of velho results on brazilian agricultural-research. *Scientometrics*, **11** (1-2), 53-57.

Full Text: [1987\Scientometrics11, 53.pdf](1987/Scientometrics11,%2053.pdf)

Abstract: Using the data recently presented by Lea Velho on the citation rates in and on Brazilian agricultural journal articles, it is suggested that a given such paper is cited by the non-Brazilian scientific literature at the same rate as a paper written anywhere else in the world would be, and that is cited by other Brazilian papers very much mote than a paper elsewhere would be. These conclusions are surprizing in view of the prevailing conventional wisdom, and axe also exactly opposite to the conclusions Velho herseff derived from the same data.

? Velho, L. (1987), The author and the beholder: How paradigm commitments can influence the interpretation of research results. *Scientometrics*, **11** (1-2), 59-70.

Full Text: [1987\Scientometrics11, 59.pdf](1987/Scientometrics11,%2059.pdf)

Abstract: This article is a reply to Moravesik’s interpretation of my results on Brazilian agricultural research. The argument here is that publication and citation data obtained within a specific country can hardly be compared to those offered by international databases such as that of ISI. Furthermore, publication and citation data must he interpreted in the light of qualitative information if they are to be of any use for science policy. Finally, the conclusions drawn in my previous paper axe reinforced here by the supplying of additional information.

? Doreian, P. (1987), A revised measure of standing of journals in stratified networks. *Scientometrics*, **11** (1-2), 71-80.

Full Text: [1987\Scientometrics11, 71.pdf](1987/Scientometrics11,%2071.pdf)

Abstract: A modified index of journal standing in a stratified journal to journal citation network is proposed. The original index, generated through an application of input-output analysis, is used as the first step of an iterative procedure that converges on the new index. This index, an eiginveetor of the inverted matrix used in the input-output analysis, has improved validity and better distributional properties than the original index.

? Egghe, L. (1987), An exact calculation of Price Law for the Law of Lotka. *Scientometrics*, **11** (1-2), 81-97.

Full Text: [1987\Scientometrics11, 81.pdf](1987/Scientometrics11,%2081.pdf)

Abstract: Price’s law asserts - in its simpliest version - that x/~ authors produce half of the papers made by the total of N authors. More generally: the top Na(0<c~<l) authors produce a fraction 0 (0< 0 <1’) of the papers made by the total of N authors and the Price’s law says that 0 ~a. In this paper - using Lotka’s law - we prove a mathematical relationship of 0 in function of c~ and the parameter ~ (the mean number of papers per author) and investigate when *o~a.* More-over our reasoning uses the theory of the 80/20 rule as developed in: L. EGGHE, On the 80/20-rule, *Scientometrics,* 10 (1986) 55-68, thereby also showing the relation betwwen the 80/20-rules (being an arithmetical form of measuring elitarism) and Price’s law (being a geometric form of measuring elitarism).

Keywords: Lotka

? Puzikov, M.D. and Kasjanov, A.E. (1987), Quantitative estimation of big and little science interrelation. *Scientometrics*, **11** (1-2), 99-104.

Full Text: [1987\Scientometrics11, 99.pdf](1987/Scientometrics11,%2099.pdf)

Abstract: Qantitative analysis of the interrelation of “big” and “little” science on the example of Research and Development of higher education in the USA has been made. The difference in the growth rates of “big” and “little” science is explained with the help of scientometrie index of capital expenditures per researcher. An attempt has been made to compare the dynamics of efficiency of “big” and “little” science on the base of mean duration of a research project. Possibilities of an alternative index of a relative amount of preliminary researches (preprojects) are pointed out.

? Kranzberg, M. (1987), Capitalism, socialism, and technology: A comparative-study of Cuba and Jamaica - Edquist, C. *Scientometrics*, **11** (1-2), 105-107.

Full Text: [1987\Scientometrics11, 105.pdf](1987/Scientometrics11,%20105.pdf)

? Drew, D.E. (1987), Extending the Educational Ladder - the Changing Quality and Value of Postdoctoral Study - Zumeta,W. *Scientometrics*, **11** (1-2), 107-110.

Full Text: [1987\Scientometrics11, 107.pdf](1987/Scientometrics11,%20107.pdf)

? Yuthavong, Y. (1987), Science and technology indicators for development: Moritalou, H. *Scientometrics*, **11** (1-2), 110-111.

Full Text: Scientometrics11, 110

? Roche, M. (1987), Cultural imperialism and exact sciences: German expansion overseas 1900-1930 - Pyenson,l. *Scientometrics*, **11** (1-2), 112-113.

Full Text: [1987\Scientometrics11, 112.pdf](1987/Scientometrics11,%20112.pdf)

? Frame, J.D. (1987), Comments on Michael J*.* Moravcsik, recipient of the third Derek de Solla Price Award. *Scientometrics*, **11** (3-4), 125-126.

Full Text: [1987\Scientometrics11, 125.pdf](1987/Scientometrics11,%20125.pdf)

? Braun, T., Glänzel, W. and Schubert, A. (1987), One more version of the facts and figures on publication output and relative citation impact in the life sciences and chemistry 1978-1980. *Scientometrics*, **11** (3-4), 127-140.

Full Text: [1987\Scientometrics11, 127.pdf](1987/Scientometrics11,%20127.pdf)

? Pruthi, S., Nagpaul, P.S. and Nabi, S.A. (1987), Indicators of research planning: A comparative-study of research groups in 6 countries. *Scientometrics*, **11** (3-4), 141-161.

Full Text: [1987\Scientometrics11, 141.pdf](1987/Scientometrics11,%20141.pdf)

Abstract: In this paper, an attempt has been made to examine the characteristics of research planning at the microcosmic level of the research group in six countries-Argentina, Egypt, India, Republic of Korea, Poland and UkSSR. The paper focusses on the following aspects: (1) intrinsic and extrinsic factors influencing the choice of research themes and orientation of the research programme; (2) quality of research planning measured by dimensions, such as planning consistency, task-interdependence and prior contacts with potential users; and (3) pattern of funding of research groups. Variations in the characteristics of research planning and funding mechanisms in different institutional and socio-cultural settings (countries) have been examined.

? Kunz, M. (1987), Time spectra of patent information. *Scientometrics*, **11** (3-4), 163-173.

Full Text: [1987\Scientometrics11, 163.pdf](1987/Scientometrics11,%20163.pdf)

Abstract: Information spectra are defined as intervals between equivalent information events. Their relations to negative binomial and negative polynomial distributions and urn models are explained. Basic properties of empirical information spectra from patent literature axe shown and discussed in connection with Haitun’s views on Z type information distributions, Sichel’s GIGP model and Trofimenko’s study on formation and decay of author groups.

? Lipatov, Y.S. and Denisenko, L.V. (1987), Information flows in the subfields of multicomponent polymer systems and trends of their development. *Scientometrics*, **11** (3-4), 175-182.

Full Text: [1987\Scientometrics11, 175.pdf](1987/Scientometrics11,%20175.pdf)

Abstract: the behaviour of information flows in different subfields of muticomponent polymer systems was compared for the years 1979 and 1983. The classification used enabled the maximum information on the species of polymer compositions to concisely be recorded. It was established that the information flows in the subfields of multicomponent polymer systems obeyed the law of literature scatter. In 1979 and 1983 about half of the total number of papers dealt with two species of polymer compositions: homopolymer blends and filled homopolymers. About 40% of species described in publications of 1979 did not appear either in journals or in proceedings of 1983. But new species accounted for 60% of the information flow in 1983.

? Chen, Y.S. and Leimkuhler, F.F. (1987), Bradford’s law: An index approach. *Scientometrics*, **11** (3-4), 183-198.

Full Text: [1987\Scientometrics11, 183.pdf](1987/Scientometrics11,%20183.pdf)

Abstract: A rigorous analysis of Bradford’s law is made using an index for the observed values of the variables. Three important properties relating size and frequency are identified. Using, this approach, the shape of Bradford-type curves can be described in terms of three distinct regions and two shape parameters.

? Hall, D.H. (1987), The interface between geoscience and industry: A case-study of the interaction between research and the discovery and mining of ores for nuclear-fuels. *Scientometrics*, **11** (3-4), 199-216.

Full Text: [1987\Scientometrics11, 199.pdf](1987/Scientometrics11,%20199.pdf)

Abstract: the nuclear industry was used as a case history to examine the influences between science and industry. The nuclear resources aspect of the industry was chosen for study. A correlation is found among indicators of geoscienee research, exploration for uranium ores, production of uranium, and the general state of the industry. Some of the science-industry interfaces were identified as fruitful areas for further study, and a historical analysis of exploration technology shows that a scientific development engendered by the requirements of an early phase of the industry was key to later expansion in exploration and resources discovery.

? Rousseau, R. (1987), The Gozinto Theorem: Using citations to determine influences on a scientific publication. *Scientometrics*, **11** (3-4), 217-229.

Full Text: [1987\Scientometrics11, 217.pdf](1987/Scientometrics11,%20217.pdf)

Abstract: This paper gives a mathematical technique to study influences, using citations. Taking into account both the publications that have a direct influence and those that have an indirect influence, we obtain the total influence measure on a fixed paper.

? Trofimenko, A.P. (1987), Scientometric analysis of the development of nuclear-physics during the last 50 years. *Scientometrics*, **11** (3-4), 231-250.

Full Text: [1987\Scientometrics11, 231.pdf](1987/Scientometrics11,%20231.pdf)

Abstract: A new method for author groups formation and decay processes is proposed. With the help of a special mathematical model time distribution of authors and their publications was established and group productivity, composition and stability, annual change of the total number of short-term and long-term authors, their renovation etc. as well as the time dependence of these quantities was determined. Particularities of activity of authors working in puelear physics are investigated. It is shown that the most rapid development in this field took place in the pre-war years, it was at high level up to 1960 and then began to decrease. The method used permits to forecast the development of science and to analyse the activity of author units in particular scientific centers.

? Diamond, A.M. (1987), An optimal-control model of the life-cycle research productivity of scientists. *Scientometrics*, **11** (3-4), 251-253.

Full Text: [1987\Scientometrics11, 251.pdf](1987/Scientometrics11,%20251.pdf)

Abstract: A continuous time model using optimal control techniques is presented which implies that a scientist’s productivity will eventually decline with age. This implication is at variance with Cole’s empirical findings but is consistent with Diamond’s empirical findings.

? Moravcsik, M.J. (1987), Comments on Tibor Braun, recipient of the third Derek de Solla Price Award. *Scientometrics*, **11** (5-6), 263-264.

Full Text:[1987\Scientometrics11, 263.pdf](1987/Scientometrics11,%20263.pdf); [1987\Scientometrics11, 263a.pdf](1987/Scientometrics11,%20263a.pdf)

? Vanheeringen, A. and Dijkwel, P.A. (1987), The relationships between age, mobility and scientific productivity. 1. Effect of mobility on productivity. *Scientometrics*, **11** (5-6), 267-280.

Full Text: [1987\Scientometrics11, 267.pdf](1987/Scientometrics11,%20267.pdf)

Abstract: the main aim of this study is to estimate to what extent the productivity of researchers is influenced by their mobility. Based on emperical data of Dutch scientists it is shown that job mobility is a characteristic of productive scientists rather than a means to enhance productivity. Field mobility appears to stimulate productivity in the long run.

? Vanheeringen, A. and Dijkwel, P.A. (1987), The relationships between age, mobility and scientific productivity. 2. Effect of age on productivity. *Scientometrics*, **11** (5-6), 281-293.

Full Text: [1987\Scientometrics11, 281.pdf](1987/Scientometrics11,%20281.pdf)

Abstract: In this paper we show that it is theoretically impossible to draw empirically founded conclusions about the relation between age and productivity. Only the relation between age and productivity increase can be verified empirically. With this limitation in mind, a subsequent analysis of productivity data of Dutch physicists, chemists en economists, indicates that the growth rate of productivity is higher at ages under 35 than at ages over 35.

? Leydesdorff, L. (1987), Various methods for the mapping of science. *Scientometrics*, **11** (5-6), 295-324.

Full Text: [1987\Scientometrics11, 295.pdf](1987/Scientometrics11,%20295.pdf)

Abstract: the dynamic mapping of science using the data in the Science Citation Index was put on the research agenda of science studies by De Solla Price in the mid 1960s. Recently, proponents of ‘co-citation cluster analysis’ have claimed that in principle their methodology makes such mapping possible. The study examines this claim, both methodologically and theoretically, in relation to other means of mapping science. A detailed study of a co-citation map, its core documents’ citation patterns and the related journal structures, is presented. At these three levels of possible study of aggregates of citations, an analysis is pursued for the years 1978 to 1984. The many different statistical methods which are in use for the analysis of the respective datamatrices-such as cluster analysis, factor analysis and multidimensional scalling-are assessed with a view to their potential to contribute to a better understanding of the dynamics at the different levels in relation to each other. This will lead to some recommendations about methods to use and to avoid when we aim at a comprehensive mapping of science. Although the study is pursued at a formal and analytical level, in the conclusions an attempt is made to reflect on the results in terms of further substantial questions for the study of the dynamics of science.

? Vanraan, A.F.J. and Hartmann, D. (1987), The comparative impact of scientific publications and journals: Methods of measurement and graphical display. *Scientometrics*, **11** (5-6), 325-331.

Full Text: [1987\Scientometrics11, 325.pdf](1987/Scientometrics11,%20325.pdf)

Abstract: A method is presented to display the comparative impact of scientific publications relative to their ‘environment’ (e.g., journals). Furthermore, the method gives a new approach to the establishment of a journal’s impact as measured by received citations. Moreover, in this impact measurement a dffferentation between various types of publieatioias (editorials and letters, ‘normal’ papers, reviews, etc.) can be made. It is argued that the method presented is more useful for library and research evaluation policies than the ISI impact factor.

? Nederhof, A.J. and Vanraan, A.F.J. (1987), Peer-review and bibliometric indicators of scientific performance: A comparison of CUM Laude doctorates with ordinary doctorates in physics. *Scientometrics*, **11** (5-6), 333-350.

Full Text: [1987\Scientometrics11, 333.pdf](1987/Scientometrics11,%20333.pdf)

Abstract: Quality judgments of predominantly local senior scientists regarding the scientific performance of candidates for a doctorate degree in physics were compared to the non-local short-term and long-term impact of the work published by these candidates before and after graduation. It was hypothesized that publications of cum laude degree-holders (‘cumlaudes’), both shortly before and shortly after the award of the degree, would be higher cited both on the short and long run than publications of ‘ordinary’ degree-holders. Before graduation, cumlaudes were significantly more productive, as well as authors of more highly cited publications than ordinary doctorates. Publications authored by cumlaudes some years before their graduation received on the average more than twice as many citations as publications authored by non-cumlaudes. However, in particular for cumlaudes, productivity and impact decreased sharply in years after graduation. After graduation, cumlaudes continued to be more productive than non-cumlaudes, but the impact of their publications equalled those produced by non-cumlaudes. The results offer little evidence for the Matthew effect and the Ortega hypothesis, but support the validity of both peer review outcomes and bibliometric impact assessments of scientific performance.

? Tijseen, R.J.W., Deleeuw, J. and Vanraan, A.F.J. (1987), Quasi-correspondence analysis on scientometric transaction matrices. *Scientometrics*, **11** (5-6), 351-366.

Full Text: [1987\Scientometrics11, 351.pdf](1987/Scientometrics11,%20351.pdf)

Abstract: In principle, a scientometric transaction matrix can be modelled by assuming that the number of transactions is the result of independent row and column contributions. More often one is primarily interested in the cross-structural relations between the participating entities, whereas the row and column margintls are of lesser or no importance. The values of the residuals after fitting an independence model to a complete transaction matrix can be analyzed by correspondence analysis to investigate the structure of the transactions between the rows and columns, after correcting for their marginal tiequencies. Recently a modification of correspondence analysis has been developed, quasi-correspondence analysis, which seems quite suitable for the analysis of citation-based transaction matrices which are incomplete or in which the incorporation of certain transactions may seem inappropriate, An illustration of both data analysis-techniques will be given using a journal-to-journal citation matrix.

? Braun, T., Glänzel, W. and Schubert, A. (1987), One more version of the facts and figures on publication output and relative citation impact in physics and mathematics 1978-1980. *Scientometrics*, **12** (1-2), 3-16.

Full Text: [1987\Scientometrics12, 3.pdf](1987/Scientometrics12,%203.pdf)

? Prabha, C.G. and Lancaster, F.W. (1987), Comparing the scatter of citing and cited literature. *Scientometrics*, **12** (1-2), 17-32.

Full Text: [1987\Scientometrics12, 17.pdf](1987/Scientometrics12,%2017.pdf)

Abstract: Using the subjects desalination and educational psychology, the scatter of periodical articles over periodical titles was compared at two levels, the second level being a random sample of periodical articles cited by the first level. Several measures were used to compare the extent of scatter at the two levels. Some methods commonly used in bibliometrics produced conflicting evidence on whether the citing literature (first-level) or the cited (second-level) was more scattered. A computer-intensive sampling procedure, known as the Bootstrap method, was then used to estimate the scatter of the total cited population from the scatter of the empirical sample. Cumulative distributions were prepared to show what percentage of periodicals accounted for various percentages of articles at each level of scatter. Only at the 90th percentile of articles did the percentage of periodical titles in the cited literature significantly exceed that of the citing literature. At the tail-end of the Bradford-type distribution, the cited literature appears to be more scattered than the literature citing it.

Keywords: Hungary, Mexico

Notes: MModel

? Gupta, D.K. (1987), Lotka’s law and productivity patterns of entomological research in Nigeria for the period, 1900-1973. *Scientometrics*, **12** (1-2), 33-46.

Full Text: [1987\Scientometrics12, 33.pdf](1987/Scientometrics12,%2033.pdf)

Abstract: A bibliography of entomological research in Nigeria, 1900-1973 totally 1720 publications was analysed to study the author productivity patterns and to test the applicability of Lotka’s law for the obtained distributions. Four different files’ were generated, one for the publications of all the authors, second for the publications by first authors, third for single authors and fourth for coauthors. Lotka’s law in its original form as inverse square law does not apply to any of the four data sets. However, it does apply in its generalised form with the calculated values of characteristic exponent c~. The values of a were found to be 1.9, 1.8, 2.2 and 2.4 for the four different data sets. K - S statistical test was aplied to test the applicability of generalised form of Lotka’s law. The maximum difference in the observed and estimated values of the proportions of authors was found to be highly insignificant at 0.01 level of significance in each of the four cases.

Keywords: Lotka, Nigeria

? Vinkler, P. (1987), A quasi-quantitative citation model. *Scientometrics*, **12** (1-2), 47-72.

Full Text: [1987\Scientometrics12, 47.pdf](1987/Scientometrics12,%2047.pdf)

Abstract: On the basis of investigating author’s opinion on citing motivations of chemistry papers a quasi.quantitative model for citing is suggested. The model selects professional and nonprofessional motivations of citing and introduces the citation threshold concept which tries to characterize the effect of citing motivations quantitatively. Possible reasons for missing citations are also treated. Mean ages of real and of self-citations were calculated by subtracting the average of the publication years of cited papers from the publication year of the citing publication. The difference between the mean ages may characterize the synehronity of the author’s research in comparison with those working on similar topics. The paper introduces the citation strategy indicator which relates impact factors of cited periodicals with the mean impact factor of periodicals in the corresponding research subfield.

? Russell, J.M., Mendoza, M. and Martinez, G. (1987), Patterns of literature citation by undergraduate students and researchers in the veterinary field. *Scientometrics*, **12** (1-2), 73-80.

Full Text: [1987\Scientometrics12, 73.pdf](1987/Scientometrics12,%2073.pdf)

Abstract: A comparative analysis carded out on tile literature citation characteristics of two sets of Mexican research documents produced in the veterinary field-the undergraduate thesis and the research journal article-revealed distinct patterns of literature Usage on the part of the authors. It is suggested that the differences reflect the relative qualities of the research undertaken by two populations with distinct research competence and experience.

? Mendez, A., Gomez, I., Fernandez, M.T. and Aguado, G.L. (1987), 6 years of spanish scientific activity in physics and engineering through inspec and compendex. *Scientometrics*, **12** (1-2), 81-100.

Full Text: [1987\Scientometrics12, 81.pdf](1987/Scientometrics12,%2081.pdf)

Abstract: This study is an analysis of six years of Spanish bibliography retrieved from INSPEC and COMPENDEX. The quantitative evolution of the scientific activity by years and Institutions, the recent tendencies to publish in foreign journals, as well as to have the papers signed by more authors are followed. The most frequently used journals are ranked according to their impact factor and subject. Some hypothesis are formulated and tested, trying to find a relationship between the growth of the Spanish scientific activity and its quality.

? Shaw, J.G. (1987), Article-by-article citation analysis of medical journals. *Scientometrics*, **12** (1-2), 101-110.

Full Text: [1987\Scientometrics12, 101.pdf](1987/Scientometrics12,%20101.pdf)

Abstract: An article by article analysis produced by ISI has been investigated to see whether this form of feedback might be useful to the editors. The data highlight the different roles of two medical journals, which axe often regarded as similar. They also allow a parallel examination of the citation pattern of other items besides the standard scientific reseaxeh articles.

? Brunk, G.G. and Demack, G. (1987), Short-run trends in United-States patent activity. *Scientometrics*, **12** (1-2), 111-133.

Full Text: [1987\Scientometrics12, 111.pdf](1987/Scientometrics12,%20111.pdf)

Abstract: We examine a newly created data series consisting of the monthly number of American patents granted since 1853. An initial examination divides the series into four time periods. An analysis of short-run cycles demonstrates that the same Box-Jenkins model is not applicable to all four periods. Differences in nineteenth and twentieth century model parameters may be a result of frequent bureaucratic reinterpretations of America’s patent law during the last century, or-as many have claimed-may repsesent changes in the process of innovation itself over time. Our findings suggest that future researchers discriminate between two periods in their analyses. The first lasts until the late 1870’s, during which time there was a very high variability in the number of patents issued. Since the late 1870’s there has been a substantial decline in variability, and the amount of variance that can be explained by a simple Box-Jenkins model has increased. Still, not much variation can be explained using short-run cycles, and longer cycles appear to be both time period specific and highly unstable. The dynamics of American inventive activity are complex, and inventive activity appears t o be largely driven by exogenous factors such as wars, economic conditions and changes in governmental policy, rather than by its own internal dynamics.

Keywords: United States

? Frame, J.D. and Narin, F. (1987), The growth of Chinese scientific-research, 1973-84. *Scientometrics*, **12** (1-2), 135-144.

Full Text: [1987\Scientometrics12, 135.pdf](1987/Scientometrics12,%20135.pdf)

Abstract: During the Cultural Revolution (1966-1976), scientific work came to a halt in China. Universities closed, primary and secondary school education shut down, and intellectuals (including scientists and engineers) were sent to the countryside or to factories to work. The effects of the Cultural Revolution are reflected in China’s output of scientific literature. In 1973, for example, only one Chinese paper appeared in any of the world’s 2300 most central journals covered by the *Science Citation Index.* After restrictive policies were loosened, however, scientific papers grew exponentially. By 1982, only six years after the Cnltural Revolution ended, Chinese scientists produced 932 papers. This exponential growth of papers leveled off at this point and the number of papers appearing in the core 2300 journal stood at approximately 1000 in 1983 and 1984.

Keywords: Chinese

? Stefaniak, B. (1987), Use of Bibliographic databases for scientometric studies. *Scientometrics*, **12** (3-4), 149-161.

Full Text: [1987\Scientometrics12, 149.pdf](1987/Scientometrics12,%20149.pdf)

Abstract: the paper is a review of different applications of various bibliographic data bases to bibliometrie and scientometrie research such as identifying the leading journals in certain fields, investigating the structure and development of particular fields including trend analysis and foreeasting~ as well as the study of the contribution of various countries to world science as reflected in scientific literature presented in information f’des. The paper also covers the results of investigation of Polish scientific literature, as presented in the foreign data bases, in the fields of information science (LISA, ISA, INSPEC, 1977-1983), chemistry (CASeareh, 1978-1985), physics (INSPEC, 1979-1985), science-various disciplines (SCISEARCH, 1980-1984), Along with many advantages of using bibliographic data bases for seientometrie research some limitations are also described which may originate in data bases content, and have to be taken into account while designing such a type of investigation.

? Bialon, L. (1987), Research-and-development potential of Polish industry. *Scientometrics*, **12** (3-4), 163-177.

Full Text: [1987\Scientometrics12, 163.pdf](1987/Scientometrics12,%20163.pdf)

Abstract: the paper presents the methodology of investigating research intensity as well as the results of empirical investigation of Polish industry. The result of the analysis is the classification of industries according to their research intensity. The author indicates also that this type of analysis can be applied for planning development of industry.

? Jakubowski, A., Kulikowski, R. and Wagner, D. (1987), Allocation of research funds in competitive environment: A computerized negotiation system. *Scientometrics*, **12** (3-4), 179-196.

Full Text: [1987\Scientometrics12, 179.pdf](1987/Scientometrics12,%20179.pdf)

Abstract: the paper is concerned with the problem of financing of complex research programs. One of tasks to be solved consists in assigning research teams, willing to participate in a given program, to research projects being its elements, under conditions of constrained, budget. It is assumed that the strategy of every research team head is to maximize the average time-discounted income per person. In the previous paper of the authors a special negotiation procedure has been proposed to solve this problem. This paper presents some possible extensions and modifications of the procedure. At each stage of this procedure the heads of research teams involved have to make decisions on the assignment of their workers to particular projects. The proposed system of interactions among the research teams heads provides a possibility of reaching the eonsemus in the matter of this assignment. Simultaneously, it makes possible to solve the problem of research funds alloeation Such a system is considered as a multiperson game of Nash type with the non-zero sum of the players payments.

? Kot, S.M. (1987), The stochastic-model of evolution of scientific disciplines. *Scientometrics*, **12** (3-4), 197-205.

Full Text: [1987\Scientometrics12, 197.pdf](1987/Scientometrics12,%20197.pdf)

Abstract: In the paper science is regarded as a self-adapting system consisting of two subsystems. The stochastic model of one of the subsystems is proposed. The model reflects changes of the structure of a scientific discipline. As an example a model for the physics of elementary particles is presented.

? Lewickastrzalecka, A. (1987), Dynamics and structure of systems science. *Scientometrics*, **12** (3-4), 207-219.

Full Text: [1987\Scientometrics12, 207.pdf](1987/Scientometrics12,%20207.pdf)

Abstract: Systems science constitutes a specially difficult object of analysis as it is wide, interdisciplinary and shows ambiguity of notions and terms. These difficulties may be mastered, at least to some extent, with the aid of the analysis of the bibliographic citations system enabling a thorough study of the dynamics and structure of systems science, This paper presents the results of such analysis, Papers presented in Vienna at the Seventh European Meeting on Cybernetics and Systems Research (1984) formed the material, the analyses were made on.

? Okrasa, W. (1987), Differences in scientific productivity of research units: Measurement and analysis of output inequality. *Scientometrics*, **12** (3-4), 221-239.

Full Text: [1987\Scientometrics12, 221.pdf](1987/Scientometrics12,%20221.pdf)

Abstract: Three aspects of inequalities in scientific productivity of research units-scientists within RUs, RUs in the full sample and its cross-section, and an aggregate approach, in which components referring to the first two types of inequality were distinguished-was used to analyse the causes underlying unequall productivity. Using inequality measure basedon the theory of information (Theil measure) an inverse relationship between volume of produetivity and its inequality was empirically found both within research units and among RUs of a given organizitional system. Therefore identifying the sources of variability of output inequalities may be helpful in drawing conclusions regarding to the absolute volumes of scientific productivity of RUs.

Notes: UUniversity

? Sitarska, A. (1987), Scientometrics and bibliometrics in the Warsaw University curriculum of library and information science: Place and field structure. *Scientometrics*, **12** (3-4), 241-257.

Full Text: [1987\Scientometrics12, 241.pdf](1987/Scientometrics12,%20241.pdf)

Abstract: the paper describes the curriculum subject matter and its placement in the didactic processes at the Institute of Library and Information Science (Instytut Bibliotekoznawstwa i Informacji Naukowej IBIN) at the Warsaw University comparing some elements with other academic schools in Poland. Bibliographic traditions, and traditions in teaching the history of science are indicated as the basis for the present state of affairs. In addition to the discussion of classes and topics dealing with bibliometfies and seientometries, also problems of reading list repertoire and subject matter of research work, connected with the didactic activity considered, are discussed. In the conclusions it is stated that inadequate explicitness of the scope and object of bibliometries bears on the dispersion and lack of self-subsistence of bibliometries substance.

Keywords: Bibliometrics, Scientometrics

? Schubert, A., Glänzel, W. and Braun, T. (1987), Subject field characteristic citation scores and scales for assessing research performance. *Scientometrics*, **12** (5-6), 267-291.

Full Text: [1987\Scientometrics12, 267.pdf](1987/Scientometrics12,%20267.pdf)

? Macroberts, M.H. and Macroberts, B.R. (1987), Testing the Ortega hypothesis: Facts and artifacts. *Scientometrics*, **12** (5-6), 293-295.

Full Text: [1987\Scientometrics12, 293.pdf](1987/Scientometrics12,%20293.pdf)

Abstract: We examine the assumptions and data base used by researchers who have tested the Ortega hypothesis. We find that the assumptions are not supported by the data and that the data are faulty. We conclude that the results are artifactual. We recommend that any policy implemented on the basis of this research be suspended.

? Line, M.B. (1987), The shoulders of giants, or the backs of mice. *Scientometrics*, **12** (5-6), 297-298.

Full Text: [1987\Scientometrics12, 297.pdf](1987/Scientometrics12,%20297.pdf)

? Moravcsik, M.J. (1987), We must ask questions before giving answers. *Scientometrics*, **12** (5-6), 299-301.

Full Text: [1987\Scientometrics12, 299.pdf](1987/Scientometrics12,%20299.pdf)

? Nalimov, V.V. (1987), Scientists are not acrobats. *Scientometrics*, **12** (5-6), 303-304.

Full Text: [1987\Scientometrics12, 303.pdf](1987/Scientometrics12,%20303.pdf)

? Leydesdorff, L. (1987), Towards a theory of citation. *Scientometrics*, **12** (5-6), 305-309.

Full Text: [1987\Scientometrics12, 305.pdf](1987/Scientometrics12,%20305.pdf)

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Full Text: [1987\Scientometrics12, 315.pdf](1987/Scientometrics12,%20315.pdf)

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Full Text: [1987\Scientometrics12, 329.pdf](1987/Scientometrics12,%20329.pdf)

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Full Text: [1987\Scientometrics12, 311.pdf](1987/Scientometrics12,%20311.pdf)

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Full Text: [1987\Scientometrics12, 315.pdf](1987/Scientometrics12,%20315.pdf)

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Full Text: [1987\Scientometrics12, 321.pdf](1987/Scientometrics12,%20321.pdf)

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Full Text: [1987\Scientometrics12, 325.pdf](1987/Scientometrics12,%20325.pdf)

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Full Text: [1987\Scientometrics12, 339.pdf](1987/Scientometrics12,%20339.pdf)

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Full Text: [1987\Scientometrics12, 343.pdf](1987/Scientometrics12,%20343.pdf)

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Full Text: [1987\Scientometrics12, 345.pdf](1987/Scientometrics12,%20345.pdf)

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Full Text: [1987\Scientometrics12, 355.pdf](1987/Scientometrics12,%20355.pdf)

Abstract: A theoretical approach was developed to raising the effectiveness of research groups as adaptable systems. If performance is the aim of the research group, adaptation to the changing conditions in the research process has to be one of its essential principles underlying its development. Empirically it was shown that several independent components of the cooperation structure that were simultaneously adapted to different changing conditions exerted a strong influence on performance. There is the hypothesis that the principle of adaptation of cooperation structure can be generally extended to the adaptation of other group characteristics.

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Full Text: [1987\Scientometrics12, 373.pdf](1987/Scientometrics12,%20373.pdf)

Abstract: the definitions of the term ‘bibliometrics’ as used in the literature are examined and evaluated. Most such definitions are held to be too broad. A new definition is proposed; then its advantages and possible defects pointed out. A crucial question is whether Zipf’s law of word occurrence should be considered a part of this particular sub-discipline.

Keywords: Bibliometrics

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Full Text: [1987\Scientometrics12, 381.pdf](1987/Scientometrics12,%20381.pdf)

Abstract: Applied and basic approaches to scientific inquiry were compared through a bibliometric analysis of two Canadian journals in plant biology. No differences were found between the journals in the distribution of citations aeross different sections of research articles (that is, Introduction, Methods, Results, and Discussion). Moreover, no contrasts were found in the frequency of multiple authorships or in the age distribution of cited works. However, the journals differed significantly on three other bibliometric measures: author affiliation, number of references per article, and publication format of cited works.

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Full Text: [1987\Scientometrics12, 415.pdf](1987/Scientometrics12,%20415.pdf)

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Full Text: Scientometrics13, 1.pdf

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Full Text: [1988\Scientometrics13, 11.pdf](1988/Scientometrics13,%2011.pdf)

Abstract: It is shown that characterizing the creative activity by the “aha!” concept the creative processes can be described as singular points of a smooth surface. The cusp catastrophe from the theory of Ren Thorn is used to describe and to estimate quantitatively the creative process, the behaviour parameter is the flux of empirical laws and the control parameters are the experimental and the theoretical effort. The theoretical effort is the bifurcation parameter.

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Full Text: [1988\Scientometrics13, 25.pdf](1988/Scientometrics13,%2025.pdf)

Abstract: Haitun’s conjectures about specific properties of information distributions are questioned. It is shown on linguistic material that the opening of a closed counting scale changes the skewness of distribution in a way which contradicts Haitun’s suggestions. Negative power distributions are time dependent and can be explained as density measures of fraetal clusters and axe not specific to the social sciences.

? Haitun, S.D. (1988), A case-study against Haituns conjectures: Comment. *Scientometrics*, **13** (1-2), 35-44.

Full Text: [1988\Scientometrics13, 35.pdf](1988/Scientometrics13,%2035.pdf)

Abstract: M. Kunz’s criticism of the concept of non-Gaussian nature of scientific activities is discussed. The following points of the concept are analyzed: transformations of closed scales into open scales, the dependence of moments of non-Gauss/an distributions on the samples size, the non-Gaussian nature of Man-dwelt upon by Kunz. Arguments based on statistical analysis of Kunz’s article are put forward against Kunz.

? Nieuwenhuysen, P. and Rousseau, R. (1988), A quick and easy method to estimate the random effect on citation measures. *Scientometrics*, **13** (1-2), 45-52.

Full Text: [1988\Scientometrics13, 45.pdf](1988/Scientometrics13,%2045.pdf)

Abstract: A quick and easy method is presented to estimate the random fluctuations exhibited by citation measures. Applying this method allows for instance a better view on the ranking of journals (their so called “pecking order”), when the ranks are based on the number of recieved citations or on the impact factor of the journal.

? Wood, J.B. (1988), The growth of scholarship: An online bibliometric comparison of dissertations in the sciences and humanities. *Scientometrics*, **13** (1-2), 53-62.

Full Text: [1988\Scientometrics13, 53.pdf](1988/Scientometrics13,%2053.pdf)

Abstract: *the Dissertation Abstracts* database was searched online to study patterns in the growth of scholarship from 1880-1984. The total number of degrees granted per year as well as the number of degrees granted per year in the “hard” sciences, social sciences, and library science seems to be leveling off; the number in fine arts and literature has begun to decline; and the number in information science, computer science, and the health sciences continues to grow. Searching *Dissertation Abstracts* online offers an efficient and relatively inexpensive way to obtain quantitative data for trend analysis.

? Flor, A.G. (1988), The information wastage ratio: Towards a theory of rates of information generation and utilization. *Scientometrics*, **13** (1-2), 63-69.

Full Text: [1988\Scientometrics13, 63.pdf](1988/Scientometrics13,%2063.pdf)

Abstract: This paper presents a theoretical framework of the relationships between certain phenomena attendant to an information society, i.e, information explosion, societal informarion overload, etc. It also attempts to explain and predict the possible effects of these phenomena on information generation, utilization and wastage. A theory of rates of information generation and utilization as well as a wastage ratio is proposed, the initial propositions, axioms and postulates which form the bases of this theory are described in their logieai sequence. Hypotheses and conceptual models are also included.

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Full Text: [1988\Scientometrics13, 81.pdf](1988/Scientometrics13,%2081.pdf)

Abstract: Bibliometrie methods in general undervalue technological research. This study examines the relation in literature between technological/industrial journals and scientifie journals in the ease of the plastics industry and polymer science. Trade-journals cannot be used in a straightforward bibliometric manner, but can be an aid in mapping the different groups and reveal the ‘hidden’ eornrnunieation between technological and scientific communities.

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Full Text: [1988\Scientometrics13, 93.pdf](1988/Scientometrics13,%2093.pdf)

Abstract: This paper reports on a study of Reprint Requests (RRs). It is estimated that tens of millions of RRs are mailed each year, most being triggered by *Current Contents.* A sample of RRs generated by three papers, plus a quessionnaire-survey of the requesters for one paper, form the basis of this study into language use patterns in the RR genre. English is ubiquitous, German and French infrequent, Russian and Spanish rare. This language data is significant because it provides unit-level language decision making (as opposed to that at other levels). Various applications of RR research are discussed, including its relevance to the issue of “Third World Science”.

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Full Text: [1988\Scientometrics13, 103.pdf](1988/Scientometrics13,%20103.pdf)

Abstract: This project compares various bibliometric measures and scientists’ own judgments. Publication and citation data are compiled for two cohorts of chemists awarded Sloan Fellowships. Citation patterns differ substantially between most cited papers and those these authors identify as their “best.” Theoretical, empirical, and methodological papers are contrasted as well. In addition, temporal citation patterns show that recognition spreads beyond the research area of a particular paper to yield “cross-disciplinary” citation .surprisingly rapidly. Results suggest the utility of studying citation patterns among the Institute for Scientific Information Subject Categories, but also caution against equating publication and citation counts with scientific progress.

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Full Text: [1988\Scientometrics13, 125.pdf](1988/Scientometrics13,%20125.pdf)

Abstract: In this paper, Nature and Science, the two distinguished multi-disciplimuary scientific journals were compared placing emphasis on their internationality. The items investion ml were as follows. A. general comparison: 1. number of authors per article, 2. di~ilmtiw a’ countries to which first authors’ imtitutions belong, 3. distn~oution of main diSCilflJm studied by first authors, 4. time-lag between the date of receipt of an azticle by the and the date of its publication. B. The position with regard to Japanese authors: 1. Numbtt of Japanese authors, 2. relationship between the ranking of a Japanese author in the list of authors’ names and the country where his institution is located, 3. relationship between the time-lag stated in A-4 and the items stated in B-2. As a result, it can be said tlmtNature is a more highly international journal then Science.

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Full Text: [1988\Scientometrics13, 135.pdf](1988/Scientometrics13,%20135.pdf)

Abstract: This paper examines the contributions given in the *Source Book in Astronomy and Astrophysics 1900-1975* with respect to the question: how old were the authors at the time of their greatest achievements? As average value of the age of the authors at the time of the publication we find A = 39.8±10.9 years and a tittle difference for more empirical and the theoretical papers.

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Full Text: [1988\Scientometrics13, 139.pdf](1988/Scientometrics13,%20139.pdf)

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Full Text: [1988\Scientometrics13, 173.pdf](1988/Scientometrics13,%20173.pdf)

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Full Text: [1988\Scientometrics13, 174.pdf](1988/Scientometrics13,%20174.pdf)

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Full Text: [1988\Scientometrics13, 181.pdf](1988/Scientometrics13,%20181.pdf)

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Full Text: [1988\Scientometrics13, 189.pdf](1988/Scientometrics13,%20189.pdf)

Abstract: This study is a count of the publications of a sample of the major pharmaceutical multinational companies. These finns have been divided into three geopolitical groups: Europe, the United States and Japan. Results obtained show that research activities in this industry have been subjected to some changes between 1965 and 1979. Among these changes is the growing importance of fundamental research, the erosion of the leadership of U.S.-based firms and the growing importance of overseas research.

? Over, R. (1988), Does scholarly impact decline with age. *Scientometrics*, **13** (5-6), 215-223.

Full Text: [1988\Scientometrics13, 215.pdf](1988/Scientometrics13,%20215.pdf)

Abstract: Relationships between age and scholarly impact were assessed by determining the number of times single-author articles (N=227) published in Psychological Review between 1965 and 1980 were cited in the fifth year following publication. There were substantial individual differences in citation rates, but this measure of scholarly impact did not correlate with either the chronological age of authors or their professional age (years since PhD award). Although the majority of articles in Psychological Review were published by authors under the age of 40, such a bias is to be expected in terms of the age distrubution of American psychologists. When allowance was made for the number of authors in different age ranges, older authors were no less likely than younger authors to have generated a high-impact article (an article cited 10 or more times in the fifth year after publication). The data offer no support to claims that publications by young scientists have greater impact.

Notes: UUniversity

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Full Text: [1988\Scientometrics13, 225.pdf](1988/Scientometrics13,%20225.pdf)

Abstract: Nigerian university scientists are working under very difficult conditions created by a nmnber of constaints of which lack of equipment and lack of information are the most crucial. These constraints have generated a number of adaptations that are both innovative and opportunistiy categies for dealing with these constraints are described. Attention is also given to the social milieu of the scientists and the issue of reward for scientific contribution.

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Full Text: [1988\Scientometrics13, 239.pdf](1988/Scientometrics13,%20239.pdf)

Abstract: An attempt is made for the survey and classification of bibliometric indicators applicable for assessment of publication performance of researchers active in natural sciences. Indicators can be classified as publication and citation ones which may refer to impact and quantity of publication activity of researcher(s), teams, institutes or eotmtties. Taking into account the possible reference standards, the indicators are classified as simple, specific, balance, distribution and relative ones. In order to evaluate publication activity both qualitatively and quantitatively, relative citation indicators can be recommended, which relate citations received to the sum of impact factors of the journals, where the papers were published or give the relative measure of the average eitedness of papers related to that of papers in journals in a similar subfield.

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Full Text: [1988\Scientometrics13, 261.pdf](1988/Scientometrics13,%20261.pdf)

Abstract: the paper analyses the output of the publication data of an Indian laboratory in the field of physics in SCI and non SCI coveted Indian and foreign journals, processes developed and Indian patents filed during the period 1965 -82 to find out the pattern of productivity. Looks at the journals wherein the laboratccy scientists publish. Also points out the sub-areas of physics in which the laboratory scientists have published maximum papers and also mentions about the pattern of scientific co-authorship in the research work. Correlation coefficients between input variable (manpower and budget) with output variables (number of papers published, processes developed and Indian patents accepted) have been calculated.

? Eto, H. (1988), Rising tail in Bradford distribution: Its interpretation and application. *Scientometrics*, **13** (5-6), 271-287.

Full Text: [1988\Scientometrics13, 271.pdf](1988/Scientometrics13,%20271.pdf)

Abstract: the right tail of the Bradford distribution has been considered to be straight or drooping. This paper reports cases in which the right tail is rising upward, explains and verifies conditions of its occurrences, intcxpretes it and proposes its application to evaluation and forecasting of technological development at the basic research stage.

? Kunz, M. (1988), Lotka and Zipf: Paper dragons with fuzzy tails. *Scientometrics*, **13** (5-6), 289-297.

Full Text: [1988\Scientometrics13, 289.pdf](1988/Scientometrics13,%20289.pdf)

Abstract: A linear correlation exists between the Lotka frequency and Zipf rank distribution functions. Relatively good correlation coefficients were found, but slope constants are not consistent with theory. They show that information distributions are not homogeneous and cannot be completely described by two parameter functions.

Keywords: Lotka, Zipf

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Full Text: [1988\Scientometrics13, 301.pdf](1988/Scientometrics13,%20301.pdf)

? Bromley, D.A. (1988), Scientific excellence: Jackson, DN, Rushton, JP. *Scientometrics*, **13** (5-6), 302-303.

Full Text: [1988\Scientometrics13, 302.pdf](1988/Scientometrics13,%20302.pdf)

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Full Text: [1988\Scientometrics14, 3.pdf](1988/Scientometrics14,%203.pdf)

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Full Text: [1988\Scientometrics14, 17.pdf](1988/Scientometrics14,%2017.pdf)

Keywords: Hungary, Mexico

? Chakravarthy, R., Chawla, A. and Mehta, G. (1988), Women scientists at work: An international comparative-study of 6 countries. *Scientometrics*, **14** (1-2), 43-74.

Full Text: [1988\Scientometrics14, 43.pdf](1988/Scientometrics14,%2043.pdf)

Abstract: On the basis of survey, conducted within the framework of the UNESCO International Comparative Study on the Organization of Research groups, the role and position of women in scientific activity is compared. Data on a total of (6000 individuals) from Argentina, India, Egypt, Korea, Poland and USSR show that women scientists’ participation is highest in Poland, and lower in India, Korea and Argentina. Everywhere women scientists are more often doing the routine aspects of the research process and more isolated from external contacts with men. Women have lower scientific productivity than male scientists which can be interpreted as a consequence of their lower status in the organization.

? Lindsey, D. (1988), Assessing precision in the manuscript review process: A little better than a dice roll. *Scientometrics*, **14** (1-2), 75-82.

Full Text: [1988\Scientometrics14, 75.pdf](1988/Scientometrics14,%2075.pdf)

Arunachalam, S. and Manorama, K. (1988), How do journals on the periphery compare with mainstream scientific journals. *Scientometrics*, **14** (1-2), 83-95.

Full Text: [1988\Scientometrics14, 83.pdf](1988/Scientometrics14,%2083.pdf)

Abstract: Based on the premise that citations in scientific journals can tell us a lot about the journals, we have compared Indian journals in the fields of astronomy, physics, chemistry, biochemistry, geology and ecology with leading world journals.’The two criteria compared are the age of references and the journals often cited in each of the journals considered. Our results show that although overall Indian science is mediocre, parts of India’s scientific enterprise are cognitively better related to world science. The peripherality is not uniform across the board, but some areas like astronomy and to some extent physics are closer to the central or mainstream science than others. Although citation analysis is not normally used for cross-field comparisons, this paper demonstrates that, if used judiciously, citation analysis can yield valuable insights into issues involving many fields.

? Frey, B.S. and Pommerehne, W.W. (1988), The American domination among eminent economists. *Scientometrics*, **14** (1-2), 97-110.

Full Text: [1988\Scientometrics14, 97.pdf](1988/Scientometrics14,%2097.pdf)

Abstract: American economists take a dominant position among eminent economists. According to Blaug’s Who’s Who in Economics, among iiving economists the share amounts to more than two thirds, and over one half of all eminent economists since 1700. Part of this dominance may be attributed to factors such as the definition of ‘eminence’, the underlying sample of scholars, and the language and style representing barriers to entry for non-American economists. However, the major reason consists in the favourable conditions for good research which in turn are based on tbe beneficial economic, political and social framework existing in North America.

? Pravdic, N., Aganovicboras, A. and Kritovac, D. (1988), In search of a “non-citation index” indicator for scientific activity assessment in less developed-countries: Case study of Croatia/Yugoslavia. *Scientometrics*, **14** (1-2), 111-125.

Full Text: [1988\Scientometrics14, 111.pdf](1988/Scientometrics14,%20111.pdf)

Abstract: the meaning of the term the intellectual “island effect” which was introduced by Arunachalam et al. is broadened as to characterize the status of science on the periphery in general. A practical solution is proposed, based on bibliometric data of the research output and relying on two criteria: the extent of coverage by world significant secondary literature and the extent of scatter of that literature. Reliability of the publication data retrieved from the Citation Indexes is discussed; a measure is offered to assess the adequacy of the Citation Indexes as the data sources.

Keywords: Croatia, Yugoslavia

? Kidd, J.S. (1988), The popularization of science: Some basic measurements. *Scientometrics*, **14** (1-2), 127-142.

Full Text: [1988\Scientometrics14, 127.pdf](1988/Scientometrics14,%20127.pdf)

Abstract: Four pairs of articles provide a framework for the bibliometfic analysis of presentations of scientific findings to non-specialist audiences. One member of each pair is a professional-level review article; the other is its counterpart as published in Scientific American. Two of the pairs were published in the mid-1960’s and two pairs were published in the mid-1980’s. The pace and scope of popular reportage improved over the twenty-year span but the readability index for popular treatments suggests that there are still serious barriers to mass audience consumption. Examination of the personal references in the popular presentations reveals linkage patterns that are analogous to those found by citation and co-citation analyses.

? Onodera, N. (1988), A frequency distribution function derived from a stochastic model considering human behaviors and its comparison with an empirical bibliometric distribution. *Scientometrics*, **14** (1-2), 143-159.

Full Text: [1988\Scientometrics14, 143.pdf](1988/Scientometrics14,%20143.pdf)

Abstract: Simon’s stochastic model is extended to take both ‘selective’ and ‘random’ factors in human behaviors into consideration. The resulting distribution function is of ‘non-steady-state’ type and approaches the Poisson distribution at the random limit while the Yule (or Zipf) distribution at the selective limit. A comparison of the theoretical distribution with an observed one for classification items indexed in a bibliographic database is made. The results give some insights into statistical features of a class in which the total number of elements is fixed.

? Vinkler, P. (1988), Weighted impact of publications and relative contribution score: 2 new indicators characterizing publication activity of countries. *Scientometrics*, **14** (1-2), 161-163.

Full Text: [1988\Scientometrics14, 161.pdf](1988/Scientometrics14,%20161.pdf)

Abstract: In order to characterize the relative publication output of countries both qualitatively and quantitatively two indicators [Weighted Impact of Publications (WlP) and Relative Contribution Score (RCS)] are suggested. The RCS indicator may reflect the contribution of countries to the world science by inhabitants.

? Small, H. (1988), Mapping the dynamics of science and technology: Callon, M, Law, J, Rip, A. *Scientometrics*, **14** (1-2), 165-168.

Full Text: [1988\Scientometrics14, 165.pdf](1988/Scientometrics14,%20165.pdf)

? Healey, P., Irvine, J. and Martin, B.R. (1988), Introduction: Quantitative science-policy studies in the United Kingdom. *Scientometrics*, **14** (3-4), 177-183.

Full Text: [1988\Scientometrics14, 177.pdf](1988/Scientometrics14,%20177.pdf)

Keywords: United Kingdom

Note: CCountry

? Phillips, D.C. and Turney, J. (1988), Bibliometrics and UK science policy. *Scientometrics*, **14** (3-4), 185-200.

Full Text: [1988\Scientometrics14, 185.pdf](1988/Scientometrics14,%20185.pdf)

Keywords: Bibliometrics

? Collins, P.M.D. (1988), Research performance and migration: Two sepsu studies. *Scientometrics*, **14** (3-4), 201-211.

Full Text: [1988\Scientometrics14, 201.pdf](1988/Scientometrics14,%20201.pdf)

Abstract: This paper describes two recent studies by the Science and Engineering Policy Studies Unit (SEPSU). The first is a comparative evaluation of national performance in basic research - an exploration of methodology and extensive data on several facets of national performance. The second deals with the migration of scientists and: engineers to and from the UK, and reports a mote complex picture than some commentators had expected.

? Carpenter, M.P., Gibb, F., Harris, M., Irvine, J., Martin, B.R. and Narin, F. (1988), Bibliometric profiles for British Academic Institutions: An experiment to develop research output indicators. *Scientometrics*, **14** (3-4), 213-233.

Full Text: [1988\Scientometrics14, 213.pdf](1988/Scientometrics14,%20213.pdf)

Abstract: In this paper, we report the results of an exploratory study commissioned by the Advisory Board for the Research Councils to produce bibliometric research profiles for academic and related institutions within the UK. The approach adopted is based on the methodology developed by CHI Research whereby publications from a given institution ate weighted according to the influence of the journal in which they appear. Although certen technical limitations were encountered with the approach, the study nonetheless yielded potentially useful information on the comparative research output of British universities and polytechnics.

Keywords: Science

? Crewe, I. (1988), Reputation, research and reality: the Publication records of UK departments of politics, 1978-1984. *Scientometrics*, **14** (3-4), 235-250.

Full Text: [1988\Scientometrics14, 235.pdf](1988/Scientometrics14,%20235.pdf)

Abstract: This article contributes some data on the relative research performance of university departments, a topic of growing interest. It analyses the total published and per capita publication rates of 52 UK Politics Departments from 1978 to 1984. The main findings are that 1) departmental per capita publication rates vary enormously; 2) a department’s relative productivity is strongly correlated across all types of publication; 3) a few departments are substantially more productive then the rest; 4) among highly productive departments, one can usefully distinguish between those with ‘collective’ and those with ‘individual’ strength 5) a department’s productivity is not related to its size. Various rankings are compiled and compared .with the THES peer review and the UGC’s classification of research quality.

? Law, J., Bauin, S., Courtial, J.P. and Whittaker, J. (1988), Policy and the mapping of scientific change: A co-word analysis of research into environmental acidification. *Scientometrics*, **14** (3-4), 251-264.

Full Text: [1988\Scientometrics14, 251.pdf](1988/Scientometrics14,%20251.pdf)

Abstract: This paper describes recent developments in the co-word method and illustrates, for the ease of acid raha research, the way in which the method can be used to detect (a) the themes of research to be found in a given area of science, (b) the relationships between those themes, (c) the extent to which they are central to the area in question and (d) the degree to which they are internally structured. It is also suggested that the method may be used to draw comparative research profiles for different countries. Though the data used are only preliminiary, it is argued that the method has now been developed to the point where its results are both quite robust and easily assimilable. It is, accordingly, now an appropriate tool for policy analysis.

? Giusti, W.L. and Georghiou, L. (1988), The use of co-nomination analysis in real-time evaluation of an R&D program. *Scientometrics*, **14** (3-4), 265-281.

Full Text: [1988\Scientometrics14, 265.pdf](1988/Scientometrics14,%20265.pdf)

Abstract: This article describes the application of co-nomination analysis, a technique designed to nmp the structure of a research community. The technique was used as part of the evaluation of the UK national information technology programme, which sponsors collaborative research between firms and between firms and universities. Co-nomination networks are based upon responses to questionnaires in which researchers are asked to nominate other researchers whose work is simil~r or relevant to their own. Researchers nominated in the same response are presumed to be linked, and where these links occur with multiple frequency, the likelihood of their being significant is increased. The article describes the extension of a network which had been previously identified and compares the citation scores of researchers identified in the networks. It is concluded that the networks represented were realistic and a useful input to the evaluation. Industrial and government researchers with low citation score’s were in some cases central to the networks, suggesting that co-nomination is useful in areas where publication is restricted or considered less important. Further development of the technique is planed.

? Mcginnety, J.A. (1988), The Natural Environment Research Council (NERC): Recent experiences with quantitative science policy studies. *Scientometrics*, **14** (3-4), 283-293.

Full Text: [1988\Scientometrics14, 283.pdf](1988/Scientometrics14,%20283.pdf)

Abstract: NERC is exploring methods by which its management of research and science audit might be improved. Quantitative output indicators have been used to provide information for science audit at the levels of individuals and laboratories. Scientists in eleven laboratories described their research activities over five years and provided output indicators, including publications in the refereed and general literature. Citation counts and influence profiles were then prepared. The paper describes some comparisons between laboratories in similar areas of science made by relating these outputs to inputs (staff and money). The productivity distribution in terms of publications and citations of the individuals within a laboratory community is also derived.

? King, J. (1988), The use of bibliometric techniques for institutional research evaluation: A study of avian virology research. *Scientometrics*, **14** (3-4), 295-313.

Full Text: [1988\Scientometrics14, 295.pdf](1988/Scientometrics14,%20295.pdf)

Abstract: A bibliometric analysis was made of an area of veterinary research, avian virology, in the context of seeking quantitiative indicators to assist research evaluation for the UK Agricultural and Food Research Council (AFRC). In one approach, a list was made of world publications in avian virology using the CAB database which is the most appropriate literature source in terms of subject specificity and breadth of coverage. Means were sought to minimise the labour input required for citation studies of this kind; results based on peak-year citations only were similar to those from the more widely used four-year count, in terms of country-ranking and time trends. In the second method, the publication outputs of several avian virology research groups were assessed in terms of ‘expected’ citations i.e. The average number of citations per paper received by the journals in which the groups published, as compared to the actual citations received. The rankings of the groups were the same in both methods. This second approach, while giving only approximate citation rates, has the advantage of requiring only in-house data. It seems more appropriate for the ex-post evaluation of the output of research groups in the context of agricultural and food research, and it is suggested that further studies on journal-based indicators are warranted.

Keywords: Science

? Porteous, M. (1988), The role and development of quantitative indicators for research and technology policy making: Some experience from the department of trade and industry. *Scientometrics*, **14** (3-4), 315-327.

Full Text: [1988\Scientometrics14, 315.pdf](1988/Scientometrics14,%20315.pdf)

Abstract: This article discusses quantitative S&T indicators from the perspeetive of their usefulness in bringing longer term considerations into policy making. A number of areas of current and future work by the Longer Term Studies Group of the Department of Trade and Industry are presented as illustrative cases. The main concern of the article, however, is to outline some of the main decisions facing S&T policy making, thereby setting the context for the development and use of quantitative indicators. It is suggested that the approach of considering longer term trends and developments in the context of present-day policy issues may well open new opportunities for the development of quantitative indicators. Above all a pragmatic approach is required, weighing up the value of an indicator with other sources of information in considering their relevance to the practical problems of policy making.

? Pavitt, K. (1988), The size and structure of British technology activities: What we do and do not know. *Scientometrics*, **14** (3-4), 329-346.

Full Text: [1988\Scientometrics14, 329.pdf](1988/Scientometrics14,%20329.pdf)

Abstract: As a result of official, private and university initiatives, indicators of British technological activity have improved considerably over the past 30 years. They reveat strong similarities to other Western, industriahsed countries in the type of activity performed, in its relative concentration within business firms, and in its distribution amongst sectors and firms of different sizes. They also reveal a relatively low level and rate of growth of technological activities, with relative strength in aerospace and chemicals, and decline and weakness in electronics. These patterns result in large part from decisions about technology strategy taken by not much more than a handful of large firms.

? Moravcsik, M.J. (1988), Scientometric indicators: A 32-country comparative-evaluation of publishing performance and citation impact - Braun, T, Glänzel, W, Schubert, A. *Scientometrics*, **14** (3-4), 347-348.

Full Text: [1988\Scientometrics14, 347.pdf](1988/Scientometrics14,%20347.pdf)

? Moravcsik, M.J. (1988), Scientific-research in Israel - Greenwald, N, Herskovic, S. *Scientometrics*, **14** (3-4), 348-349.

Full Text: [1988\Scientometrics14, 348.pdf](1988/Scientometrics14,%20348.pdf)

Keywords: Israel

? Moravcsik, M.J. (1988), Research workers in developing-countries: Origins, formation and research practices - French - Gaillard, J. *Scientometrics*, **14** (3-4), 349-350.

Full Text: [1988\Scientometrics14, 349.pdf](1988/Scientometrics14,%20349.pdf)

? Vanraan, A.F.J. (1988), Comments on small, Henry, recipient of the 1987 Price, Derek, Desolla Award. *Scientometrics*, **14** (5-6), 361-363.

Full Text: [1988\Scientometrics14, 361.pdf](1988/Scientometrics14,%20361.pdf)

? Braun, T., Glänzel, W. and Schubert, A. (1988), The newest version of the facts and figures on publication output and relative citation impact in physics, engineering and mathematics 1981-1985. *Scientometrics*, **14** (5-6), 365-382.

Full Text: [1988\Scientometrics14, 365.pdf](1988/Scientometrics14,%20365.pdf)

? Nagpaul, P.S. and Krishnaiah, V.S.R. (1988), Dimensions of research planning: Comparative-study of research units in six countries. *Scientometrics*, **14** (5-6), 383-410.

Full Text: [1988\Scientometrics14, 383.pdf](1988/Scientometrics14,%20383.pdf)

Abstract: This paper seeks to examine the characteristics and quality of research planning at the level of microcosm of the research unit in six countries -Argentina, Egypt, India, Republic of Korea, Poland and USSR. It is concerned basically with the following aspects: (i) differences in the characteristics and quality of research planning in research units in different countries and institutional settings; (ii)pattern ofrelationshipsbetween the indices of planning and tbxee measures of effectiveness - scientific, user-oriented and administrative; and (iii) stability in the pattern of relationships across countries and measures of performance. As a result of analysis, a few universal indices have been identified that have consistent relationships across countries. It is concluded that the determinants of effectiveness of research pianning depend upon the criteria used for measuring the performance of the research unit. Besides specificity of research goals, the most important predictors of performance are: conceptual challenge of the research programme and external linkages of the research group- linkages with scientific peers and potential users of research results.

? Hohenester, A., Mathelitsch, L. and Moravcsik, M.J. (1988), The Usage of ‘theory’ and ‘model’ in scientific conceptualization. *Scientometrics*, **14** (5-6), 411-420.

Full Text: [1988\Scientometrics14, 411.pdf](1988/Scientometrics14,%20411.pdf)

Abstract: This paper seeks to examine the characteristics and quality of research planning at the level of microcosm of the research unit in six countries -Argentina, Egypt, India, Republic of Korea, Poland and USSR. It is concerned basically with the following aspects: (i) differences in the characteristics and quality of research planning in research units in different countries and institutional settings; (ii)pattern ofrelationshipsbetween the indices of planning and tbxee measures of effectiveness - scientific, user-oriented and administrative; and (iii) stability in the pattern of relationships across countries and measures of performance. As a result of analysis, a few universal indices have been identified that have consistent relationships across countries. It is concluded that the determinants of effectiveness of research pianning depend upon the criteria used for measuring the performance of the research unit. Besides specificity of research goals, the most important predictors of performance are: conceptual challenge of the research programme and external linkages of the research group- linkages with scientific peers and potential users of research results.

Ajiferuke, I., Burell, Q. and Tague, J. (1988), Collaborative coefficient: A single measure of the degree of collaboration in research. *Scientometrics*, **14** (5-6), 421-433.

Full Text: [1988\Scientometrics14, 421.pdf](1988/Scientometrics14,%20421.pdf)

Abstract: It is shown that the mean number of authors per paper or the proportion of the multiple-anthured papers is inadequate as a measure of the degree of collaboration in a discipline. A measure which combines some of the merits of both measures is suggested and derived. This measure, called the Collaborative Coefficient, is derived for four commonly used probability distributions.

? Nasierowski, W. (1988), The essence and dilemmas of measurement in the sciences of organization. *Scientometrics*, **14** (5-6), 435-452.

Full Text: [1988\Scientometrics14, 435.pdf](1988/Scientometrics14,%20435.pdf)

Abstract: This paper will discuss the problems of measurement in the theory of organization. The development of methods of measuring is shown to be a condition for progress to this theory. The basic components of measurement are discussed. Main shortcomings involved in the concepts of measurement of features of organization are presented. Their sources and the consequences of their existence for solving organizational problems, are demonstrated. Suggestion for elaborations regarding the elimination of drawbacks will be presented.

? Vinkler, P. (1988), Bibliometric features of some scientific subfields and the scientometric consequences therefrom. *Scientometrics*, **14** (5-6), 453-474.

Full Text: [1988\Scientometrics14, 453.pdf](1988/Scientometrics14,%20453.pdf)

Abstract: In the present work an attempt is made to select journal bases for some subfields in chemistry. Through the modification of the Hirst’s discipline impact factor concept, the primary information base for the selected subfields is determined. Relating impact factors of citing and cited journals, citation strategy indicators are suggefted. Determination of the mean impact factors for subfields enables the introduction of sub fields factors that bring the impact factors of journals of various subfields on a cotrrparable level.

? Nederhof, A.J. (1988), Changes in publication patterns of biotechnologists: An evaluation of the impact of government stimulation programs in six industrial nations. *Scientometrics*, **14** (5-6), 475-485.

Full Text: [1988\Scientometrics14, 475.pdf](1988/Scientometrics14,%20475.pdf)

Abstract: the effects of a government stimulation program on the development of Dutch biotechnology have been studied scientometrically in comparison with world-wide averages, and with the effects of programs of five important large Western industrial nations, in the period 1976-1985. In two priority fields of the Dutch programme, fermentation and bio-industrial chemistry, and biochemical genetics, publication rates were below world average before 1980-1981, but reached levels figrtificanfly above world average in 1984-1985. Both in 1980 and 1984, Dutch articles were characterized by a relatively high abort-term impact. In 1984, the impact of Dutch articles was slightly above the 1980 level. When publications were counted in a core set of 19 bioteehnology relevant journals, the share of Dutch biotechnologist: did not change between 1979-1982 and 1983-1986, while Canada, Japan, France, and, to some extent, the UK, improved their positions, but the Federal Republic of Germany lost some ground.

? Kryzhanovsky, L.N. (1988), An application of bibliometrics to the history of electricity. *Scientometrics*, **14** (5-6), 487-492.

Full Text: [1988\Scientometrics14, 487.pdf](1988/Scientometrics14,%20487.pdf)

Abstract: A bibliometric analysis is performed on the articles$ on or relating to electricity that appeared in the Philosophical Transactions of the Royal Society of London from their commencement, in 1665, to the year 1800. The views of eminent scientists of the 18th century of the scientific ndvance, state of the art and prospects in electricity axe given and commented. Agreemaent between the bibliometric data and scientists’ views is ascertained.

Keywords: Bibliometrics

? Egghe, L. and Rousseau, R. (1988), Reflections on a deflection: A note on different causes of the groos droop. *Scientometrics*, **14** (5-6), 493-511.

Full Text: [1988\Scientometrics14, 493.pdf](1988/Scientometrics14,%20493.pdf)

Abstract: In this paper different aspects that cause the so-called Groos droop, are investigated. We start from pure Bradfordian data (i.e. without a Groos droop) and discuss what actions can cause a deflection on the Bradford-Leimkuhlet curve. It is, of course, well-known, that incompleteness of. The data is one aspect, but we show that taking unions of pure Bradfordian bibliographies can also yield a bibliography with a Groos droop. As such, a Groos droop earl always be expected in interdisciplinary bibliographies.

In this way we suggest an explanation for the experimental differences between the micro- and macro-curves obtained by Bonitz and Schmidt (Scientometrics, 4 (1982) 283.). In conclusion we may say that the Groos droop can be explained thxough Bradford’s law and hence that they do not contradict each other.

? Schubert, A. (1988), Quantitative studies of science: A current bibliography. No. 12. *Scientometrics*, **14** (5-6), 513-520.

Full Text: [1988\Scientometrics14, 513.pdf](1988/Scientometrics14,%20513.pdf)

? Granovsky, Y.V. (1989), Nalimov, V.V. recipient of the 1987 Price, Derek, Desolla Award - Comment. *Scientometrics*, **15** (1-2), 7-12.

Full Text: [1989\Scientometrics15, 7.pdf](1989/Scientometrics15,%207.pdf)

? Braun, T., Glänzel, W. and Schubert, A. (1989), The newest version of the facts and figures on publication output and relative citation impact: A collection of relational charts, 1981-1985. *Scientometrics*, **15** (1-2), 13-20.

Full Text: [1989\Scientometrics15, 13.pdf](1989/Scientometrics15,%2013.pdf)

? Dobrov, G. and Skofenko, A. (1989), Fuzzy expertise and its application to research and development management. *Scientometrics*, **15** (1-2), 21-31.

Full Text: [1989\Scientometrics15, 21.pdf](1989/Scientometrics15,%2021.pdf)

Abstract: Applications of fuzzy set theory to various problems of data processing influenced greatly the analysis of expert opinion results. The authors developed models based on the fuzzy set concept for expert assessments using quantitative and qualitative scales typical in R & D management. The approach is illustrated by the solution of the problem of ranking of the factors influencing practical applications of research results.

? Granovsky, Yu.V. (1989), Scientometrics theory of experiment and optimization of research. *Scientometrics*, **15** (1-2), 33-43.

Full Text: [1989\Scientometrics15, 33.pdf](1989/Scientometrics15,%2033.pdf)

Abstract: An approach to optimization of research based on the theory of experiment and scientometrics is proposed. Research is treated as an experiment aimed at attainment of optimal conditions. The following successive phases of optimization have been singled out: selection of optimisation parameters and factors, carrying out the experiment, and processing and interpreting the results obtained. Methods of multidimensional classification and screening are recommended for selection of optimization parameters and factors. Evolutionary operation representations are used at the optimization stage. Problems of optimization research should be tackled in centres of scientific information where data on advances made in various scientific fields are accumulated.

Keywords: Scientometrics

? Haitun, S.D. (1989), Science studies and natural-sciences: Which is primary, distribution or interdependence between variables. *Scientometrics*, **15** (1-2), 45-58.

Full Text: [1989\Scientometrics15, 45.pdf](1989/Scientometrics15,%2045.pdf)

Abstract: It is shown that in natural sciences, interdependences between variables are determined regardless of the distributions of variable values, whereas in science studies, distributions should be used as a starting point. This difference is due the nature of measuring instruments: in natural sciences, measurements are performed with the use of devices, while science of science uses “human devices” adapting themselves to the measured objects. Practical inferences are drawn.

? Korennoi, A.A. (1989), Information co-modeling of a network of research institutions. *Scientometrics*, **15** (1-2), 59-71.

Full Text: [1989\Scientometrics15, 59.pdf](1989/Scientometrics15,%2059.pdf)

Abstract: A method of measuring the communication in a network of research institutions is presented. The method is based on the determination of the subject similarity of research reports. The requests of the users are taken into account. The hierarchic cluster analysis of communication in the network is fulfilled on the base of the fuzzy binary relations of similarity between objects.

? Malciene, L. (1989), Scientometric analysis of a scientific school. *Scientometrics*, **15** (1-2), 73-85.

Full Text: [1989\Scientometrics15, 73.pdf](1989/Scientometrics15,%2073.pdf)

Abstract: A procedure including scientometric methods combined with other techniques is described. This allows to define the membership and structure of a scientific school and to trace the dynamics of its development. Formation and evolution of a scientific school is presented as a purposeful scientific-information process involving changes in the nature and dynamics of the types of information links.

? Mokhov, O.I. (1989), About statistics of the extreme values and the rank form of scientometric distributions. *Scientometrics*, **15** (1-2), 87-96.

Full Text: [1989\Scientometrics15, 87.pdf](1989/Scientometrics15,%2087.pdf)

Abstract: the relation between the frequency and rank forms and the connection of the parameters of the corresponding model scientometric distributions is discussed. Besides, while using the probabilistic interpretation of the data which are presented as a sample, from a model population, the behaviour of the extreme values is examined. for example, the median .mu. of the distribution of the maximal values for the samples of the size N from the Zipf-Pareto distribution, which is typical for social phenomena, increases fate than the sample size N if a < 1: .apprx. const. Nl/.alpha.. The knowledge of the asymptotical behaviour of the characteristics of the extreme values is necessary for the adequate modelling in scientometrics.

? Motylev, V.M. (1989), The main problems of studying literature aging. *Scientometrics*, **15** (1-2), 97-109.

Full Text: [1989\Scientometrics15, 97.pdf](1989/Scientometrics15,%2097.pdf)

Abstract: Aging is otte of the properties of scientific and technical literature. The knowledge of the laws of aging is very important in the science of science, information science and library science. Methodological errors in studying the aging process cause wrong results. By means of non-traditional processing of well-known empiric data the author refutes such genr accepted ideas as the idea of very rapid aging of literature, the idea of more rapid aging of publications on rapidly developing fields of knowledge, the idea of the maximum of book use being only in a few years after its publication, and some other ideas.

? Orlov, S.V. and Vasiljev, A.N. (1989), Possible treatment of the Bonitz-Gross effect. *Scientometrics*, **15** (1-2), 111-126.

Full Text: [1989\Scientometrics15, 111.pdf](1989/Scientometrics15,%20111.pdf)

Abstract: We suggest some theoretical considerations concerning patastatistieal distribution of rife number of journals by the number of attieles which they contain (structural units). Our experiments agree with the theoretical conclusions with accuracy up to 0.31%; and with Price’s experiments - with accuracy of 0.7%.

The qualitive agreement of the theoretical model suggested is shown with Bonitz’s experiments. The agreement of the theory and the experiment is discussed and it is shown that the model suggested describes the Groos effect, i. e. it introduces a correction to the Bradford law.

Keywords: Treatment

? Sharabchiev, J.T. (1989), Cluster-analysis of bibliographic references as a scientometric method. *Scientometrics*, **15** (1-2), 127-137.

Full Text: [1989\Scientometrics15, 127.pdf](1989/Scientometrics15,%20127.pdf)

Abstract: Possible applications of cluster analysis of bibliographic references as a scientometric method are studied. It is shown that cluster analysis, made by means of bibliographic coupling by Kessler and co-citation by Marshakova-Small present comparable results. “Science maps” on immunological topics are made. Particularly for historico-scientific studies it is useful to make clusters in rectangular coordinates taking into account the value of citing the document and the year of its publication. It is observed that at the junction points of sciences there is an almost twofold deceleration of the processes of application and spreading of knowledge. It is stated that the problem of “information explosion” does not exist on the level of new ideas, the number of which is less than 0.1% of the total volume of the published information flow 40% of which is formed by “information noise”.

? Doroshenko, S.I. and Haitun, S.D. (1989), Quantitative studies of science: A bibliography of soviet publications. *Scientometrics*, **15** (1-2), 139-154.

Full Text: [1989\Scientometrics15, 139.pdf](1989/Scientometrics15,%20139.pdf)

? Kostyuk, V. and Schreider, J. (1989), Mathematical models in science studies - Yablonsky, AI. *Scientometrics*, **15** (1-2), 155-157.

Full Text: [1989\Scientometrics15, 155.pdf](1989/Scientometrics15,%20155.pdf)

? Braun, T., Glänzel, W. and Schubert, A. (1989), Assessing assessments of British science some fact and figures to accept or decline. *Scientometrics*, **15** (3-4), 165-170.

Full Text: [1989\Scientometrics15, 165.pdf](1989/Scientometrics15,%20165.pdf)

Notes: MModel; CCountry

? Gupta, D.K. (1989), Scientometric study of biochemical literature of Nigeria, 1970-1984 - application of Lotka’s law and the 80/20-rule. *Scientometrics*, **15** (3-4), 171-179.

Full Text: [1989\Scientometrics15, 171.pdf](1989/Scientometrics15,%20171.pdf)

Abstract: A bibliography of biochemical literature of Nigeria for the period, 1970-1984 containing a total of 500 items, was analysed to test the applicability of Lotka’s law and 80/20-rule to the author productivity distribution patterns. Four different f’des were created out of the data on author productivity: one for the publication of all the authors, second for the publications by ttrst authors only, third for single authors and fourth for the contributions of only coauthors. Lotka’s law could apply in all the four cases with different values of ~. The Kolmogorov- Smirnov testi~ was applied to test the applicability of Lotka’s law at 0.01 level of significance. Egghe’s theory and formula were used to test 80/20-rule and it was found that the rule did not apply to any of the four data sets.

Keywords: Nigeria

? Purica, I.I. (1989), Creativity and the socio-cultural niche. *Scientometrics*, **15** (3-4), 181-187.

Full Text: [1989\Scientometrics15, 181.pdf](1989/Scientometrics15,%20181.pdf)

Abstract: the socio-cultural dimensions of the creative act is analysed by a mathematical model considering that the creative act is a mimes mutation as a result of an accumulation of evidences. So the mimes complex of a socio-cultural niche is changed explosively if given conditions, which are mathematically determined, are accomplished. The equation determining the sociocultural dimensions of creativity is established and its solutions are discussed.

? Lindsey, D. (1989), Using citation counts as a measure of quality in science - measuring whats measurable rather than whats valid. *Scientometrics*, **15** (3-4), 189-203.

Full Text: [1989\Scientometrics15, 189.pdf](1989/Scientometrics15,%20189.pdf)

Abstract: Empirical work in the social studies of science has progressed rapidly with the availability and development of the citation indexes. Citation counts have become a widely accepted measure of the quality of a scientific contribution. However, there are several problems involved in the use of citation counts as a measure of quality in science. First, citation counts are sensitive to popular trends in science. In this sense, they approximate a Nielsen rating for science. Second, the distribution of citations restricts their utility to separating the extremes. Third, citation counts are not sensitive to the ethical and moral dimensions of the quality of a scientific contribution. Fourth, citation counts underestimate the contribution of applied scientists. This paper examines these limitations.

Notes: MModel

Kyvik, S. (1989), Productivity differences, fields of learning, and Lotka’s law. *Scientometrics*, **15** (3-4), 205-214.

Full Text: [1989\Scientometrics15, 205.pdf](1989/Scientometrics15,%20205.pdf)

Abstract: the paper examines whether productivity differences among individual researchers are larger in some fields of learning than in others. Productivity patterns in the natural sciences, the medical sciences, the social sciences, and the humanities are compared by the use of unweighted and weighted publication counts. Irrespective of whether total number of publications or a refined indicator taking account of type of publication and multiple authorship are used, there are no essential differences in publishing inequality between the various fields. About 20% of the tenured faculty at Norwegian universities produce 50% of the total output, and the most prolific half of the researchers account for almost 85% of the Output. The results are discussed in relation to Lotka’s law.

? Davis, C.H. and Eisemon, T.O. (1989), Mainstream and non mainstream scientific literature in four peripheral Asian scientific communities. *Scientometrics*, **15** (3-4), 215-239.

Full Text: [1989\Scientometrics15, 215.pdf](1989/Scientometrics15,%20215.pdf)

Abstract: This paper describes the mainstream scientific output of the scientific communities of four newly industrializing Asian countries (Malaysia, Singapore, South Korea, and Taiwan) and considers its adequacy for describing local scientific activities in biochemistry, biology, physics, electrical engineering, and computer science. An examination of non mainstream scientific literature in these specialties shows that a high proportion of non mainstream authors also publish in mainstream literature. Data concerning degree of parochialism, age of references and use of vernacular literature are examined. The paper argues that it is misleading to characterize these peripheral scientific communities as principally stratified in function of local scientists’ participation in mainstream science.

? Kidd, J.S. (1989), The popularization of science II. Patterns of topical coverage. *Scientometrics*, **15** (3-4), 241-255.

Full Text: [1989\Scientometrics15, 241.pdf](1989/Scientometrics15,%20241.pdf)

Abstract: Topical coverage by major scientific discipline on the part of six popular monthly magazines is compared to expected values based on the number of doctoral graduates per discipline. A major discrepancy is found in the relatively sparse coverage of chemistry. A case study of advances in catalysis is used to demonstrate that there are newsworthy developments in chemistry that could provide copious source materials. Speculative explanations for the relatively scant attention given to chemistry are advanced. The neglect of chemistry by the popular media is seen as a possible problem area for science educators who may depend on supplementary readings at all levels of instruction including informal adult education.

? Rice, R.E., Borgman, C.L., Bednarski, D. and Hart, P.J. (1989), Journal to journal citation data issues of validity and reliability. *Scientometrics*, **15** (3-4), 257-282.

Full Text: [1989\Scientometrics15, 257.pdf](1989/Scientometrics15,%20257.pdf)

Abstract: Citation analysis is a useful method for studying a wide range of topics in bibliometrics and the sociology of science. However, many challenges have been made to the validity and reliability of the underlying assumptions, the data, and the methods used in citation studies. This article addresses these issues in three parts. First is a brief review of validity and reliability issues in citation research. Next we explore measurement error in a principal source of journal-to-journal citation data, the Institute for Scientific Information’s Journal Citation Reports. Possible sources of measurement error include discrepancies between citing and cited data, changed or deleted journal titles, aberrant abbreviations, and listing algorithms. The last section is a detailed description of ways to overcome some of the measurement errors. The data and examples are drawn from a journal-to-journal citation study in the fields of Communication, Information Science, and Library Science.

? Tijssen, R.J.W. and Vanraan, A.F.J. (1989), Mapping co-word structures: A comparison of multidimensional-scaling and Leximappe. *Scientometrics*, **15** (3-4), 283-295.

Full Text: [1989\Scientometrics15, 283.pdf](1989/Scientometrics15,%20283.pdf)

Abstract: the LEXIMAPPE method and Multidimensional Scaling (MDS) are discussed as methods to visualize (‘map’) characteristics of structures of word-occurrence (‘co-word’) relations. Utilization of MDS is proposed as an alternative mapping method able to circumvent problematic features of LEXIMAPPE maps of the total co-word structure. A comparison of both methods on the same ‘real-life’ co-word matrix demonstrates topological advantages of an extended MDS-mapping.

? Yamazaki, S. (1989), Referee systems of English-language scientific journals in Japan. *Scientometrics*, **15** (3-4), 297-303.

Full Text: [1989\Scientometrics15, 297.pdf](1989/Scientometrics15,%20297.pdf)

Abstract: the purpose of this survey is to review the present situation of the referee systems of 55 English-language scientific journals in Japan, and to evaluate their quality and international readership of those journals. Based on this survey, the author discusses some editorial efforts Which may promote the greater use worldwide.

Keywords: Japan

? Rousseau, R. (1989), Merging data sets. *Scientometrics*, **15** (3-4), 305-308.

Full Text: [1989\Scientometrics15, 305.pdf](1989/Scientometrics15,%20305.pdf)

Abstract: We give an upper and a lower bound for the. slope, on a semi logarithmic scale, of the cumulative graph of a data set, such as a bibfiography, originating from the disjoint merging of two similar data sets.

? Han, H.C. (1989), Linear increase law of optimum age of scientific creativity. *Scientometrics*, **15** (3-4), 309-312.

Full Text: [1989\Scientometrics15, 309.pdf](1989/Scientometrics15,%20309.pdf)

Abstract: A linear increase law of optimum age of scientific creativity is proposed. The author has analysed the optimum age of major scientific discoveries (or inventions) by the least square method and an increase ratio has been obtained. The optimum age and the age of great fame in next half century are foreast also.

? Yaalon, D.H. (1989), Scientific strategies and development: Soil science of the tropics - French - Chatelin, Y, Arvanitis, R. *Scientometrics*, **15** (3-4), 313-314.

Full Text: [1989\Scientometrics15, 313.pdf](1989/Scientometrics15,%20313.pdf)

? Tague, J. (1989), Scientific Journals - Issues for library selection and management - Stankus, T. *Scientometrics*, **15** (3-4), 314-315.

Full Text: [1989\Scientometrics15, 313.pdf](1989/Scientometrics15,%20313.pdf)

? Braun, T., Glänzel, W. and Schubert, A. (1989), World flash on basic research: Some data on the distribution of journal publication types in the Science Citation Index database. *Scientometrics*, **15** (5-6), 325-330.

Full Text: [1989\Scientometrics15, 325.pdf](1989/Scientometrics15,%20325.pdf)

Keywords: Science Citation Index

? Leydesdorff, L. (1989), The relations between qualitative theory and scientometric methods in science and technology studies: Introduction to the topical issue. *Scientometrics*, **15** (5-6), 333-347.

Full Text: [1989\Scientometrics15, 333.pdf](1989/Scientometrics15,%20333.pdf)

Abstract: This issue of *Scientometrics* originated from a Workshop of the European Association for the Study of Science and Technology (EASST). In this introduction the relations between qualitative theory and the use of scientometric methods is placed in the historical perspective of the emergence of science and technology studies over the last decades. The differences among various theories in terms of dimensions, units of analysis and levels of aggregation are elaborated. Thereafter, the various contributions to the issue are discussed within this framework.

? Luukkonen, T. (1989), Publish in a visible journal or perish: Assessing citation performance of Nordic cancer-research. *Scientometrics*, **15** (5-6), 349-367.

Full Text: [1989\Scientometrics15, 349.pdf](1989/Scientometrics15,%20349.pdf)

Abstract: This paper deals with three types of questions concerning the application of citation analysis. First, it studies the use of citation analysis for assessing national research performance in a research subfield; second, it discusses methodological problems related to the definition of research subfields and to data acquisition; and third, as the data concern four Nordic countries, Denmark, Finland, Norway, and Sweden, attention will be devoted to special problems arising from the application of citation analysis to relatively small countries. These problems are of both methodological and interpretative character.

? Irvine, J. and Martin, B.R. (1989), International comparisons of scientific performance revisited. *Scientometrics*, **15** (5-6), 369-392.

Full Text: [1989\Scientometrics15, 369.pdf](1989/Scientometrics15,%20369.pdf)

Abstract: This paper presents a methodological analysis of the latest update of the CHI/NSF Science Literature Indicators Data-Base. The data-base contains a range of publication and citation indicators broken down by country and field or subfield, and now covers the period from 1973 to 1984. It can be used to draw comparisons of the changing output and impact of basic research in different countries. Earlier applications of the data-base have been constrained by various technical limitations, and have been subject to certain criticism. In this article, after some conceptual analysis of what aspects of scientific performance the different indicators relate to, we show that much of the criticism is misplaced. We also describe subsequent methodological improvements to the indicators and the effect these have on the policy use that can be made. Finally, we examine what the latest statistics reveal about the relative international standing of seven leading scientific nations.

Arunachalam, S. and Manorama, K. (1989), Are citation-based quantitative techniques adequate for measuring science on the periphery? *Scientometrics*, **15** (5-6), 393-408.

Full Text: [1989\Scientometrics15, 393.pdf](1989/Scientometrics15,%20393.pdf)

Abstract: the inadequacies of citation analysis-based quatitative techniques in the context of developing countries owe their origins to the rather small size of most peripheral country scientific enterprises, the poor coverage of Third World journals in bibliographic databases, (and in particular SCI), The cognitive limitations of citation analysis pointed out by microsociologists, and the non-normative nature of the scientific enterprise in these countries. Much of peripheral science is derivative and imitative of science done in the centre, rather than ‘original’ or ‘path-breaking’, and there is hardly any indigenous ‘scientific community’. and yet, citation analysis-based quantitative measures can be applied to characterise different aspects of peripheral science. These techniques assume great importance, especially in view of the massive inadequacies of the peer review process prevailing in these countries. The application of such citation-based quantification to units of different levels of aggregation such as a journal, an institution and a country as a whole has been demonstrated taking India as the example. Our results show that levels of funding have no correlation with the quality or international citation impact of the literature output resulting from a project. Almost all Indian journals have a very low impact on world literature, and the relatively better performance of Journal of Astrophysics and Astronomy (and Indian astronomical research in general) owes it to favourable factors, both social and cognitive.

? Groenewegen, P. (1989), Influences of local and organizational-factors on output indicators. *Scientometrics*, **15** (5-6), 409-422.

Full Text: [1989\Scientometrics15, 409.pdf](1989/Scientometrics15,%20409.pdf)

Abstract: Publication and citation indicators of groups are thought to enhance the quality and legitimacy of science policy decisions. While these indicators might be of value from a policy point of view, the relation between these cumulative data and the local circumstances that influence the development of scientific knowledge has not been explored extensively. In this paper it is argued that publication and citation patterns related to research units are influenced by local circumstances. Toxicology is chosen as an example because it is directed at solving social problems and relates to local practices. In this paper, output indicatiors of Dutch toxicological research units are related to qualitative information on the strategies of these units, it can be shown that the variation in output and citation indicators can be explained in terms of local variations in context. Such variations in local organizational settings should caution against the application of scientometric studies to measure impact as an indicator of scientific quality.

? Nederhof, A.J., Zwaan, R.A., Debruin, R.E. and Dekker, P.J. (1989), Assessing the usefulness of bibliometric indicators for the humanities and the social and behavioral-sciences: A comparative-study. *Scientometrics*, **15** (5-6), 423-435.

Full Text: [1989\Scientometrics15, 423.pdf](1989/Scientometrics15,%20423.pdf)

Abstract: An evaluation was made of the use of bibliometric indicators for five disciplines in the humanities (social history, general linguistics, general literature, Dutch literature, and Dutch language) and three disciplines in the social and behavioural sciences (experimental psychology, anthropology, and public administration) in the Netherlands. Articles in journals were the predominant outlet in all disciplines. Monographs and popularizing articles were more important outlets in ‘softer’ fields than in ‘harder’ ones. The enlightenment function of scholarship was especially evident in Dutch literature and language, and public administration. Only some of the humanities disciplines are locally oriented. Although many publications were written in English, only experimental psychology, general linguistics, anthropology, and general literature were internationally oriented regarding output media. The impact of departments differed greatly both within and between disciplines. for all disciplines, bibliometric indicators are potentially useful for monitoring international impact, as expert interviews confirmed. Especially in Dutch language, Dutch literature and public administration, ISI-citation data are not very useful for monitoring national impact.

? Cozzens, S.E. (1989), What do citations count? the Rhetoric first model. *Scientometrics*, **15** (5-6), 437-447.

Full Text: [1989\Scientometrics15, 437.pdf](1989/Scientometrics15,%20437.pdf)

Abstract: Because of the widespread use of citations in evaluation, we tend to think of them primarily as a form of colleague recognition. This interpretation neglects rhetorical factors that shape patterns of citations. After reviewing sociological theories of citation, this paper argues that we should think of citations first as rhetoric and second as reward. Some implications of this view for quantitative modeling of the citation process are drawn.

Amsterdamska, O. and Leydesdorff, L. (1989), Citations: Indicators of significance? *Scientometrics*, **15** (5-6), 449-471.

Full Text: [1989\Scientometrics15, 449.pdf](1989/Scientometrics15,%20449.pdf)

Abstract: What makes a scientific article significant? This paper - part of a larger study which will examine how various kinds of significance carl be related to one another in a coherent theoretical framework - focusses on the processes by which new knowledge claims are being integrated into the cognitive structure when they are cited in other papers, Citations appear both as “threads” linking the eiting papers to the existing literature in the field, and as elements fulfilling specific functions within the arguments made in-,these papers. We have found that (1) it is misleading to equate every article with a single knowledge claim, let alone with an attempt to construct “a fact”; (2) even when the same “sentence” is cited repeatedly, it can be put to quite different uses in the citing papers; and (3) the process of codification of scientific knowledge, through the use of references appears to be far more complex and multi-dimensional than citation context analyses focussing on the use and the gradual disappearance of modalities would lead us to believe. Some consequences for the use use of citation analysis to reconstruct cognitive structures will be discussed.

? Moed, H.F. (1989), Bibliometric measurement of research performance and Price’s theory of differences among the sciences. *Scientometrics*, **15** (5-6), 473-483.

Full Text: [1989\Scientometrics15, 473.pdf](1989/Scientometrics15,%20473.pdf)

Abstract: A severe criticism against the use of citation indicators for the measurement of a research group’s performance holds that these indicators reflect at least partly the size of the scientific activity in the subfield or topic in which the group works. In this contribution an attempt is made to substantiate this claim within the framework of Price’s theory on the processes of knowledge growth. Empirical evidence is presented that among a number of subfields from the natural and life sciences significant differences exist with respect to Price’s index, and that the citation scores of research groups tend to be high in subfields showing a high value of Price’s index and other characteristics of reference patterns. These findings suggest that groups sharing an intellectual focus with other researchers tend to obtain higher citation scores than groups working more ‘on their own’.

? Hagendijk, R.P. and Smeenk, J.W. (1989), The analysis of national subfields: A case-study of Dutch fresh-water ecology. *Scientometrics*, **15** (5-6), 485-508.

Full Text: [1989\Scientometrics15, 485.pdf](1989/Scientometrics15,%20485.pdf)

Abstract: Bibliometric analysis is combined with a psychometric analysis of the perceptions which researchers in a community of Dutch fresh-water ecologists have of their professional environment. The results of these two types of analysis converge and can be understood by an exploration of the institutional and intellectual development of the community and the intellectual continuities in the careers of the researchers involved. International developments appear to be taken up in ways which reflect the particular socio-cognitive organization of the national subfield. The article claims that such national subfields of science constitute a strategic research site for social studies of science which is also dixeetly relevant for science policy analysis. It pleads for the employment of a combination of methods in the synchronic and diachronic analysis of the structures of such subfields.

? Vanrossum, W. (1989), Operationalizing developments in a problem field: the case of Mbd. *Scientometrics*, **15** (5-6), 509-526.

Full Text: [1989\Scientometrics15, 509.pdf](1989/Scientometrics15,%20509.pdf)

Abstract: for the most part scientific developments in problem fields result in increasing specification of research problems. With respect to the problem of Minima/ Brain Dysfunction, however, the reverse trend can be observed. In the case of the occurrence of behavioural problems related to minimal brain dysfunction, scientific developments resulted in a more diffuse formulation because of the nature of this problem. In the paper co-word analysis methodology is used to study changes in the structure of networks around central terms in this field for the period 1970-1984. It is apparent that central terms in the field arc not able to “funnel the interests” in the field despite the growing number of scientific articles written on the subject.

? Courtial, J.P. (1989), Qualitative models, quantitative tools and network analysis. *Scientometrics*, **15** (5-6), 527-534.

Full Text: [1989\Scientometrics15, 527.pdf](1989/Scientometrics15,%20527.pdf)

Abstract: One model for knowledge development is the network interaction model. Insofar as socio-technical networks may have some structural properties, does knowledge development reflect this? the hypothesis that it does may enable us to make some forecasts of science development from a description of the state of a field. One condition necessary for testing this hypothesis is that of adopting a model for these networks. Co-word analysis is such a tool. It gives us key-words networks derived from scientific and technical texts. The author checks for network properties in the area of knowledge development through a case study of Polymer Science and Technology from 1973 to 1978.

? Bastide, F., Courtial, J.P. and Callon, M. (1989), The use of review articles in the analysis of a research area. *Scientometrics*, **15** (5-6), 535-562.

Full Text: [1989\Scientometrics15, 535.pdf](1989/Scientometrics15,%20535.pdf)

Abstract: Review articles in the field of polymer science in the seventies are analyzed in order to check their usefulness in describing at a very low cost the development or the state of the art of a field. Results are compared with those obtained through a quantitative study of scientific articles published at the same time in the field. Review articles can be regarded as defining a research programme attempting to link together two networks: polymer properties - as being desirable from market Considerations - and polymer structure - as being analyzable by means of academic science, through three kinds of “translation” strategies. If we thus define a research programme in terms of the mobilization of networks, it is possible to say of review articles that they provide a good representation of the development of networks of problems whose evolution they sketch.

? Kranakis, E. and Leydesdorff, L. (1989), Teletraffic conferences: Studying a field of engineering science. *Scientometrics*, **15** (5-6), 563-591.

Full Text: [1989\Scientometrics15, 563.pdf](1989/Scientometrics15,%20563.pdf)

Abstract: Titles of 925 conference papers contained in the first l~en International Teletraffie Conferences (1955-1983) are analyzed in terms of word distributions. The aim is to determine how information about changing word frequencies and word patterns relates to the kind of information gained through the more traditional approach of intellectual history. Additionally, we consider what each approach can reveal about the information flows involved in the production and utilization of knowledge in teletraffic. In terms of methodology, the goal of this dual approach is to understand how the analysis of word and document structures can be used both as a seientometrie tool and as a tool for historical research. We also comment more generally on the significance of conferences as an object for scientometric analysis, particularly with respect to the emergence and growth of the engineering and industrial sciences.

? Todorov, R. (1989), Representing A scientific field: A bibliometric approach. *Scientometrics*, **15** (5-6), 593-605.

Full Text: [1989\Scientometrics15, 593.pdf](1989/Scientometrics15,%20593.pdf)

Abstract: A new bibliometrie method is proposed for representing links between subfields as defined by a classification scheme. The frequency of co-occurrence of articles from different subfields in selected journals is used for measuring the degree of relatedness between these subfields. The results of such quantitative analysis could be compared to the thee topology of the classification network established in a qualitative analysis. The method is applied to describe the internal links within the field of condensed matter physics using the 1984 Physics Abstracts database. A distinction is made between experimental and theoretical links on the basis of treatment codes assigned to journal articles. The links deseribed by cluster analysis axe matched against the cross-reference network of the International Classification for Physics.

? Vanraan, A.F.J. and Peters, H.P.F. (1989), Dynamics of a scientific field analyzed by co-subfield structures. *Scientometrics*, **15** (5-6), 607-620.

Full Text: [1989\Scientometrics15, 607.pdf](1989/Scientometrics15,%20607.pdf)

Abstract: This paper discusses the possibility to represent scientific development by ‘second-order networks’ in different modalities. In particular, a specific modality structured by subfield-to-subfield relations is presented. By constructing such ‘co-subfield maps’ for successive periods of time, we were able to describe the changing subfield relations within the field of chemical engineering. In this way, dynamical processes in the development of a field as a whole can be revealed. Advantages and disavantages as compared to co-eitatio n and co-word mapping techniques are discussed and the importance of developing combined techniques is stressed.

? Mendez, A. and Gomez, I. (1989), A comparison of citation classics in 3 fields of science. *Scientometrics*, **15** (5-6), 621-631.

Full Text: [1989\Scientometrics15, 621.pdf](1989/Scientometrics15,%20621.pdf)

Abstract: A sample of “Citation Classics” in three scientific fields was studied to uncover citing motivations. The classics were classified into basic research, methods and reviews. Number of citations received per classic, number of authors, and age of classic per category and scientific field were the parameters studied. Journals and countries accounting for the highest incidence of classics were examined. A striking parallelism was found in the parameters applied to the categories in the scientific fields Studied. This parallelism suggests similar citing habits of scientists in the fields studied which should be reflected in the structures of Science obtained through citation grounded bibliometric models.

Notes: highly cited

? Schubert, A., Glänzel, W. and Braun, T. (1989), Scientometric datafiles: A comprehensive set of indicators on 2649 journals and 96 countries in all major science fields and subfields 1981-1985. *Scientometrics*, **16** (1-6), 3-478.

Full Text: [1989\Scientometrics16, 3.pdf](1989/Scientometrics16,%203.pdf)

? Vanraan, A.F.J. (1989), Narin, francis recipient of the 1988 Price, Derek, Desolla Award - Comments. *Scientometrics*, **17** (1-2), 5-7.

Full Text: [1989\Scientometrics17, 5.pdf](1989/Scientometrics17,%205.pdf)

? Korennoi, A. (1989), Dobrov, Gennady, M., 1929-1989 - Obituary. *Scientometrics*, **17** (1-2), 9-10.

Full Text: [1989\Scientometrics17, 9.pdf](1989/Scientometrics17,%209.pdf)

? Braun, T., Glänzel, W. and Schubert, A. (1989), National publication patterns and citation impact in the multidisciplinary journals nature and science. *Scientometrics*, **17** (1-2), 11-14.

Full Text: [1989\Scientometrics17, 11.pdf](1989/Scientometrics17,%2011.pdf)

? Hall, D.H. (1989), Rate of growth of literature in geoscience from computerized databases. *Scientometrics*, **17** (1-2), 15-38.

Full Text: [1989\Scientometrics17, 15.pdf](1989/Scientometrics17,%2015.pdf)

Abstract: dely available to researchers that they have become potentially an important source of time series estimates of the growth of scientific literature. This paper uses the GEOREF s database in such an application to estimation of the growth of geoscience. It is found by comparison with studies previously done from the hardcopy equivalents of GEOREF s that the computer-derived time series can achieve results similar to their equivalents and do this more efficiently, more inexpensively and more comprehensively. Examples are given for geoscience as a whole, and for the literature related to several mineral commodities: iron ore, lead ore, nickel ore, petroleum and natural gas, radioactive minerals and ores, and zinc ore.

? Cronin, B. and Dearenas, J.L. (1989), The Geographic-Distribution of Mexican health-sciences research. *Scientometrics*, **17** (1-2), 39-48.

Full Text: [1989\Scientometrics17, 39.pdf](1989/Scientometrics17,%2039.pdf)

Abstract: the distribution of Mexican health science publications according to the states of origin, institutions, main cities has been measured in four main health science bibliographic databases. The results showed that Mexican health sciences research activities are highly skewed.

? Self, P.C., Filardo, T.W. and Lancaster, F.W. (1989), Acquired immunodeficiency syndrome AIDS and the epidemic growth of its literature. *Scientometrics*, **17** (1-2), 49-60.

Full Text: [1989\Scientometrics17, 49.pdf](1989/Scientometrics17,%2049.pdf)

Abstract: the beginning and early spread of the world-wide epidemic of acquired immunodeficiency syndrome (AIDS) has been paralleled closely by a rapidly expanding literature concerned with many aspects of the disease. In order to assess the growth of the AIDS literature, a quantitative analysis was conducted focusing on the number of articles, the number of journals contributing, the number of languages used, and the number of countries of origin of publications over time (a bibliometric study). The growth of the popular literature was also studied. Three online databases - MEDLINE, Magazine Index, and the National Newspaper Index - were examined from 24 September 1982 (the datea the Centers for Disease Control first adopted the name ‘acquired immunodeficiency syndrome’) through the end of 1986 for the popular literature and through the end of 1987 for MEDLINE. A survey of the MEDLINE file showed that by the end of 1987, twenty-five languages were represented in articles from fifty-four countries published in 1170 different journal titles.

? Dou, H., Hassanaly, P. and Quoniam, L. (1989), Infographic analytical tools for decision makers - analysis of the research production in sciences - Application to chemistry, comparison between marseille and montpellier (France). *Scientometrics*, **17** (1-2), 61-70.

Full Text: [1989\Scientometrics17, 61.pdf](1989/Scientometrics17,%2061.pdf)

Abstract: Most of the scientific and technical databases contain codes. These codes divide the area of the database field in subfields. These divisions can be used to map automatically the research network of a subject, and to provide its main research poles. The present paper explains the methodology, and applies it to *Chemical Abstracts, and* to the analysis of the research production of various academic institutions. The method is general and can be used with other databases such as Inspec, WPI-WPIL, etc...

Keywords: France

? Plomp, R. (1989), Statistical reliability of citation frequency as an indicator of scientific impact. *Scientometrics*, **17** (1-2), 71-81.

Full Text: [1989\Scientometrics17, 71.pdf](1989/Scientometrics17,%2071.pdf)

Abstract: the article deals with the statistical problem of the difference between the mean citation frequencies of two sets of papers required to be significantly different. An analysis of citation data indicated that, as a first-order approximation, (1) the relative spread due to a short observation interval is independent of the long-term citation frequency and (2) the relative spread in long-term citation frequencies of different papers from the same author is independent of the mean citation score for the papers by that author. As a rule-of-thumb, these two sources of variance can be characterized by standard deviations of a ratio (factor) of 2 and 3, respectively. By applying these results to citation data published in the literature, it is shown that sometimes statistically unjustified conclusions have been drawn in the past.

? Moral, L.P. (1989), Elements for a diagnosis of applied-research and development in Cuba using patent information - 1968-1983. *Scientometrics*, **17** (1-2), 83-96.

Full Text: [1989\Scientometrics17, 83.pdf](1989/Scientometrics17,%2083.pdf)

Abstract: This paper presents some results of the first studies done in the country using information from patents applied for in Cuba by national and foreign entities. Its main objective is to demonstrate the potential usefulness of this source of data, and of the types of analysis used for the elaboration of diagnoses, as well as for the description of some tendencies of national innovation and R+D efforts. The most relevant technological fields, the participation of the countries during the period and the intensity of their activity in those fields were the aspects studied.

? Oluicvukovic, V. (1989), Impact of productivity increase on the distribution pattern of journals. *Scientometrics*, **17** (1-2), 97-109.

Full Text: [1989\Scientometrics17, 97.pdf](1989/Scientometrics17,%2097.pdf)

Abstract: In this study an attempt to examine the dependence between the productivity of core journals and the shape of the distribution curve in the upper section is made. for this purpose, the impact of the core journal productivity increase over an extended time interval was investigated. As a referent point in relation to which the changes were followed, equalized inverse relationship between the core and periphery in terms of the number of journals and the number of papers published in them in a given subject field has been hypothesized. The degree to which a particular set of data conforms to that relationship expressed as #, is taken as an indicator of the changes in the core/periphery relation. The applicability of Lotka’s exponent in the journal productivity context is also discussed.

? Leydesdorff, L. (1989), The Science Citation Index and the measurement of national performance in terms of numbers of scientific publications. *Scientometrics*, **17** (1-2), 111-120.

Full Text: [1989\Scientometrics17, 111.pdf](1989/Scientometrics17,%20111.pdf)

Abstract: A debate has occurred recently over the issue whether it is possible to account for differences in results when using various versions of the *Science Citation Index for the* measurement of national performance in terms of numbers of scientific publications. This article provides an overview of the various arguments which have been made, and reports that recent reorganization in the on-line installations *[SciSearch]* should make it possible to circumvene one of the major sources of error.

Keywords: Science Citation Index

? Gillett, R. (1989), Determining the best departments by their best publications - A strategy best avoided. *Scientometrics*, **17** (1-2), 121-125.

Full Text: [1989\Scientometrics17, 121.pdf](1989/Scientometrics17,%20121.pdf)

Abstract: the technique of sampling a department’s k best publications as a means of assessing the quality of its research performance is investigated. It is shown that this procedure confounds merit with departmental size, and leads to a substantial overestimation of the research achievement of larger departments. The 1985-86 evaluation of research performance conducted by the University Grants Committee of the United Kingdom contained a sampling error of this kind.

? Mccain, K.W. and Turner, K. (1989), Citation context analysis and aging patterns of journal articles in molecular-genetics. *Scientometrics*, **17** (1-2), 127-163.

Full Text: [1989\Scientometrics17, 127.pdf](1989/Scientometrics17,%20127.pdf)

Abstract: To compare citation history and contextual ‘importance,’ eleven highly cited axticles, 4 slowly aging (Type 1) and 7 quickly aging (Type 2), were ranked using an aggregate citation context measure, the Mean Utility Index. Based on citations in late (PY 6 & 7) source articles, ‘methods’ papers consistently ranked higher than papers cited for research results and theoretical implications, and Type 1 methods papers ranked above all Type 2 papers. A Type 1 paper representing an important theoretical concept could not be distinguished from Type 2 papers using citation context alone.

? Kryzhanovsky, L.N. (1989), Mapping the history of electricity. *Scientometrics*, **17** (1-2), 165-170.

Full Text: [1989\Scientometrics17, 165.pdf](1989/Scientometrics17,%20165.pdf)

Abstract: A mapping technique similar to that first used by J. D. *Bernal and* refined by E. *GarfieM* is applied to the historiography of electrical science. The usefulness of this technique for the historical research of scientific ideas is shown using examples of major developments in the 17th and 18th centuries.

? Schubert, A. (1989), Quantitative studies of science - A current bibliography. *Scientometrics*, **17** (1-2), 171-180.

Full Text: [1989\Scientometrics17, 171.pdf](1989/Scientometrics17,%20171.pdf)

? Moravcsik, M.J. (1989), Evaluating applied-research - lessons from Japan - Irvine, J. *Scientometrics*, **17** (1-2), 181-182.

Full Text: [1989\Scientometrics17, 181.pdf](1989/Scientometrics17,%20181.pdf)

Keywords: Japan

? Braun, T. (1989), Who reads scientometrics. *Scientometrics*, **17** (3-4), 193-194.

Full Text: [1989\Scientometrics17, 193.pdf](1989/Scientometrics17,%20193.pdf)

Keywords: Scientometrics

? Sen, S.K. (1989), Bibliographic scattering: A generalized source approach. *Scientometrics*, **17** (3-4), 197-204.

Full Text: [1989\Scientometrics17, 197.pdf](1989/Scientometrics17,%20197.pdf)

Abstract: So fax all the formulas or equations for the bibliographic scattering have been derived or ormulated through item approach. AS such, the selection is not randomised and there can not be any empty source. A source approach has been presented here with minimum of assumptions and conditions. An equation of scattering distribution is derived. If there are M sources and N items, the probabifity or the relative frequency of the sources with ith group items is given by *141(0 KM-i = CM -i* exp(-rM§ *~M].* Suggestions and procedures for experimental verifications have been sketched. Derivations from Bose-Einstein statistics with Gibrat’s law a 2 have been discussed and compared.

? Sen, S.K. (1989), A note on theoretical correlation between Bradfords Law and recently proposed linear-equation of the type R(R)=A.R-B. *Scientometrics*, **17** (3-4), 205-210.

Full Text: [1989\Scientometrics17, 205.pdf](1989/Scientometrics17,%20205.pdf)

Abstract: Some theoretical connections with Bradford’s law of scattering of articles in jgumals have been noted to substantiate the completely empirical linear formula, *R(r) = a.r-b* where r is the rank of a class of journals in increasing productivity, R is a typical function, called ‘mean relative scatter’ (MRS), of the class rank r, a and b are arbitrary constants. It is also shown that an exponential formula can be transformed to the linear one, thereby explicating certain constants and co-efficients of Bradford’s formula and the proposed one.

? Naranan, S. (1989), Power law version of Bradford Law - Statistical tests and methods of estimation. *Scientometrics*, **17** (3-4), 211-226.

Full Text: [1989\Scientometrics17, 211.pdf](1989/Scientometrics17,%20211.pdf)

Abstract: Is is shown, using rigorous statistical tests, that the number of journals *(J)* carrying p papers in a given subject can be expressed as a simple power law function *J(p) = K p’r, K and* y being constants. The standard maximum likelihood method of estimating 3’ has been suitably modified to take acoount of the fact that p is a discrete integer variable. The parameter 3’ entirely characterises the scatter of articles in journals in a given bibliography. According to a dynamic model proposed earlier by the author, 3’ is a measure of the relative rowth rates of papers and journals pertaining to the subject.

? Rajeswari, A.R. (1989), Forecasting of science and technology expenditure of India by simulation method. *Scientometrics*, **17** (3-4), 227-251.

Full Text: [1989\Scientometrics17, 227.pdf](1989/Scientometrics17,%20227.pdf)

Abstract: In this paper, an attempt has been made to forecast science and technology expenditure of India by simulation method as well as by regression method. The base data used are the average yearly growth rates of science and technology expenditure both at current and constant prices. for the regression analyses, the yearly growth rates of the gross national product at factor cost both at current and constant prices are used as independent variable. The forecast values of S&T expenditure have been given up to seven years from 1982-83, for both simulation method and regression method.

Keywords: India

Notes: TTopic

Sengupta, I.N. (1989), The growth of knowledge and literature in neuroscience. *Scientometrics*, **17** (3-4), 253-288.

Full Text: [1989\Scientometrics17, 253.pdf](1989/Scientometrics17,%20253.pdf)

Abstract: Knowledge and literature of neuroscience started growing steadly during the last few centuries. This paper aims to study the growth of knowledge in neuroscience as well as its literature. The first part of the paper, enumerates a historical survey of the growth of knowledge based on published data. This is done in view of the fact that a consolidated information at one place will be of great value to the students of scientometrics and also to the research scholars who are desirous to undertake research in this discipline. The second part of the paper is entirely based on experimental data which were collected to analyse the growth of literature of the subject. Neuroscience is notable for its wide range of approaches and techniques. In no other branch of research such a many sided approach is so essential. As a consequence last few decades have witnessed an accelerated research tempo and unprecedented growth of the literature on the subject covering its different sub-fields with gradual and systematic transgression of the conventional boundaries between them. To cope with the growth of literature, a new bibliometric technique has been applied to rank periodicals in the field based on 5785 citation data collected from the bibliographic data base published in the source journal namely, Annual Review of Neuroscience. It is expected that this list will reflect the impact of literature on the advancement of knowledge in the field of neuroscience. A striking feature of this study is the comparatively small contribution (8.8%) coming from the application of biochemical techniques and concepts to neuroscience research which differs from what we had noted earlier in the case of other biomedical disciplines. High position occupied by multidisciplinary science journals brings out the significance of now neuroscience research to science as a whole and confirms to importance of the category of journals in the dissemination of knowledge of the overall growth of science. Relatively low proportion, of citations of journals medicine, both general as well as specialities, in spite of direct relevance of much work in this field to neurological and mental illness reflects the preponderance of interest in the fundamental aspects of neuroscience research. Like other biomedical disciplines neuroscience literature also exhibits English as the most-preferred lingua franca of the subject; dominance of jouranals published from USA, UK, Germany and the Netherland; a wide scatter of cited literature showing the multidisciplinary approach characteristic of present-day neuroscience research. The results of this study support Bradford’s Law of Scattering and also Sengupta’s law of Bibliometrics. It is expected that the present ranking list will be of great help to the working neuroscientists to select a handful of core periodicals in the field for regular browsing from the viewpoint of their importance and significance as these core journals identify maximum segment of contemporary literature on the topics of direct relevance to their day to day research in the field.

? Sengupta, I.N. (1989), A weightage formula to rerank periodicals in the field of microbiology. *Scientometrics*, **17** (3-4), 289-300.

Full Text: [1989\Scientometrics17, 289.pdf](1989/Scientometrics17,%20289.pdf)

Abstract: Knowledge and literature of neuroscience started growing steadily during the last few centuries. This paper a’mas to study the growth of knowledge in neuroscience as well as its literat~e. The first part of the paper, enumerates a historical survey of the growth of knowledge based on published data. This iS done in view of the fact that a consolidated information at one place will be of great value to the students of scientometrics and also to the research scholars who are desirous to undertake research in this discipline. The second part of the paper is entirely based on experimental data which were collected to analyse the growth of literature of the subject.

Neuroscience is notable for its wide range of approaches and techniques. In no other branch of research such a manysided approach is so essential. As a consequence last few decades have witnessed an accelerated research tempo and unprecedented growth of the literature on the subject covering its different sub-fields with gradual and systematic transgression of the conventional boundaries between them. To cope with the growth of literature, a new bibliometric technique has been applied to rank periodicals in the field based on 5785 citation data collected from the bibliographic data base published in the source journal namely, *Annual Review of Neuroscience.* It is expected that this list will reflect the impact of literature on the advancement of knowiedge in the field of neuroscience. A striking feature of this study is the comparatively small contribution (8.8%) coming from the application of biochemical techniques and concepts to neuroseienee research which differs from what we had noted earlier In the case of other biomedical disciplines. High position occupied by multidisciplinary science journals brings out the significance of new neuroscienee research to science as a whole and confirms the importance of this category of journals in the dissemination of knowledge for the overall growth of science. Relatively low proportion, of citations of journals of medicine, both general as well as specialities, in spite of direct relevance of much work in this field to neurological and mental illness reflects the preponderance of interest in the funcamental aspects of neuroscience research. Like other biomedical disciplines neuroscience literature also exhibits English as the most-preferred lingua franca of the subject; dominance of journals published from USA, UK, Germany and the Netherland; a wide scatter of cited literature showing the multidisciplinary approach characteristic of present-day neuroseience research.: the results of this study support Bradford’s Law of Scattering and also Sengupta’s Law of Bibliometrics. It is expected that the present ranking list will be of great help to the working neuroscientists to select a handful of core periodicals in the field for regular browsing from the viewpoint of their importance and significance as these core journals identify maximum segment of contemporary literature on the topics of direct relevance to their day to day research in the field.

? Nagpaul, P.S. and Gupta, S.P. (1989), Effect of professional competence, managerial role and status of group leaders to R and D performance. *Scientometrics*, **17** (3-4), 301-331.

Full Text: [1989\Scientometrics17, 301.pdf](1989/Scientometrics17,%20301.pdf)

Abstract: This paper examines the following basic issues of leadership in research units: (1) characteristics of the leader and the functions performed by him that predict the image of his quality; and (2) the role of leadership in enhancing the performance of the research unit. Analysis is based on data collected on 1460 research units in six countries for the second round of International Comparative Study on Organization and Performance of Research Units. Variations in the characteristics and role of leadership in different institutional settings and countries are analyzed through POSCOR (ranking programme based on partially ordered sets). Stepwise multiple regression analysis was used to examine the common pattern of relationship of various indices of leadership with the image of leader’s quality and three measures of effectiveness - scientific, user-oriented and administrative. Analysis was repeated for each country to explore the stability in the pattern of relationships and to identify universal indices that have consistent relationships across countries. Implications of the results are discussed,

? Singh, P. and Krishnaiah, V.S.R. (1989), Analysis of work climate perceptions and performance of research and development units. *Scientometrics*, **17** (3-4), 333-351.

Full Text: [1989\Scientometrics17, 333.pdf](1989/Scientometrics17,%20333.pdf)

Abstract: This paper reports findings from a study on the perceptions of work climate and the patters of relationships between work climate dimensions and performance of research and development units in six countries. The study is based on the analysis of the subset of date collected in Argentina, Egypt, India, Republic of Korea, Poland and UkSSR for the second round of International Comparative Study on the Organization and Performance of Research Units. The following dimensions of work climate have been usec: morale, openness, job satisfaction, work contacts, career opportunities, Satisfaction with supervisor, information on research plans, research autonomy. Stepwise regression analyses were carrier out separately for each country and also on global sample to find out the important dimensions of work climate in explaining the variations in the performance of R&D units. The set of work climate dimensions are related separately for tvr different measures of performance of research’ units, viz. (1) scientific effectiveness; and (2)user-oriented effectiveness. The implications of this study for management of research and development groups are discussed.

Notes: CCountry

Kumari, L. and Sengupta, I.N. (1989), Growth of Lectin literature 1954-1982. *Scientometrics*, **17** (3-4), 353-362.

Full Text: [1989\Scientometrics17, 353.pdf](1989/Scientometrics17,%20353.pdf)

Abstract: Lectins, the carbohydrate binding proteins, have emerged as indispensable biological tools in the last decade. Research contributions covering the period 1954-1982 on different aspects of lectins were collected since the introduction of the tem ‘Lectin’ in 1954. In the present communication we have made a bibliometric analysis of the growth of the literature on lectins, the trend of authorship of papers on lectins, and scattering phenomena. We have also identified the main international channels of communication of the results of lectin research.

? Satyanarayana, K. and Ratnakar, K.V. (1989), Authorship patterns in life sciences, preclinical basic and clinical research papers. *Scientometrics*, **17** (3-4), 363-371.

Full Text: [1989\Scientometrics17, 363.pdf](1989/Scientometrics17,%20363.pdf)

? Schubert, A. (1989), Quantitative studies of science a current bibliography. *Scientometrics*, **17** (3-4), 373-380.

Full Text: [1989\Scientometrics17, 373.pdf](1989/Scientometrics17,%20373.pdf)

? Shenhav, Y.A., Haberfeld, Y. and Cohen, B.P. (1989), Contextual analysis of team productivity in the R & D industry. *Scientometrics*, **17** (5-6), 387-400.

Full Text: [1989\Scientometrics17, 387.pdf](1989/Scientometrics17,%20387.pdf)

Abstract: We argue that productivity is a phenomenon which takes on various meanings in different contexts. Reliability coefficients of six scales of productivity, four of which have been used by Andrews and/or by Pelz and Andrews, are estimated in 28 work contexts using data on 224 R & D teams. The results support the argument.

Notes: CCounrty

? Pouris, A. (1989), A scientometric assessment of agricultural research in South Africa. *Scientometrics*, **17** (5-6), 401-413.

Full Text: [1989\Scientometrics17, 401.pdf](1989/Scientometrics17,%20401.pdf)

Abstract: This article reports the results of a scientometric assessment of agricultural research in South Africa over the period 1974-1984. The Science Literature Indicators Database of CHI is used and South Africa is compared with 7 other countries spread in America, Asia, Oceania, and Africa. The criteria used for the assessment are the contribution of each country to international agricultural literature (in terms of publications) and their impact in the “Schubert-Glänzel-Braun Impact Scale”. It was found that, although the South African contribution has improved in that period, it is comparable to that of Brazil and Argentina; that Nigeria and Israel produce 3 times more, and: that Australia and Canada contribute more than one order of magnitude of publications more than South Africa. As far as research impact is concerned “Hant Science” research in South Africa is rated “fair” in the Schubert-Glänzel-Braun scale, whilst “Dairy and Animal Science” and “Veterinary” research are rated “poor”.

Keywords: South Africa

? Vanels, W.P., Jansz, C.N.M. and Lepair, C. (1989), The citation gap between printed and instrumental output of technological research: the case of the electron microscope. *Scientometrics*, **17** (5-6), 415-425.

Full Text: [1989\Scientometrics17, 415.pdf](1989/Scientometrics17,%20415.pdf)

Abstract: the merits and shortcomings of bibliometric evaluation techniques are well known; the reliability of the techniques varies according to the discipline. for technology the reliability is small. The electron microscope is a clear case of extreme mismatch between the number of citations received and the impact of the instrument in a wide area of science. The instrument is comparable to a scientific publication in the way in which it is used and referred to in the literature. In this paper we estimate the size of the citation gap, i.e. The number of citations an author misses because the results of his research are made public in the form of an instrument instead of via an article in a journal.

? Nederhof, A.J. and Vanraan, A.F.J. (1989), A validation study of bibliometric indicators: the comparative performance of cum laude doctorates in chemistry. *Scientometrics*, **17** (5-6), 427-435.

Full Text: [1989\Scientometrics17, 427.pdf](1989/Scientometrics17,%20427.pdf)

Abstract: the validity of bibliometric indicators as a monitor of the impact and usefulness of scientific research is examined by compaiing the scientific performance of cure laude and non-cum laude degree holders in chemistry (N=237), from five y~ears before their graduation to four years afterwards. Papers of cum laudes were cited more frequently than those of non-cum laudes from three years before graduation until one year after graduation. Two to three years after graduation, the short-term impact per paper was no longer significantly different for both groups. A similar pattern was found with regard to productivity. Little evidence was found in favor of the Ortega hypothesis and the Matthew effect. The results support the concurrent validity of bibliometric indicators with peer review indicators of quality of the research project.

? Chatelin, Y. and Arvanitis, R. (1989), Between centers and peripheries - the Rise of a new scientific community. *Scientometrics*, **17** (5-6), 437-452

Full Text: [1989\Scientometrics17, 437.pdf](1989/Scientometrics17,%20437.pdf)

Abstract: This article analyzes the production and diffusion of the scientific products of sixty-one researchers in soil sciences belonging to ORSTOM. In a period corresponding to two scientific generations we have observed important changes in writing and publishing habits. Non-published reports have lost importance while article production has grown. Also there is a noteworthy growth of the number of presentations at meetings, most of them international scientific congresses. The article shows the result of a factor analysis of their production that allows us to identify seven different types of behavior. We have stressed a series of elements explaining these different types. The possible predominance of a nationally oriented production behavior can be mainly explained by easy access to publication, sufficient appropriateness to the kind of data studidd, and correct recognition by scientific peers. Finally we suggest that this typology can be used for analytical purposes in order to study the growth and publication patterns of Third World science.

? Czerwon, H.J. (1990), Scientometric indicators for a specialty in theoretical high energy physics: Monte carlo methods in lattice field theory. *Scientometrics*, **18** (1-2), 5-20.

Full Text: [1990\Scientometrics18, 5.pdf](1990/Scientometrics18,%205.pdf)

Abstract: Publication and citation data are used to analyse the dynamics of the theoretical highenergy physics.specialty “Monte Carlo methods in lattice field theory”. The present study is based on a comprehensive bibliography of the given subject area for the six-year period 1979-1984 and the 1979-1985 citations to these papers. The application of a recently introduced set of scientomettic indicators provides clues to undertanding the growth of a new research specialty from a core body of seminal literature.

Keywords: Monte Carlo

? Bruckner, E., Ebeling, W. and Scharnhorst, A. (1990), The application of evolution models in scientometrics. *Scientometrics*, **18** (1-2), 21-41.

Full Text: [1990\Scientometrics18, 21.pdf](1990/Scientometrics18,%2021.pdf)

Asbtract: According to the connection between field mobility and coupled manpower growth processes in a system of scientific fields a deterministic, stochastic and continuous version of an evolution model is presented. Some simulation results on base of the stochastic model are given in Section 5 and compared with corresponding trend analyses of the deterministic model. Several interesting effects, as delayed growth and temporal disappearance as well as rapid growth and overshooting of a new field, axe shown by the simulations.

Keywords: Scientometrics

? Kretschmer, H. and Muller, R. (1990), A contribution to the dispute on the Ortega hypothesis: Connection between publication rate and stratification of scientists, tested by various methods. *Scientometrics*, **18** (1-2), 43-56.

Full Text: [1990\Scientometrics18, 43.pdf](1990/Scientometrics18,%2043.pdf)

Abstract: It was tested whether the publication rate of scientists as a rough measure of their Ueniinence”, influences their stratification. The stratification is reflected in cooperation, in co-authorships, in the structure of the citations and in the distribution of publications among the various problem areas of a scientific discipline. The findings of these investigations was discussed as a contribution to the dispute among authors who accept or reject the Ortega hypothesis which states that the research done by average scientists substantially contributes to the advance of science.

? Bonitz, M. (1990), Journal ranking by different parameters. Part I. Collectivity and selective collectivity: Two Ranking parameters reflecting the structure of a journal network. *Scientometrics*, **18** (1-2), 57-73.

Full Text: [1990\Scientometrics18, 57.pdf](1990/Scientometrics18,%2057.pdf)

Abstract: In the course of the study of scientific journals’ rank distributions two new parameters are def’med reflecting collective properties of journals in a network where the journals are linked to each other through co-Usage of user profiles for which they contain relevant papers. The first, Collectivity C is a mere structure parameter whereas Selective Collectivity N.C uses C of a journal as a weight factor for the number of hits N produced in a retrospective search in a data file. The corresponding rank distributions show besides the expected reranking effect considerable deviations from a distribution where ranking is done according to the parameter Selective Journal Productivity N.

? Bonitz, M. (1990), Journal ranking by different parameters. Part II. Individual or collective: Which parameters are best suited for journal ranking? *Scientometrics*, **18** (1-2), 75-93.

Full Text: [1990\Scientometrics18, 75.pdf](1990/Scientometrics18,%2075.pdf)

Abstract: for the first time the impact of different ranking parameters on one and the same experimentally achieved set of 610 jouxnals is studied. Significance of the three journal rankiflg parameters Selective Journal Productivity, Selective Impact, and Collectivity is established. Significant parameters cause strong re-ranking in journal rank distributions and, in the transition between individual” and collective parameters, also in the shape of the cumulated curves. No parameter can replace an other one, each carries essential information on the communication process. The author’s concept is open for retire parameters and pronounces the role of man in decision making. The connection between simple behavioral principles and scientometrics is emphasized. The holography principle and the maximum speed principle are claimed to be most promising.

? Kretschmer, H. (1990), Pinski’s citation based measures of research interactivity and the application of a complex structure measure to journal systems. *Scientometrics*, **18** (1-2), 95-122.

Full Text: [1990\Scientometrics18, 95.pdf](1990/Scientometrics18,%2095.pdf)

Abstract: the supposition for Pinski’s measures of research interactivity is a size reduced form of a citation matrix, which makes it possible to compare journals of different sizes. A futher development of the measures of research interactivity can be achieved by using a complex structure measure. In addition to the relative scope of citations, which is taken into consideration by Pinski’s measures, the distributions of these values on the elements of the matrix are involved in calculating new measures of interactivity whose content is different from that of Pinski’s measures.

? Peschel, M., Mende, W. and Albrecht, K.F. (1990), The evolon growth model: Possible scientometric evaluations. *Scientometrics*, **18** (1-2), 123-136.

Full Text: [1990\Scientometrics18, 123.pdf](1990/Scientometrics18,%20123.pdf)

Abstract: Based on a lot of data-analyses from different areas including also scientometries (Mathematical publications) a new method for description of growth indicators in highly aggregated societal systems is proposed’based on the sigmoid EVOLON growth model and its degenerated forms which together include most of the until now used growth curves in different fields. for these models simulation procedures are described which give us options for the parameter identification. Beside these possibilities dosed analytical formulas are derived for all the parameters which make use of higher derivatives of the sequence of measured values of the considered growth indicator. With this possibility the identification problem is used for the construction of reliable estimators for derivatives up to some order from measured sequences of growth indicator values. At the end of paper a certain view is thrown on new possibilities fox the construction of networks for coupled growth processes offerring also identification possibilities.

? Meske, W. and Dealaiza, M.C.F. (1990), Structure and development of the scientific and technological potential in the Republic of Cuba. *Scientometrics*, **18** (1-2), 137-155.

Full Text: [1990\Scientometrics18, 137.pdf](1990/Scientometrics18,%20137.pdf)

Abstract: Scientific statistics provides the foundations necessary for every sciences policy. Against this background, special problems are posed for the developing countries. Below you find a presentation and discussion of experiences gained and results obtained in the course of the build-up of statistics on science and technology in the Republic of Cuba, with assessments and conclusions drawn from an analysis into tile data so far available. Therefore this paper is dealing with the scientific and technological potential of Cuba as a whole (S/T) without providing any distinction, between sciences and technology.

? Schubert, A. (1990), Quantitative studies of science a current bibliography. No. 15. *Scientometrics*, **18** (1-2), 157-168.

Full Text: [1990\Scientometrics18, 157.pdf](1990/Scientometrics18,%20157.pdf)

? Schubert, A., Glänzel, W. and Braun, T. (1990), World flash on basic research - scientometric datafiles supplementary indicators on 96 countries 1981-1985. 1. Distribution of publication types in an extended source set. *Scientometrics*, **18** (3-4), 173-177.

Full Text: [1990\Scientometrics18, 173.pdf](1990/Scientometrics18,%20173.pdf)

? Kunz, M. (1990), Can the lognormal distribution be rehabilitated? *Scientometrics*, **18** (3-4), 179-191.

Full Text: [1990\Scientometrics18, 179.pdf](1990/Scientometrics18,%20179.pdf)

Abstract: Some properties of the logarithmic-factorial distribution [the normal distribution with a substitution X = log10 log2 (ma + l)!] are shown. This distribution was connected with the distribution of entropy inside information systems. for practical purposes, the graphical form of the lognormai distribution is recommended and deviations from linearity, at examples of distributions of patents between patentees, are explained as convolutions of distributions.

? Nordstrom, L.O. (1990), ‘Bradford’s law’ and the relationship between ecology and biogeography. *Scientometrics*, **18** (3-4), 193-204.

Full Text: [1990\Scientometrics18, 193.pdf](1990/Scientometrics18,%20193.pdf)

Abstract: Core journals in ecology and biogeography were identified on the basis of Bradford’s Law of Scattering, and their degree of overlap measured as percentage Similarity (PS). Areas of common interest between the two disciplines, as well as of uniqueness, were determined through bibliometric analysis of these core journals.

? Spagnolo, F. (1990), Brazilian scientists’ publications and mainstream science: Some policy implications - the case of chemical and electrical engineering. *Scientometrics*, **18** (3-4), 205-218.

Full Text: [1990\Scientometrics18, 205.pdf](1990/Scientometrics18,%20205.pdf)

Abstract: Against the common view that scientific output in peripheral and non-English speaking countries is largely underrepresented in Science Citation Index (SCI), this study shows that academic Brazilian scientists in chemistry and electrical engineering tend to publish in “good” international journals covered by SCL the rate of citations they earn, however, looks rather poor. The reasons why Brazilian scientists publish in foreign journals are analysed and the policy of encouraging scientists to publish their best contributions abroad is questioned.

? Grupp, H. (1990), The concept of entropy in scientometrics and innovation research an indicator for institutional involvement in scientific and technological developments. *Scientometrics*, **18** (3-4), 219-239.

Full Text: [1990\Scientometrics18, 219.pdf](1990/Scientometrics18,%20219.pdf)

Abstract: the concept of entropy well-known in information theory and thermodynamics is applied in the fields of scientometrics and innovation research in order to introduce an indicator for the institutional involvement in of the location of research and development. By means of this concept four applications in the fields of research and national technology policy, industrial technology management, and innovation research are outlined. First, the national institutional structures in telecommunications research and development in Japan are compared to those of the Netherlands. It is concluded that the institutional involvement is not always more random in a larger country but rather depends on the disaggregation into fields and subfields. Secondly, broad versus narrow national technology strategies in the so-called ‘high technologies’ are compared for various OECD and COMECON countries. Thirdly, corporate R and D strategies of Japanese telecommunication companies are studied. Fourthly, for selected R and D-intensive technologies it is shown that with the progress of time the involvement of industrial branches in a new technology fluctuates. The four analyses are based either on bibliometric or on patent data. The usefulness of the concept of entropy in scientometrics and innovation research is assessed through these examples.

Keywords: Scientometrics

? Spangenberg, J.F.A., Buijink, W. and Alfenaar, W. (1990), Some incentives and constraints of scientific performance in departments of economics. Part I. Predictor-criterion relations. *Scientometrics*, **18** (3-4), 241-268.

Full Text: [1990\Scientometrics18, 241.pdf](1990/Scientometrics18,%20241.pdf)

Abstract: the main purpose of this paper is to explore why publication records differ among Dutch departments of economics. The results of a large scale performance evaluations have been used for classifying research units in subsamples of high and low performers. After collecting data on organizational characteristics of economics research units, univariate and multivariate statistics have been applied to test hypotheses regarding determinants of scientific productivity in economics.

The extreme clannishness, not to say xenophobia, of the Econ makes life among them difficult and perhaps even somewhat dangerous for the outsider. This probably accounts for the fact that the Econ have so far not been systematically studied (...) More research on this interesting tribe is badly needed.

? Spangenberg, J.F.A., Breemhaar, B., Nijhuis, F. and Alfenaar, W. (1990), Some incentives and constraints of scientific performance in economics. Part II. Validity and sensitivity analysis. *Scientometrics*, **18** (3-4), 269-279.

Full Text: [1990\Scientometrics18, 269.pdf](1990/Scientometrics18,%20269.pdf)

Abstract: Spangenberg, et al. have tested hypotheses concerning facilitators and inhibitors of scientific performance in Dutch economics. In order to examine the external validity of the findings, a comparison is made with large scale empirical studies conducted in two other countries. In order to examine the convergent validity of the overall performance measure, the relationship with other scientometric indicators is inspected. In order to test the robustness of their univariate and multivariate tests, multiple regressions were performed on three criteria: scientific productivity, citation impact, and individual performance index.

? Leydesdorff, L. (1990), Relations among science indicators or more generally among anything one might wish to count about texts. I. The static model. *Scientometrics*, **18** (3-4), 281-307.

Full Text: [1990\Scientometrics18, 281.pdf](1990/Scientometrics18,%20281.pdf)

Abstract: In a series of two articles, I will show that the expected information content of distributions provides us with a straightforward means to develop a static and a dynamic model for the development of the sciences. In the first study, I analyze how knowledge about one indicator (nominal variable) can reduce our uncertainty in the prediction of other indicators, and how relations across various levels of aggregation can be assessed. In the second study, I will address the problem of the use of indicators and relations among them for predictions and reconstructions.

I will use the occurrences of words in texts as the prime nominal variable which can be easily counted by the machine. However, I will generalize the models for the multi-variate case, in which any indicator or nominal variable can be assessed in terms of its validity in relation to other indicators and its value for predictions.

? Urata, H. (1990), Information flows among academic disciplines in Japan. *Scientometrics*, **18** (3-4), 309-319.

Full Text: [1990\Scientometrics18, 309.pdf](1990/Scientometrics18,%20309.pdf)

Abstract: An attempt is made to clarify the relationships among disciplines by examining the flow of citation and the migration of scholars in the humanities and social sciences in Japan. The results of both methods are consistent with each other. In humanities and social sciences in Japan, distinct hierarchical relationships are recognized between disciplines offering much information to other disciplines and disciplines obtaining much information from other disciplines.

Keywords: Japan

? Lyon, W.S. (1990), The dreams of reason - the computer and the rise of the science of complexity - Pagels, HR. *Scientometrics*, **18** (3-4), 321-322.

Full Text: [1990\Scientometrics18, 321.pdf](1990/Scientometrics18,%20321.pdf)

Abstract: the fit of Bradford’s Law to bibliometrics - a field which is both interdisciplinary and relatively new was investigated. It is found that, contrary to expectations, the data fit Bradford’s Law very well, particularly in the more recent period, 1979-1983. There are, in both periods studied, seven core journals with about 30% of the papers; most of these journals are specialized in information science or documentation. No “falling away” from Bradford’s distribution towards the right-hand end of the bibliography was observed.

? Peritz, B.C. (1990), A Bradford distribution for bibliometrics. *Scientometrics*, **18** (5-6), 323-329.

Full Text: [1990\Scientometrics18, 323.pdf](1990/Scientometrics18,%20323.pdf)

Keywords: Bibliometrics

? Over, R. (1990), The scholarly impact of articles published by men and women in psychology journals. *Scientometrics*, **18** (5-6), 331-340.

Full Text: [1990\Scientometrics18, 331.pdf](1990/Scientometrics18,%20331.pdf)

Abstract: In considering whether men and women produce research of equal quality, it needs to be asked not whether similar numbers of important contributions come from men and women (since numerically there have been more men than women among researchers), but whether the proportion of women active in research who make important contributions is the same as the proportion of men active in research who make important contributions. A search of entries in the 1985 edition of Social Sciences Citation Index located 564 articles from psychology journals which had attracted 15 or more citations. The sex ratio among senior authors of these high-impact articles was compared with the sex-ratio among senior authors of low-impact articles published in the same journals. The majority of high-impact articles had been published by men, but so had most low-impact articles. When allowance was made for the different numerical representation of the two sexes among authors, there was no evidence that men and women differ in terms of the impact of articles they publish. The results are discussed in the context of methodological issues in evaluation of sex differences in scientific performance, as well as with reference to the limited recognition that women so far have gained for research achievement in psychology.

? Gupta, B.M., Sharma, S.C. and Mehrotra, N.N. (1990), Subject-based publication activity indicators for medicinal and aromatic plants research. *Scientometrics*, **18** (5-6), 341-361.

Full Text: [1990\Scientometrics18, 341.pdf](1990/Scientometrics18,%20341.pdf)

Abstract: the paper analyses 2339 research papers appearing in 330 journals covered in Medicinal and Aromatic Plants Abstracts, India (1983) on the basis of their broad subject fields such as agronomy, phytochemistry, pharmacology and clinical research; their country of origin; plant genera and their species; and by type of investigation. Under each of the broad subject fields and major genera, an attempt has been made to identify the nature and focus of research in different countries through minimal level content analysis. Special focus of the paper has been the analysis of Indian publication output.

? Karki, M.M.S. (1990), Environmental science research in India: An analysis of publications. *Scientometrics*, **18** (5-6), 363-373.

Full Text: [1990\Scientometrics18, 363.pdf](1990/Scientometrics18,%20363.pdf)

Abstract: Investigates the trends in environmental science research in India with regard to its various branches, channels of communication used, authorship pattern of the papers, institution-wise output, rank of journals, extent of collaboration and scholarship of papers basing the entries noticed in the Paryavaran Abstracts. Major areas of interest of Indian environmentalists are given and prolific investigators have been listed. Journals used by Indian workers for publication of their work are studied. Subject areas with number of papers, number of authors, and average authorship are tabulated.

Keywords: India

? Mychkomegrin, A.Y. (1990), Estimates of the annual total number of titles on medicine and its disciplines and scientific productivity of physicians. *Scientometrics*, **18** (5-6), 375-388.

Full Text: [1990\Scientometrics18, 375.pdf](1990/Scientometrics18,%20375.pdf)

Abstract: Two scientometric indices are reviewed: number of printed scientific works per 100 specialists per year and number of scientific journals per 1000 specialists. In 1973-1977 Brazilian chemists and pharmacologists published 15.8 scientific works per 100 specialists per year, in 1981-1985 Japanese physicians - 17.1 ones, in 1968-1986 Czechoslovakian physicians - 17.1 ones, in 1978-1986 Hungarian physicians - 18.3 ones, in 1963-1979 Polish physicians - 18.5 ones, in 1983 Yugoslavian physicians - 20.1 titles per 100 specialists. In 1986 in USA 7.2 biomedical journals were issued per 1000 physicians, in Japan - 3.4 ones, in Spain - 1.8 biomedical journals per 1000 physicians. In 1986 in USA 6.8 dental periodicals were published per 1000 dentists, Great Britain - 3.0 ones, in Canada - 2.6 ones, in Spain - 2.0 dental journals. The total number of world’s biomedical articles and books’ titles was 535,000 in 1967, 628,000 in 1972, 820,000 in 1978, 1.01 million ones in 1983 and 1.13 million titles in 1986.

? Spangenberg, J.F.A. and Nijhuis, F.J.N. (1990), Human information processing in science. *Scientometrics*, **18** (5-6), 389-407.

Full Text: [1990\Scientometrics18, 389.pdf](1990/Scientometrics18,%20389.pdf)

Abstract: Human information processing in science is explored by observation of success and failure attributions of scientists in a Dutch university sample. Scientific performance is measured by various bibliometric indicators, while attribution theory has been used for the classification of perceived causes of performance. Low performers appear to attribute their success and failure more to external than to internal causes as compared to high performers.

? Trofimenko, A.P. (1990), Scientometric analysis of the topical content of scientific research and its particularities. *Scientometrics*, **18** (5-6), 409-435.

Full Text: [1990\Scientometrics18, 409.pdf](1990/Scientometrics18,%20409.pdf)

Abstract: A new method for quantitative evaluation of the topical content of scientific research is proposed. The method is based on the analysis of the number and topic of publications in different fields. A mathematical model, describing the connection between level and width of research, between topic renewal and concentration of research is developed. Furthermore, coefficients characterizing various aspects of research are introduced. The theoretical conclusions fit well the factual data obtained from the INIS system. A nucleus of terms defining the most developed directions of research is found in each case. The analysis indicates that the growth rate of publications cannot serve as a reliable criterion of research topicality.

Notes: UUniversity

? Ehikhamenor, F.A. (1990), Productivity of physical scientists in Nigerian universities in relation to communication variables. *Scientometrics*, **18** (5-6), 437-444.

Full Text: [1990\Scientometrics18, 437.pdf](1990/Scientometrics18,%20437.pdf)

Abstract: the central activity on which scientific enterprise revolves and is sustained is communication. Under normal circumstances, there is a correlation between the output of a scientist in terms of publications and the amount of time spent in communicating with other scientists or the extent of his contacts with other scientists. This relationship was investigated among physical scientists in some Nigerian universities; but the results do not substantiate it. This can be attributed to a host of constraints being experienced by the scientists in their research and communication activities. Consequently, performance in these activities is inconsistent and unpredictable, and so, there can be no systematic relationship between productivity and communication activities.

? Schubert, A. (1990), Quantitative studies of science a current bibliography. *Scientometrics*, **18** (5-6), 445-463.

Full Text: [1990\Scientometrics18, 445.pdf](1990/Scientometrics18,%20445.pdf)

Schubert, A. and Braun, T. (1990), International collaboration in the sciences, 1981-1985. *Scientometrics*, **19** (1-2), 3-10.

Full Text: [1990\Scientometrics19, 3.pdf](1990/Scientometrics19,%203.pdf)

Notes: CCountry, Notes: UUniversity

? Schubert, A. and Braun, T. (1990), International collaboration in the sciences, 1981-1985. *Scientometrics*, **19** (1-2), 3-10.

Full Text: [1990\Scientometrics19, 3.pdf](1990/Scientometrics19,%203.pdf)

? Klaic, B. (1990), Scientometric analysis of the research activities of chemists from the Rugjer-Boskovic-Institute (Yugoslavia), 1976-1985. *Scientometrics*, **19** (1-2), 11-24.

Full Text: [1990\Scientometrics19, 11.pdf](1990/Scientometrics19,%2011.pdf)

Abstract: the research activity of chemists from the “Rugjer Bogkovid” Institute (RBI, Zagreb, Yugoslavia) was analyzed for the period 1976-1985, covering 2018 research years of scientific work, and 1149 SCI registered papers (0.57 publications per research year). At the average, one paper was published by 3.05 scientists. The papers were published in 235 different journals, most frequently is the national Croatica Chemica Acta (171 papers). The publications were divided into two groups: for the periods 1976-1980 and 1981-1985, and for each paper citations were collected in the respective time period. An average publication had 2.58 citations. Chemical papers from the second period had 2.73 citations per paper, which is 85% of the expected value, and this was considerably more than for Yugoslav papers (66%) in general. The papers were classified according to the subfields used in the Journal Citation Reports, and the results compared with the data published by Schubert, Gldnzel and Braun. The distribution of citations was also analyzed.

Keywords: Yugoslavia

? So, C.Y.K. (1990), Openness index and affinity index - 2 New citation indicators. *Scientometrics*, **19** (1-2), 25-34.

Full Text: [1990\Scientometrics19, 25.pdf](1990/Scientometrics19,%2025.pdf)

Abstract: This article discusses some design issues in the self-citing rate and the self-cited rate proposed by the Social Sciences Citation Index for journals. Improvements on the above measures lead to two new citation indicators-the Openness Index and the Affinity Index. These new indices could be expressed in terms of several components (self, own-field, otherfield, overall). Each of these components indicates more specific citation situations of a journal. The application of these new citation indicators is illustrated in the measurement of some journals’ characteristics in the field of communication.

? Todorov, R. and Winterhager, M. (1990), Mapping Australian geophysics - A co-heading analysis. *Scientometrics*, **19** (1-2), 35-56.

Full Text: [1990\Scientometrics19, 35.pdf](1990/Scientometrics19,%2035.pdf)

Abstract: Descriptive capacities of a new bibliometric method, namely co-heading analysis, are investigated. The method uses the appearance and co-appearance of classification subdivisions (headings) in the document records of 1988 INSPEC database to display correspondingly the main topics of Australian geophysics and their links. The findings, in the form of inclusion maps (resulting from multidimensional scaling and cluster analysis) provide new insights into geophysics national activity and into its structure.

? Uzun, A. (1990), A quantitative-analysis of Turkish publication output in physics between 1938-1987. *Scientometrics*, **19** (1-2), 57-73.

Full Text: [1990\Scientometrics19, 57.pdf](1990/Scientometrics19,%2057.pdf)

Abstract: the output of a total of 860 publications in physics for the period 1938-1987 is used to analyse the mainstream of physics research in Turkey. The productivity and growth characteristics of the research in experimental and theoretical areas as well as in different subfields and institutions in the country are briefly discussed. The total output is also assessed by its citation impact.

? Miao, Q.H. and Zhang, Z.Z. (1990), Anatomy of Jetro’s overseas technology monitoring: Bibliometric and content analysis. *Scientometrics*, **19** (1-2), 75-90.

Full Text: [1990\Scientometrics19, 75.pdf](1990/Scientometrics19,%2075.pdf)

Abstract: By means of bibliometrics and content analysis, both quantitative and qualitative, based upon JETRO Technology Bulletin data-base, the authors reveal some properties of overseas monitoring for industrial technology and technology policy by Japan External Trade Organization (JETRO), specifically, identify the shift of focus in regional and technical field dimensions, depict the different modes of representative technical areas, and trace the relation between technology monitoring and government policy action.

? Hargens, L.L. and Herting, J.R. (1990), Neglected considerations in the analysis of agreement among journal referees. *Scientometrics*, **19** (1-2), 91-106.

Full Text: [1990\Scientometrics19, 91.pdf](1990/Scientometrics19,%2091.pdf)

Abstract: Studies of representative samples of submissions to scientific journals show statistically significant associations between referees’ recommendations. These associations are moderately large given the multidimensional and unstable character of scientists’ evaluations of papers, and composites of referees’ recommendations can significantly aid editors in selecting manuscripts for publication, especially when there is great variability in the quality of submissions and acceptance rates are low. Assessments of the value of peer-review procedures in journal manuscript evaluation should take into account features of the entire scholarly communications system present in a field.

? Stevens, G. (1990), The flow of information between languages: An application of price’s method. *Scientometrics*, **19** (1-2), 107-126.

Full Text: [1990\Scientometrics19, 107.pdf](1990/Scientometrics19,%20107.pdf)

Abstract: Among Derek de Solla Price’s many contributions to scientometrics is a method for analysing matrices whose terms represent flow of some kind. The relative contributions of languages to the international flow of intellectual capital are analysed using this method. Translations are examined by UDC category to determine the types of capital exported by languages. It is shown that the world’s major languages export across the whole spectrum of intellectual endeavour, and that minor languages tend to specialise in a few categories. An examination of the links between languages, as shown by translation flows, shows that most transmit information into only a small number of other languages.

? Courtial, J.P. and Michelet, B. (1990), A mathematical model of development in a research field. *Scientometrics*, **19** (1-2), 127-141.

Full Text: [1990\Scientometrics19, 127.pdf](1990/Scientometrics19,%20127.pdf)

Abstract: We use co-word analysis in a retrospective study of the transformation of the knowledge network in the field of polymer science from 1973 to 1976. The results of this study lead us to propose a model of change in the field. This model is based on the observation that the interaction of Several networks gives rise to a sub-network that is at first central and then - and this is what the model allows us to predict - central and developed (without its precise content being predictable). Such sub-networks begin in regions of the network of central associated words where there are numerous holes or incomplete links. The model appears to be sufficiently robust statistically that it does not miss significant transformations and it suggests a way of predicting knowledge development. A comparison is made with other models of network transformation, such as the contagion model and the model of local structural equivalence.

? Shaw, A. (1990), Comments on brookes, Bertram, C., recipient of the 1989 Price, Derek, Desolla Award. *Scientometrics*, **19** (3-4), 153-155.

Full Text: [1990\Scientometrics19, 153.pdf](1990/Scientometrics19,%20153.pdf)

? Todorov, R. (1990), Comments on Vlachy, Jan, recipient of the 1989 Price, Derek, Desolla Award. *Scientometrics*, **19** (3-4), 157-158.

Full Text: [1990\Scientometrics19, 157.pdf](1990/Scientometrics19,%20157.pdf)

? Braun, T. and Glänzel, W. (1990), A topographical approach to world publication output and performance in the sciences, 1981-1985. *Scientometrics*, **19** (3-4), 159-165.

Full Text: [1990\Scientometrics19, 159.pdf](1990/Scientometrics19,%20159.pdf)

? Luukkonen, T. (1990), Publication structures and accumulative advantages. *Scientometrics*, **19** (3-4), 167-184.

Full Text: [1990\Scientometrics19, 167.pdf](1990/Scientometrics19,%20167.pdf)

Abstract: the paper examines the role played by the scientific journal in the citation process. It compares characteristics of journals which publish the articles cited and those which cite them. It pays attention to the regional location, degrees of specialization, and visibility of journals and investigates how these factors relate to accumulation of citations. The data consist of a subsample of Nordic cardiovascular research articles, published in 1981, and of the articles citing them until early 1988.

? Plomp, R. (1990), The significance of the number of highly cited papers as an indicator of scientific prolificacy. *Scientometrics*, **19** (3-4), 185-197.

Full Text: [1990\Scientometrics19, 185.pdf](1990/Scientometrics19,%20185.pdf)

Abstract: After presenting arguments that the number of highly cited papers (HCPs, 25 or more citations) has some advantages as an indicator of an author’s scientific impact, the paper discusses citation data of 338 university professors in departments of medicine in the Netherlands. An analysis of the distribution of HCPs over the years provides support for the following conclusions: (1) prolific researchers with a large number of HCPs usually manifest themselves already in their Ph.D. work, apparently almost independent of the scientific setting; (2) it cannot be taken for granted that a successful Ph.D. student with some HCPs connected with his/her doctoral thesis will become a prolific successful researcher; (3) it is unlikely that an unsuccessful Ph.D. student without HCPs connected with his/her doctoral thesis will turn out to be a prolific successful researcher;, and (4) for researchers, just as for artists, sportsmen, etc., talent is the most decisive factor in being successful.

? Peritz, B.C. (1990), The citation impact of funded and unfunded research in economics. *Scientometrics*, **19** (3-4), 199-206.

Full Text: [1990\Scientometrics19, 199.pdf](1990/Scientometrics19,%20199.pdf)

Abstract: Is research which receives grant support more cited than unfunded research? the answer to this question for the field of economics is - at least tentatively - affirmative. However, in pursuing this query several methodological questions are encountered and discussed, ranging from the choice of the statistical model and of the population, through the control of covariates, to the selection of the unit of investigation. It is suggested that, in spite of their limitations, small bibliometric studies of selected populations, which control for at least some of the relevant covariates, might become a helpful tool in clarifying some issues in science policy.

? Hogan, T.J. (1990), A measure of accounting faculties and doctoral programs. *Scientometrics*, **19** (3-4), 207-221.

Full Text: [1990\Scientometrics19, 207.pdf](1990/Scientometrics19,%20207.pdf)

Abstract: References from accounting doctoral course syllabi are used to construct a data base. Some type of syllabus in the areas of financial accounting, research methodology, behavioral accounting, managerial accounting, and information economics and agency theory was obtained from 49 schools. Syllabi references are used to rank accounting departments based on the author’s place of employment and institution from which the doctorate was earned.

? Qiu, L.W. and Tague, J. (1990), Complete or incomplete data sets. The Groos droop investigated. *Scientometrics*, **19** (3-4), 223-237.

Full Text: [1990\Scientometrics19, 223.pdf](1990/Scientometrics19,%20223.pdf)

Abstract: Since the Groos droop of Bradford curves was reported, there has been a controversial explanation of its cause, i.e., that it is caused by an incomplete data set. In this study, a computer simulation was conducted to study the phenomenon. Incompleteness was characterized by two kinds of sampling, weighted and unweighted. Weighted sampling was used to simulate incompleteness of low productivity journals, unweighted sampling incompleteness at all productivity levels. Based on the result of 400 runs (two sampling methods × four sample sizes × ten data sets × fine random runs), The hypothesis that the Groos droop is caused by incomplete data sets was rejected. The relationships between sample size, sampling method and the degree of the droop are also reported.

? Lancaster, F.W., Lee, S.Y.K. and Diluvio, C. (1990), Does place of publication influence citation behavior? *Scientometrics*, **19** (3-4), 239-244.

Full Text: [1990\Scientometrics19, 239.pdf](1990/Scientometrics19,%20239.pdf)

Abstract: Two separate studies have looked at the question of whether or not the sources cited by scientists when they publish in their own national journals differ somewhat from the sources they cite when they publish outside their own country. Data derived from studies of Philippine scientists and Korean mathematicians do suggest that place of publication may exert some influence on citation behavior. In particular, a scientist is more likely to cite national sources when publishing in a national journal than when publishing internationally.

? Konrad, N. and Wahl, D. (1990), Science, technology and development indicators for third-world countries - Possibilities for analysis and grouping. *Scientometrics*, **19** (3-4), 245-270.

Full Text: [1990\Scientometrics19, 245.pdf](1990/Scientometrics19,%20245.pdf)

Abstract: the purpose of this article is to make a distinction between (a) a society’s ability to generate a scientific and technological potential (generativity), (b) the potential itself and (c) the country’s capacity to absorb or receive scientific and technological research results (respectivity). These three complexes are represented by joint indicators covering both levels and structures. A comparison of 30 developing countries (DC) shows, inter alia, that: (a) the polarisation in economic development of the countries considered confirms the view that the future of national development is linked to the scientific and technological potential, (b) joint indicators can interpret better than a comparison of pairs of single indicators, (c) countries with comparable levels of the three capacities (generativity, R & D potential and receptivity) differ mostly in the structures. These structures seem to determine the differences in the use of the capacities, (d) the level of R & D potential is related more closely to the country’s ability to absorb scientific and technological results than with its resources for building up this potential.

? Leydesdorff, L. (1990), Relations among science indicators or more generally among anything one might wish to count about texts. II. The dynamics of science. *Scientometrics*, **19** (3-4), 271-296.

Full Text: [1990\Scientometrics19, 271.pdf](1990/Scientometrics19,%20271.pdf)

Abstract: In a previous paper a static model for the relations among science indicators was discussed. 1 From the perspective of science dynamics, we are interested not in relations among variables or indicators, but in the prediction of an event, given comparable events about which we already have knowledge. The quality of the prediction can be measured by the expected information value I of the message, which converts the a priori probabilities of the events stored in the knowledge base into the a posteriori probabilities of the event. 2 the possibility of predicting in terms of specified variables with hindsight, gives a quantitative measure for testing hypotheses concerning the reconstruction of scientific developments. Some implications for the construction of artificial intelligence using textual archives as a knowledge base will be discussed.

? Leydesdorff, L. (1990), The prediction of science indicators using information-theory. *Scientometrics*, **19** (3-4), 297-324.

Full Text: [1990\Scientometrics19, 297.pdf](1990/Scientometrics19,%20297.pdf)

Abstract: the study discusses the application of various forms of time series analysis to national performance data for EEC countries and the US. First, it is shown that at the aggregated level, a straightforward relation exists between output and input, which varies with time. Various analytical techniques to account for the time factor are discussed. By using information theory, a simple formula can be derived which gives the best prediction for the following year’s data. Subsequently, this model is extended to multivariate forecasting of distributions; Additionally, it can be shown by using this method that in terms of percentage of world share of publications the hypothesis that the EEC develops as a single publication system has to be rejected. However, when co-authorship relations among EEC member countries are used as an indicator, the predominance of a system is suggested.

? Rousseau, R. (1990), Informetrics 87 88 - Egghe, L, Rousseau, R. *Scientometrics*, **19** (3-4), 325-326.

Full Text: [1990\Scientometrics19, 325.pdf](1990/Scientometrics19,%20325.pdf)

? Daniel, H.D. (1990), Introduction: Quantitative science and technology indicators studies in the Federal Republic of Germany. *Scientometrics*, **19** (5-6), 327-329.

Full Text: [1990\Scientometrics19, 327.pdf](1990/Scientometrics19,%20327.pdf)

Notes: UUniversity

? Fichtner, D. (1990), Competition in the university system of the Federal Republic of Germany. *Scientometrics*, **19** (5-6), 331-335

Full Text: [1990\Scientometrics19, 331.pdf](1990/Scientometrics19,%20331.pdf)

Abstract: Although the university system in the FRG is largely regulated by the state, the freedom of research, teaching and study guaranteed by the constitution leaves room for competition between the universities. In research, there is competition with institutions outside the universities and with the research departments of large companies. There is also severe competition for the research funds provided by the Federal Government, the Deutsche Forschungsgerneinschaft and German trade and industry. In teaching, research projects are being carried out in order to develop criteria for the measurement of performance. This, together with a system of reporting, will facilitate comparisons and thus encourage competition. The BMBW has contributed to these processes in teaching and research by funding projects on the development of performance criteria and by preparing legislative measures designed to promote competition.

Notes: UUniversity

Alewell, K. (1990), Criteria for performance profiles of departments and universities. *Scientometrics*, **19** (5-6), 337-347

Full Text: [1990\Scientometrics19, 337.pdf](1990/Scientometrics19,%20337.pdf)

Abstract: In this paper a proposal is presented on how to meet the increasing demands of the public in Germany for qualified and comparable information about the performance of German universities. Instead of a one-dimensional quantifying ranking-system, a report-system for departments and the university as a whole is presented which contains a list of qualifying statements and comments which are necessary in order to render the quantitative data and ratios comprehensible.

Notes: UUniversity

? Daniel, H.D. and Fisch, R. (1990), Research performance evaluation in the German university sector. *Scientometrics*, **19** (5-6), 349-361.

Full Text: [1990\Scientometrics19, 349.pdf](1990/Scientometrics19,%20349.pdf)

Notes: UUniversity

? Giese, E. (1990), Rankings of universities in the FRG. *Scientometrics*, **19** (5-6), 363-375.

Full Text: [1990\Scientometrics19, 363.pdf](1990/Scientometrics19,%20363.pdf)

Abstract: the following article examines whether an aggregate comparison (i.e. without discriminating by subject) of university performance in the FRG resulting in a ranking of universities is feasible. First, methods of efficiency measurement are reviewed and possible indicators discussed. In the next part, five indicators are extracted for empirical analysis from a catalogue of ten indicators. Even these have to be used carefully. The last chapter presents results of the analysis. In short, the following conclusions can be drawn: 1. of the five indicators, none represents a single comprehensive measure of research performance. 2. An aggregate measurement of university research performance, if feasible at all, has to be carried out separately for institutes of technology, universities and comprehensive institutions. 3. Even then, a number of serious statistical problems arise in regard to the methods subsequently applied.

? Rau, E. and Hummel, T. (1990), Rankings of economics departments in the Federal Republic of Germany. *Scientometrics*, **19** (5-6), 377-384.

Full Text: [1990\Scientometrics19, 377.pdf](1990/Scientometrics19,%20377.pdf)

Abstract: the first part of the paper gives a brief account of studies on research productivity in economics departments in the Federal Republic of Germany which were published mainly in the second half of the 1980s. In the second part the results of a recent study on rankings of economics departments at universities in the FRG are presented. The paper claims that ranking studies should include a large variety of performance indicators (quantitative and qualitative) and should always take into account the content and context of research productivity.

? Backesgellner, U. and Sadowski, D. (1990), Organizational implementation of bibliometric indicators. *Scientometrics*, **19** (5-6), 385-395.

Full Text: [1990\Scientometrics19, 385.pdf](1990/Scientometrics19,%20385.pdf)

Abstract: the article deals with the various problems of an implementation of publicatior~ indicators on a departmental level in West-German universities. The German university system relies mostly on social and informal control rneehanisms. Bibliometric indicators can provide adequate information for an effective social control in such a system. However, they will only be accepted and effective if they are valid, thoroughly reliable and robust. A successful adaptation of individual goals and behaviour depends largely on the particular interests and incentives of the faculty members across various departmental arrangements.

? Baumert, J., Naumann, J. and Roeder, P.M. (1990), Reputation - A hard-currency medium of interchange - A structural equation approach. *Scientometrics*, **19** (5-6), 397-408.

Full Text: [1990\Scientometrics19, 397.pdf](1990/Scientometrics19,%20397.pdf)

Abstract: Within the theoretical framework of reputation as a social medium of interchange in the system of higher education this study analyses the institutional stratification of university departments in the field of economics and business administration. In contrast to the still prevailing normative idea of basic equality between academic institutions in the Federal Republic of Germany the empirical results indicate a stable hierarchy of reputation, very similar to the stratification pattern typical of the US American university system. Structural equation models show that the institutional hierarchy can be predicted with considerable accuracy with indicators of scientific activity and impact and structural characteristics of departments and universities. The analyses show both the performance-based validity of institutional reputation and the bias in access to the competitive academic markets due to structural differences of the universities and departments.

? Finkenstaedt, T. (1990), Measuring research performance in the humanities. *Scientometrics*, **19** (5-6), 409-417.

Full Text: [1990\Scientometrics19, 409.pdf](1990/Scientometrics19,%20409.pdf)

Abstract: the article starts from the specific difficulties of applying quantitative analysis to the humanities and the general resistance to such analysis in the Federal Republic of Germany. It gives a survey of the attempts to apply bibliometric methods in English Studies, the only subject investigated so far. The highly individual nature of research in the humanities is stressed and differences in subfields are illustrated. There is little influence of departmental size or age on the publication behaviour of individuals. More studies of citation behavior are needed for a reliable evaluation of the impact of research in the humanities.

? Hartmann, I. and Neidhardt, F. (1990), Peer-review at the Deutsche Forschungsgemeinschaft. *Scientometrics*, **19** (5-6), 419-425.

Full Text: [1990\Scientometrics19, 419.pdf](1990/Scientometrics19,%20419.pdf)

Abstract: Results of a study designed to investigate the peer review system at the Deutsche Forschungsgemeinschaj2 are presented. 242 applications for grants and 639 corresponding reviews were analysed to explore criteria actually used by peers in assessing the quality of proposals. The findings show a wide range of criteria used, an uneven distribution of positive and negative evaluation along these criteria, high inter-referee agreement and different degrees of impact of the evaluations on the overall recommendation.

? Block, H.J. and Krull, W. (1990), What are the consequences? Reflections on the impact of evaluations conducted by a science policy advisory body. *Scientometrics*, **19** (5-6), 427-437.

Full Text: [1990\Scientometrics19, 427.pdf](1990/Scientometrics19,%20427.pdf)

Abstract: This article briefly presents some of the Vftssenschaftsrat’s recent activities which were (and are) particularly designed to exert an influence on the structural development of German universities, Fachhochschulen and research institutes: Evaluations of research institutes, recommendations on structural changes in the higher education system, and statistics concerning the age structure of professors and the employment prospects for young academics. The focal point will be the question: What has been the impact of the reports and recommendations on higher education and research policies?

? Schlieroosen, F. (1990), Quantitative indicators for Federal Government research and technology policy. *Scientometrics*, **19** (5-6), 439-445.

Full Text: [1990\Scientometrics19, 439.pdf](1990/Scientometrics19,%20439.pdf)

Abstract: Five years ago the BMFT implemented a strategy to improve the knowledge of the output aspect of the German R&D system. The inherent objective is to help establish science policy research as an academic discipline and scientometries as one of its methodologies. First results and possible future trends are discussed with respect to the use of scientometrics for policy making.

? Grupp, H. (1990), On the supplementary functions of science and technology indicators - the case of West German telecommunications research and development. *Scientometrics*, **19** (5-6), 447-472.

Full Text: [1990\Scientometrics19, 447.pdf](1990/Scientometrics19,%20447.pdf)

Abstract: Starting from a simple phase model for scientific and technological progress the supplementary functions of various science and technology indicators are discussed. In particular, patent and literature indicators in the field of telecommunications R&D in West Germany are presented and compared. In addition, a few selected technometric, R&D expenditure, and trade data are included for the sake of completeness. This network of science and technology indicators is employed to analyse the institutional set-up and the trends in telecommunications R&D on the macro-level (national level) as well as for single R&D actors (institutional or micro-level). Further, the role of academic and other public R&D in West Germany, including the regional distribution of activities and the specialization with respect to telecommunication subfields, are assessed. It is concluded that the various science and technology indicators - at least in the case of West German telecommunications - supplement each other. Synergisms between indicators do exist and should be explored better in future work. The case of telecommunications is ideal for such an exploratory assessment as it includes basic and applied research as well as strong industrial development activities.

? Faust, K. (1990), Early identification of technological advances on the basis of patent data. *Scientometrics*, **19** (5-6), 473-480.

Full Text: [1990\Scientometrics19, 473.pdf](1990/Scientometrics19,%20473.pdf)

Abstract: the publication of patent applications by the patent offices is the first information available about new technologies. But patent statistics are often distorted due to the exceedingly great number of domestic applications filed in Japan and the delayed publication of patent applications filed in the USA. These distortions can be eliminated to a great extent if only those patent applications are considered for which external applications are also included. Patent indicators allow for a differentiated observation of technological advances before the actual emergence of an innovation. Recent developments in superconductivity provide an example.

? Weingart, P., Sehringer, R. and Winterhager, M. (1990), Which reality do we measure? *Scientometrics*, **19** (5-6), 481-493.

Full Text: [1990\Scientometrics19, 481.pdf](1990/Scientometrics19,%20481.pdf)

Abstract: Scientific reality is a multi-sided phenomenon which cannot be described in a single and authoritative way. The descriptions of scientific research areas differ if one compares the definitions of science policy programmes with expert judgments in the peer-review process. Bibliometric measurements function as an intermediate representation of science. To make them useful and compatible with other representations they have to be translated. The difficulties of mutual translation of these different delineations of scientific research areas are demonstrated in two case studies (marine sciences and multiple sclerosis research) where each of these three different representations of science is supported by empirical results.

? Pfetsch, F.R. (1990), The measurement of a country scientific and technological potential. *Scientometrics*, **19** (5-6), 495-504.

Full Text: [1990\Scientometrics19, 495.pdf](1990/Scientometrics19,%20495.pdf)

Abstract: the paper suggests a formula for the measurement of the national science and technology potential. This is based on a decision-making framework for the development of indicators for the S&T system.

? Spiegel, H.R. (1990), Initiatives for the promotion of science of science: the Stifterverband fur die Deutsche Wissenschaft. *Scientometrics*, **19** (5-6), 505-512.

Full Text: [1990\Scientometrics19, 505.pdf](1990/Scientometrics19,%20505.pdf)

Abstract: As the joint initiative of German trade and industry for the promotion of science, the Stiflerverband is interested in an efficient and transparent system of science and its promotion. This requires knowledge and insights which are provided by scientific research. Hence, research in the field of science of science is always, implicitly or explicitly, the object of the promotional endeavours of the Stiflerverband.

? Braun, T. and Glänzel, W. (1990), United Germany: the New Scientific Superpower? *Scientometrics*, **19** (5-6), 513-521.

Full Text: [1990\Scientometrics19, 513.pdf](1990/Scientometrics19,%20513.pdf)

Abstract: As a consequence of the dramatic upheaval in East-Europe the German reunification has become one of the central problems of nowadays. Several relevant publications have more or less cautiously forecasted the rise of a new superpower in the midst of Europe. The present study attempts to shed light on some quantitative aspects of the research performance in both parts of Germany. Selected citation based indicators are used to determine the initial position and future of the United Germany in scientific research. Though the reunification involves an essential increase of the “scientific potential”, the actual indicator values exhort to rather cautious expectations concerning the immediate intensification of research performance.

Keywords: Germany

? Glänzel, W. (1990), Measurement and support of research performance - German - Fisch, R, Daniel, HD. *Scientometrics*, **19** (5-6), 523-524.

Full Text: [1990\Scientometrics19, 523.pdf](1990/Scientometrics19,%20523.pdf)

? Glänzel, W. (1990), Research evaluation - German - Daniel, HD, Fisch, R. *Scientometrics*, **19** (5-6), 523-524.

Full Text: [1990\Scientometrics19, 523.pdf](1990/Scientometrics19,%20523.pdf)

? Braun, T. (1991), Foreword to the Moravcsik, Michael Memorial Issue. *Scientometrics*, **20** (1), 3-7.

Full Text: [1991\Scientometrics20, 3.pdf](1991/Scientometrics20,%203.pdf)

? Braun, T. and Schubert, A. (1991), The landscape of national performances in the sciences, 1981-1985. *Scientometrics*, **20** (1), 9-17.

Full Text: [1991\Scientometrics20, 9.pdf](1991/Scientometrics20,%209.pdf)

Abstract: Publication and citation indicators of 26 countries in 5 major science fields are presented in the form of three-dimensional “landscapes”. These “landscapes” being an extension of relational charts by adding the dimension of publication size to the expected and observed citation rates, take us one step closer to the ideal of multidimensional assessments so passionately advocated by Moravcsik.

Keywords: Citation, Indicators, Publication, Science, Size, Technology

? Garfield, E. and Small, H. (1991), Michael J. Moravcsik: Multidimensional scholar and hero of third world science. *Scientometrics*, **20** (1), 19-24.

Full Text: [1991\Scientometrics20, 19.pdf](1991/Scientometrics20,%2019.pdf)

Keywords: Citations, Countries, Crisis, Methodology, Particle Physics, Quality, Technology

? Snizek, W.E., Oehler, K. and Mullins, N.C. (1991), Textual and nontextual characteristics of scientific papers - neglected science indicators. *Scientometrics*, **20** (1), 25-35.

Full Text: [1991\Scientometrics20, 25.pdf](1991/Scientometrics20,%2025.pdf)

Abstract: the citation rates of scientific papers, long used by numerous sociologists of science to measure the influence of individual scientists and the diffusion of knowledge, are shown to be partly affected by the various structural characteristics of these papers. Based on an analysis of 221 scientific papers in three cocitation clusters, between 15 and 35 percent of the variation in citation rates is found to be a function of those papers’ textual and nontextual characteristics. The citation rates of papers in the Burkitts-Lymphoma and Heavy Quark Potential clusters are shown to be heavily dependent on abstract characteristics such as readability and number of uncommon words. The citation rates of DNA cluster papers are observed to be significantly affected by both the number of references and figures found in the body of those papers. of particular note is the fact that while the readability of abstracts is shown to decrease the citation rates of Burkitts-Lymphoma papers, the opposite is true of Heavy Quark Potential papers.

Keywords: Analysis, Citation, Cocitation, Diffusion, DNA, Function, Information, Knowledge, Papers, Physics, Science

Notes: UUniversity

Beck, M.T. and Gáspár, V. (1991), Scientometric evaluation of the scientific performance at the faculty of natural sciences, Kossuth Lajos University, Debrecen, Hungary. *Scientometrics*, **20** (1), 37-54.

Full Text: [1991\Scientometrics20, 37.pdf](1991/Scientometrics20,%2037.pdf)

Abstract: the standard of research at different departments of the Faculty of Natural Sciences of Kossuth Lajos University has been assessed by a scientometric evaluation of the publication activities of the departments. The essence of our approach is the consideration of the number and quality of the papers published. for a measure of this quality we regarded the impact factor of the journal, in which a paper was published. The rather different range of the impact factors of different fields were taken into account during the evaluation. As a whole, no considerable difference was found between the publication activity (impact per number of researchers) of the research institutes of the Hungarian Academy of Sciences and the corresponding departments of our Faculty, although, significant differences occur in certain fields. Based on this study, changes in the publication strategies of the different departments were recommended.

Keywords: Changes, Evaluation, Hungary, Impact Factor, Impact Factors, Journal, Papers, Publication, Publication Activity, Quality, Research, Scientometric, Standard

Notes: TTopic

Abdullah, S.B. and Lancaster, F.W. (1991), The contribution of scientists to the popular literature, their role as expert witnesses, and their influence on their peers: A case study in the field of acid rain. *Scientometrics*, **20** (1), 55-64.

Full Text: [1991\Scientometrics20, 55.pdf](1991/Scientometrics20,%2055.pdf)

Abstract: Using the field of acid rain research as a case study, it was found that scientists who contribute to the popular literature are more likely than others to be called on to give Congressional testimony (and vice versa) and that the work of these same scientists is well recognized by their peers as judged by rates of citation. Indeed, scientists who contribute to the popular literature are more highly cited than those who do not whether or not they are called upon for expert testimony. Since those who give testimony are more highly cited than those who do not, some evidence also exists that scientists called before Congressional hearings are among those most influential in the science community.

Keywords: Case Study, Citation, Community, Evidence, Expert Testimony, Literature, Research, Science, Testimony, Work

? Nalimov, V.V. (1991), Meeting the Xxith century. *Scientometrics*, **20** (1), 65-69.

Full Text: [1991\Scientometrics20, 65.pdf](1991/Scientometrics20,%2065.pdf)

Notes: UUniversity

? Trimble, V. (1991), Long-term careers of astronomers with doctoral degrees from prestigious vs non-prestigious universities. *Scientometrics*, **20** (1), 71-77.

Full Text: [1991\Scientometrics20, 71.pdf](1991/Scientometrics20,%2071.pdf)

Abstract: A comparison has been made of the long-term careers of complete samples of astronomers who earned their PhD’s at one prestigious (P) and one nonprestigious (NP) university. The sample sizes are 106 (degrees 1952-88) and 94 (degrees 1966-88) respectively. for both groups, the vast majority are still engaged in some aspect of astronomy or closely related sciences (90% and 74% respectively). But the fraction still engaged primarily in astronomical research and advanced teaching at PhD-granting universities and observatories is 65% for the prestigious and only 32% for the non-prestigious institution. The half-lives as members of the research publishing community are more than 30 yr vs. less than 20 yr for P vs. NP astronomers. Very little of the difference is attributable to the different distributions of dates of degrees in the two samples. A subsample of the P astronomers age-matched to the NP ones has 66% still engaged is astronomical research and advanced teaching; a large difference in publishing half-lives also persists in the subsamples with degrees since 1966.

Keywords: Careers, Community, Comparison, Publishing, Research, Sciences, Teaching, Universities, University

Notes: MModel

? Qurashi, M.M. (1991), Publication-rate and size of two prolific research groups in Departments of Inorganic-Chemistry at Dacca University (1944-1965) and Zoology at Karachi University (1966-84). *Scientometrics*, **20** (1), 79-92.

Full Text: [1991\Scientometrics20, 79.pdf](1991/Scientometrics20,%2079.pdf)

Abstract: There has been considerable interest in studying how the research output of a group of N researchers depends on the group-size, N. Several workers have studied this, but with conflicting conclusions, ranging from finding constant per-capita output to per-capita output varying linearly as N, and even exponentially with N. The present communication states afresh the author’s earlier theory of productive interactions and gives analyses of the outputs of two prolific research groups: one from Dhaka University, Bangladesh, and one from Karachi University, Pakistan, each over nearly two decades. The data, obtained from published bibliographies, are sub-divided into small successive ranges of lab. group size, 1-2, 3-4, 5-6, etc., and analyzed by calculating the relevant publication-rate per person (R) for each range. Plots of the data from each group show evidence of an initial approx. linear rise of per-capita publication rate, R, up to about N = 5, followed by a maximum at group-size of 6 to 8 persons. This group size would correspond to the optimum efficiency, as a balance between the benefits of increasing interaction (alpha-N2) and Parkinsonian loss of efficiency. This is in agreement with the first peak in the author’s earlier analysis (of recent U.K. and U.S.A. data) published five years ago in Scientometrics, as well as his previous work published elsewhere. Possible reasons for the failure of statistical criteria to show up this phenomenon of increasing per-capita output are indicated and further indepth studies on two University research groups are planned.

Keywords: Analysis, Bangladesh, Bibliographies, Communication, Criteria, Efficiency, Evidence, First, Interaction, Pakistan, Person, Publication, Research, Scientometrics, Size, Small, Theory, Work

? Egghe, L. (1991), The exact place of Zipfs and Paretos law amongst the classical informetric laws. *Scientometrics*, **20** (1), 93-106.

Full Text: [1991\Scientometrics20, 93.pdf](1991/Scientometrics20,%2093.pdf)

Abstract: In this paper, the special place of Zipf’s law and Pareto’s law amongst other classical informetric laws (such as Bradford’s graphical and verbal law, Weber-Fechner’s or Brookes’, Leimkuhler’s and Mandelbrot’s) is revealed and explained. Equivalencies amongst some of these laws are proved. We also determine the conditions under which Bradford’s graphical law is a special case of Bradford’s verbal law.

Keywords: Law, Laws, Zipf’s Law

? Bonitz, M. (1991), The impact of behavioral principles on the design of the system of scientific communication. *Scientometrics*, **20** (1), 107-111.

Full Text: [1991\Scientometrics20, 107.pdf](1991/Scientometrics20,%20107.pdf)

Abstract: This paper 1 provides further evidence for the validity of the holography and maximum speed principles. Supportive examples stem from an attempt to measure speed indicators in scientific communication processes directly; from a new scientific communication channel launched by the Institute for Scientific Information, Philadelphia, USA; from a search for correlations between scientometric indicators and socio-economic indicators; and from a study of rank distribution phenomena occurring in the transition from individual to collective parameters for ranking of scientific journals. Examples of this kind increase the reliability of the behavioral principles when these are imposed on the design, performance and use of both the formal and informal channels of the system of scientific communication.

Keywords: Communication, Correlations, Evidence, Indicators, Institute for Scientific Information, Journals, Principles, Ranking, Reliability, Scientific Communication, Scientific Journals, Scientometric, USA, Validity

? Meadows, A.J. (1991), Quantitative Study of Factors Affecting the Selection and Presentation of Scientific Material to the General Public. *Scientometrics*, **20** (1), 113-119.

Full Text: [1991\Scientometrics20, 113.pdf](1991/Scientometrics20,%20113.pdf)

Abstract: the science-related material published in newspapers can be analysed to provide insight into the biases and techniques involved in transferring knowledge from the science community to the general public. A part of such studies can be carried out in quantitative terms. Three such quantitative approaches are illustrated here: (1) measurement of space devoted to science; (2) derivation of readability indices; (3) content analysis.

Keywords: Analysis, Community, Knowledge, Measurement, Science, Techniques

? Peritz, B.C. (1991), The citation impact of letters to the editor - the case of Lancet. *Scientometrics*, **20** (1), 121-129.

Full Text: [1991\Scientometrics20, 121.pdf](1991/Scientometrics20,%20121.pdf)

Abstract: Letters to the editor published in the Lancet during the first half of 1980 were less cited than the corresponding papers. The average number of citations per letter was larger if the letter contained some substantive information. The longer the letter the more frequently it was cited. Letters that react to some previous publication tend to be shorter than “spontaneous” letters. “Reacting” letters tend to be less cited than spontaneous letters if they are short, more cited if they are longer. Letters with substantive information tend to originate outside the UK in which case they are also more cited.

Keywords: British Science, Citations, Decline, First, Information, Journals, Papers, Publication, UK

? Pravdic, N. and Oluić-Vuković, V. (1991), Distribution of scientific productivity: Ambiguities in the assignment of author rank. *Scientometrics*, **20** (1), 131-144.

Full Text: [1991\Scientometrics20, 131.pdf](1991/Scientometrics20,%20131.pdf)

Abstract: Methodological implications of four accounting procedures applied in multiple authorship treatment relating to author productivity distribution were investigated. The emphasis was given to the individual author rank and inequality pattern of data. It was found that similar pattern of inequality holds in three of the four analysed cases, in spite of the fact that significant changes were observed on the individual level. By introducing the concept of dual approach a plausible interpretation of that phenomenon was obtained.

Keywords: Author Productivity, Authorship, Bradford, Changes, Inequality, Lotka Law, Multiple Authorship, Procedures, Science, Treatment

Vinkler, P. (1991), Possible causes of differences in information impact of journals from different subfields. *Scientometrics*, **20** (1), 145-161.

Full Text: [1991\Scientometrics20, 145.pdf](1991/Scientometrics20,%20145.pdf)

Abstract: Differences in size, mean number of references per paper in journals, ageing of information and disciplinarity of some subfields in chemistry were studied in order to explain different average impact factors for journals. A new indicator - Standard Journal Impact - is suggested, which may be used as a standardized (i.e. comparable) impact indicator for journals in different subfields. The main reason for the lower impact factor for journals of the macromolecular chemistry subfield may be the lower extent of the application of their results by other subfields

Keywords: Ageing, Bibliometric Indicators, Chemistry, Citation, Impact Factor, Impact Factors, Indicator, Information, Journals, Size

? Todorov, R. and Winterhager, M. (1991), An overview of Moravcsik, Mike publication activity in physics. *Scientometrics*, **20** (1), 163-172.

Full Text: [1991\Scientometrics20, 163.pdf](1991/Scientometrics20,%20163.pdf)

Abstract: A bibliometric online technique is applied on data from the INSPEC bibliographic file to describe some aspects of Moravcsik’s publication activity (co-authorship, source journals, etc.). Separately, a co-occurrence method is used to represent the subject structure (the main topics and their links) of his papers in physics. The principle underlying this method is to develop a network based on common appearances of classification subdivisions (headings) as well as of controlled terms in Moravcsik’s document records. The results, in the form of line and point graphs, give a global picture of Mike Moravcsik’s research profile in physics.

Keywords: Bibliometric, Classification, Co-Authorship, Coauthorship, Journals, Network, Papers, Publication, Publication Activity, Records, Research, Science, Structure

Archibald, G. and Line, M.B. (1991), The size and growth of serial literature 1950-1987, in terms of the number of articles per serial. *Scientometrics*, **20** (1), 173-196.

Full Text: [1991\Scientometrics20, 173.pdf](1991/Scientometrics20,%20173.pdf)

Abstract: It is commonly stated and believed that scholarly and scientific journal literature is growing exponentially. To obtain a truer picture of the situation, a study was made of a sample of 190 journals that started life in or before 1950, 20 in each of 9 subject fields, plus 10 extra in literature. The number of articles in each journal in 1950, 1960, 1970, 1980 and 1987 was counted. The analysis showed a rapid growth in most subjects up to 1970, a much slower growth between 1976 and 1980, and a slow growth or decline between 1980 and 1987; the fields of decline included general and physical science and technology. The total number of journals is still increasing, but the rate of growth has dropped dramatically over the last ten years. Although it is possible that more recently established journals would show a different pattern, it seems likely that the overall rate of growth of the total number of journal articles is slow.

Keywords: Analysis, Growth, Journal, Journal Articles, Journals, Life, Literature, Science, Science and Technology, Technology

Singh, U.N. and Arunachalam, S. (1991), Publication and citation patterns in the literature of liquid crystals with special reference to the contribution of India, Canada, Japan, United Kingdom and the Soviet Union. *Scientometrics*, **20** (1), 197-220.

Full Text: [1991\Scientometrics20, 197.pdf](1991/Scientometrics20,%20197.pdf)

Abstract: From an analysis of bibliographic data on 430 journal articles on liquid crystals covered in Physics Abstracts 1976 and the 4729 citations to them up to the end of 1987, we have identified the geographic origin, the prominent institutions, language and journal-wise distribution of the papers, the citedness of these papers, and the distribution of citations as a time series for the highly cited papers. We have also analysed the 126 papers published by authors from India, Canada, Australia, Israel, Japan and the United Kingdom and covered in Physics Abstracts 1978, and the 1154 citations to them up to 1987. Unlike in most other high tech areas of physics, in LC research the difference in performance between the USA and the other leading countries is not very pronounced. Publication data from 1976, 1978 and 1985 reveal that LC literature is on the rise and that the percentage share of the Soviet Union is rising fast and that of the USA is on the decline

Keywords: Analysis, Australia, Bibliometric Analysis, Canada, Citations, Countries, India, Institutions, Israel, Japan, Journal, Journal Articles, Journals, Liquid Crystals, Literature, Origin, Papers, Research, Science, Superconductivity, United Kingdom, USA

? Lindsey, D. (1991), The relationship between performance indicators for academic research and funding - Developing a measure of return on investment in science. *Scientometrics*, **20** (1), 221-234.

Full Text: [1991\Scientometrics20, 221.pdf](1991/Scientometrics20,%20221.pdf)

Abstract: Public universities reflect the aspirations a state or society has for its young people and for itself. In this study our interest has been to examine the level of public funding for universities and its relation to quality. In order to do this we collected funding data for a sample American universities. Additionally, we collected data on the production of science by faculty at the institutions in our American sample. The results indicated a strong relation between investment in higher education and quality. We then developed a measure of return on investment in research which combined these measures of funding and research production. We conclude by examining the nature of the relationship between funding and research quality at public universities.

Keywords: Education, Faculty, Higher Education, Institutions, Quality, Research, Research Quality, Science, Society, Universities

? Peters, H.P.F. and Van Raan, A.F.J. (1991), Structuring scientific activities by co-author analysis: An exercise on a university faculty level. *Scientometrics*, **20** (1), 235-255.

Full Text: [1991\Scientometrics20, 235.pdf](1991/Scientometrics20,%20235.pdf)

Abstract: In this paper we apply ‘co-author analysis’ to create from a large set of publications clusters of collaborating researchers within a faculty of chemical engineering. Results have been discussed with an expert. The co-author clusters appeared to be meaningful, with respect to the identification of research groups, the relations within these groups, as well as to relations between these groups and changes in time. Also differences between ISI-based and non-ISI based maps proved to be consistent with the expert’s opinion. Many clusters represent collaborating authors grouped around a full professor, mostly the department chairman. Co-author analysis can be used, for example, as an important tool in evaluative bibliometrics in order to make a first identification of research groups in ‘unknown’ universities or organizations.

Keywords: Analysis, Bibliometrics, Changes, Disciplinary, Faculty, First, Identification, Publications, Relations, Research, Science, Universities

? Pao, M.L. (1991), On the relationship of funding and research publications. *Scientometrics*, **20** (1), 257-281.

Full Text: [1991\Scientometrics20, 257.pdf](1991/Scientometrics20,%20257.pdf)

Abstract: the impact of a 17 year period of funding in schistosomiasis research on publication outcome was examined. Two productivity and three quality indicators were used to compare the output from the entire population of schistosomiasis in this period with those associated with 351 funded researchers. A substantially higher productivity and citation impact were found. This consistency of direction points to the positive effect of a period of sustained funding commitment.

Keywords: Assessing Basic Research, Citation, Commitment, Countries, Impact, Indicators, NIH, Output, Population, Publication, Quality, Research, Research Performance, Science, System

? Eto, H. (1991), Science revolution and ortega hypothesis in developing-countries. *Scientometrics*, **20** (1), 283-295.

Full Text: [1991\Scientometrics20, 283.pdf](1991/Scientometrics20,%20283.pdf)

Abstract: the science revolution, the “paradigm” change and the Ortega hypothesis on the role of average scientists are discussed in the context of catchup of developing countries. The relative weight of scientific fields is compared between countries as revealing their values on science. Finding some significant difference between countries, the role of developing countries is discussed in view of a possible science revolution, the “paradigm” change and the Ortega hypothesis.

Keywords: Big Science, Science, World

Sengupta, I.N. and Kumari, L. (1991), Bibliometric analysis of AIDS literature. *Scientometrics*, **20** (1), 297-316.

Full Text: [1991\Scientometrics20, 297.pdf](1991/Scientometrics20,%20297.pdf)

Abstract: In accordance with high incidence of AIDS cases, there is an epidemic growth of its literature. This unprecedented growth of literature calls for serious scientometric study. Such a study will not only help the scientometrists, information scientists, but also will be very useful to the related research workers. With this in view an attempt has been made to analyse AIDS literature published during the period 1976-1986 to identify its international channel of communication, medium of communication, contributing countries, authorship trends etc. This study is based on data printed in a source document entitled Collected Papers on AIDS Research, 1976-1986 published by BIOSIS which is retrospective bibliography incorporating valuable references to research on AIDS from 9,000 source titles monitored in BIOSIS data base. The findings of this study have also been compared to those of Wyatt and Self, Filardo and Lancaster.

Keywords: AID, AIDS, Authorship, Communication, Data Base, Deficiency Syndrome AIDS, Epidemic, Growth, Incidence, Information, International, Literature, Research, Scientometric, Trends

? Schubert, A. and Glänzel, W. (1991), Publication dynamics - Models and indicators. *Scientometrics*, **20** (1), 317-331.

Full Text: [1991\Scientometrics20, 317.pdf](1991/Scientometrics20,%20317.pdf)

Abstract: Models and indicators characterizing the dynamics of national publication productivity distributions are presented. The indicator triplet: transience, renewal, and dynamism is used to describe the “physical shape” of a national scientific community.

Keywords: Community, Dynamics, Indicator, Indicators, Publication, World

Martin, B.R. (1991), The bibliometric assessment of UK scientific performance: A reply to Braun, Glánzel and Schubert. *Scientometrics*, **20** (2), 333-357.

Full Text: [1991\Scientometrics20, 333.pdf](1991/Scientometrics20,%20333.pdf)

Abstract: In 1987, an analysis of the CHI, NSF Science Literature Indicators Data-Base by the author and his colleagues suggested that the UK’s percentage share of the world publication and citation totals had continued to fall over 1981-84, although at a slower rate than previously. That finding has recently been challenged by Braun, Glänzel and Schubert who, by combining 28 publication-based indicators, concluded that there was no statistically significant evidence for such a decline. This paper examines the reasons for the discrepancy. It is argued that the methodology of Braun et al. is seriously flawed, as well as being inconsistent with work that they have published elsewhere. By adopting a more consistent and realistic set of indicators and applying them to the data of Braun et al., one arrives at results entirely consistent with those derived from the CHI, NSF data-base.

Keywords: Analysis, Basic Research, British Science, Citation, Data Base, Database, Decline, Evidence, Indicators, Methodology, National Performance, Publication, Science Citation Index, Work

Braun, T., Glänzel, W. and Schubert, A. (1991), The bibliometric assessment of UK scientific performance: Some comments on martin’s ‘reply’. *Scientometrics*, **20** (2), 359-362.

Full Text: [1991\Scientometrics20, 359.pdf](1991/Scientometrics20,%20359.pdf)

Abstract: No new arguments or evidence that undermine our conviction that available scientometric measures do not indicate a statistically significant ‘decline’ of British science in the first half of the eighties have been found in Martin’s reply.

Keywords: Evidence, First, Science, Scientometric

Leydesdorff, L. (1991), On the ‘scientometric decline’ of British Science: One additional graph in reply to Ben Martin. *Scientometrics*, **20** (2), 363-367.

Full Text: [1991\Scientometrics20, 363.pdf](1991/Scientometrics20,%20363.pdf)

Abstract: With respect to the issue of whether the scientometric measurement of ‘the decline of British science’ is an artifact of the specific database and underlying assumptions in methods, I argue that there are fewer analytical objections against measurement by using SciSearch Online than against other methods (based on the ‘fixed journal set’ and ‘fractional counting’). The measurement of ‘international co-authorship’, i.e. a network indicator, should not be confounded with measurement of performance of a single nation. The time series for the different subsets of UK-publications, which have been proposed, are given. None of the indicators can be shown to exhibit a trend (in contrast to a drift). The hypothesis of a decline has therefore to be rejected.

Keywords: Assumptions, Database, Indicator, Indicators, Journal, Measurement, Methods, Network, Scientometric

Kealey, T. (1991), Government-Funded Academic Science is a consumer good, not A producer good: A comparative reassessment of Britain’s Scientific and Technological Achievements since 1794 and a comment on the bibliometry of B. Martin and J. Irvine. *Scientometrics*, **20** (2), 369-394.

Full Text: [1991\Scientometrics20, 369.pdf](1991/Scientometrics20,%20369.pdf)

Abstract: Martin and Irvine believe that their bibliometric data indicates that British science is in decline. This paper shows that, in fact, their data points to a considerable expansion in British science. To account for different countries’ scientific performance, this paper generates simple predictive formulae that correlate Gross National Product with research output.

Keywords: Bibliometric, Britain, British Science, Decline, Facts, Figures, Research, Science

? Cohen, J.E. (1991), Size, age and productivity of scientific and technical research groups. *Scientometrics*, **20** (3), 395-416.

Full Text: [1991\Scientometrics20, 395.pdf](1991/Scientometrics20,%20395.pdf)

Abstract: Varied empirical studies show that the average output (measured in various ways) of a scientific or technical research group is directly proportional to its size (also measured in various ways), when the size and output are measured independently. Hence groups of different sizes have the same average output per unit of size. There is no reliable evidence for the existence of a size or a range of sizes for a research group that maximizes output per unit of size. Present theoretical explanations for the proportionality between size and output are largely inadequate or untested. Similarly, among reported results on group age and output, the only consistency so far is that age, measured as years since the founding or first functioning of the group, is uncorrelated with output per capita. Again, there is no evidence for the existence of an age or a range of ages for a research group that is optimal.

Keywords: Evidence, First, Laboratory Size, Physics, Publication Rate, Research, Science, Size

? Logan, E.L. and Shaw, W.M., Jr. (1991), A bibliometric analysis of collaboration in a medical specialty. *Scientometrics*, **20** (3), 417-426.

Full Text: [1991\Scientometrics20, 417.pdf](1991/Scientometrics20,%20417.pdf)

Abstract: Investigating the relationships found in the documentation of a subject field is one method of examining the communication taking place in the field. Bibliometrics provides an objective method for this type of investigation. Coauthorship, while intuitively seeming to indicate strong communication links, nevertheless has been shown to produce graphical structures that vary with changes in threshold. Having determined that clustering structure does exist in the data, preferred partitions are identified as those least likely to have occurred by chance. Further analysis is made to test that the preferred or ‘meaningful’ structures produced from the coauthor relationship do indeed correspond with empirical evidence of ‘meaning’. A small dataset of 371 authors and 550 coauthor pairs is used to investigate correspondence between experimental structures and empirical evidence. Results show that components of the experimental structures are largely consistent with subject content groups as determined by index terms. Geographic focus accounts for about half the cases showing term overlap. Hence, we have some evidence that bibliometric structures determined from the coauthor relationship may be consistent with networks of communication. If this continues to be documented by further research, bibliometric analysis of coauthor relationships found in the scholarly communication of a subject area can become a basic tool for communication research.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometrics, Changes, Clustering, Communication, Documentation, Evidence, Experimental, Graph, Investigation, Research, Scholarly Communication, Small, Structure

? Richards, J.M. (1991), Years cited - An alternative measure of scientific accomplishment. *Scientometrics*, **20** (3), 427-438.

Full Text: [1991\Scientometrics20, 427.pdf](1991/Scientometrics20,%20427.pdf)

Abstract: Citation counts often are used to measure scientific accomplishment. It is very difficult, however, to compute accurate citation counts in research where one has a list of scientists but not their complete bibliographies. At the same time, procedures are available that permit informed judgments about whether given scientists were cited at all in given years. The possibility of such judgments suggested that the number of years in which scientists were cited might be used as an alternative measure of scientific accomplishment. This possibility was explored in two studies, one based on 2,713 population scientists and the other on 135 articles published in the journal Fertility and Sterility. Years cited was easy to compute, and had good descriptive statistics, satisfactory generalizability coefficients, high correlations with total citation counts, and distributions little influenced by outliers. These results supported the appropriateness of the years cited measure.

Keywords: Alternative, Bibliographies, Citation, Citation Counts, Correlations, Eminence, Journal, Population, Procedures, Psychology, Research, Science, Statistics

? Vanraan, A.F.J. (1991), Fractal geometry of information space as represented by co-citation-clustering. *Scientometrics*, **20** (3), 439-449.

Full Text: [1991\Scientometrics20, 439.pdf](1991/Scientometrics20,%20439.pdf)

Abstract: In this paper we discuss geometrical properties of ‘information space’ as represented by the phenomenon of co-citation clustering. More specifically, the size distribution of co-citation clusters is studied and interpreted in terms of fractal dimensions.

Keywords: Clustering, Co-Citation, Cocitation, Fractal, Information, Science, Size

? Schubert, A. (1991), Quantitative studies of science a current bibliography No. 17. *Scientometrics*, **20** (3), 451-458

Full Text: [1991\Scientometrics20, 451.pdf](1991/Scientometrics20,%20451.pdf)

? Yitzhaki, M. and Bentamar, D. (1991), Number of references in biochemistry and other fields - A case-study of the journal of biological chemistry throughout 1910 - 1985. *Scientometrics*, **21** (1), 3-22.

Full Text: [1991\Scientometrics21, 3.pdf](1991/Scientometrics21,%203.pdf)

Abstract: Large samples of papers published in the Journal of Biological Chemistry in all decades and in some mid-decades were checked in order to study the referencing pattern, throughout the period 1910-1985, in an internationally leading journal, with especially high “citation impact”. All measures show that there has been a significant growth in the number of references per paper, during most of the period, but mainly from the 1950’s on, refuting Meadows’ “upper limit”. A detailed comparison to a wide range of fields shows the JBC rates to be among the highest. Eight factors affecting the number of references are discussed, and some projections for the future are made.

Keywords: Citation Analysis, Comparison, Growth, Impact, Journal, Literatures, Papers, Referencing, Social-Sciences

? Pouris, A. (1991), Identifying areas of strength in South-African technology. *Scientometrics*, **21** (1), 23-35.

Full Text: [1991\Scientometrics21, 23.pdf](1991/Scientometrics21,%2023.pdf)

Abstract: This article is an attempt to identify the strengths and weakness of South African technology as they are manifested in patent analysis. Using the “Technological Activity and Impact Indicators Database” of CHI Research/Computer Horizons, Inc., we identified the South African Innovation profile for the period 1975-1988. Patents are analysed in their aggregate form in patent classes, Standard Industrial Classes and technologically similar classes. The result indicates a shift of activity from low medium technology fields and a weakness in high technology fields. Comparison of scientific and technological activity also reveals that South Africa contributes five times as much in international science than it does in technology. Detailed analyses indicate the rise of a defence related industry in the country and reveal areas of emphasis and neglect.

Keywords: Analysis, Indicators, International, Neglect, Patent, Patent Analysis, Science, South Africa, Technological Activity, Technology

? Bridgstock, M. (1991), The quality of single and multiple authored papers - An unresolved problem. *Scientometrics*, **21** (1), 37-48.

Full Text: [1991\Scientometrics21, 37.pdf](1991/Scientometrics21,%2037.pdf)

Abstract: Evidence is examined for the repeated claim that published papers with more than one author are, on average, of higher quality than those with a single author. Among published studies it is shown that no clear conclusion can be drawn, though evidence supporting the claim is stronger in astronomy and physics than among the social sciences. An empirical study of 656 papers in four Australian science journals produced negative results. Possible reasons for the differing results, and difficulties in researching the field, are highlighted.

Keywords: Citations, Evidence, Journals, Papers, Physics, Productivity, Publication, Quality, Science, Science Journals, Sciences, Scientific Collaboration, Social Sciences, Trends

? Sikorav, J.L. (1991), The utility of scientific papers. *Scientometrics*, **21** (1), 49-68.

Full Text: [1991\Scientometrics21, 49.pdf](1991/Scientometrics21,%2049.pdf)

Abstract: This article investigates the function of scientific papers in the production of scientific knowledge. for this production, the citations made of these papers in the scientific literature can be considered as economic utilities. The work of the scientist is described as the production of citations by means of citations. The number of citations received by a given paper can be used to measure the paper’s formal utility. The formal utility of scientific papers is studied empirically. It is concluded that the references contained in a scientific paper are a major determinant of its future utility.

Keywords: Articles, Basic Research, Citation Analysis, Citations, Economics, Function, Information, Knowledge, Literature, Obsolescence, Papers, Progress, Utility, Work

? Lemarc, M., Courtial, J.P., Senkovska, E.D., Petard, J.P. and Py, Y. (1991), The dynamics of research in the psychology of work from 1973 to 1987 - from the study of companies to the study of professions. *Scientometrics*, **21** (1), 69-86.

Full Text: [1991\Scientometrics21, 69.pdf](1991/Scientometrics21,%2069.pdf)

Abstract: We use a co-word analysis of the key words of 6055 articles that appeared in the psychology of work from 1973 to 1987 and were listed in the PASCAL database to bring out changes in the scientific themes of the field. We can discern which themes remained significant and which disappeared, as well as the psychology of work’s borrowings from and contributions to other disciplines. Co-word analysis therefore constitutes a new tool in the science policy arena.

Keywords: Analysis, Changes, Database, Policy, Psychology, Science, Science Policy, Work

? Budd, J. and Hurt, C.D. (1991), Superstring theory - Information-transfer in an emerging field. *Scientometrics*, **21** (1), 87-98.

Full Text: [1991\Scientometrics21, 87.pdf](1991/Scientometrics21,%2087.pdf)

Abstract: This paper traced an individual paper through the literature as it garnered citations. This paper was chosen because of its seminal nature in a highly controversial area of theoretical physics. The distribution of citations was tested against models suggested by Price and Kuhn as well as compared to other studies which also examined benchmark papers. The results indicate that the paper chosen behaved in a significantly different way from most of the prior models. The suggestion is made that further study of this and papers like it will add much to the theory of information transfer in science.

Keywords: Citations, Information, Literature, Models, Papers, Science, Theory

? Markusova, V.A. and Griffith, B.C. (1991), Highly cited Soviet journals in the physical and life sciences - A study of the function of journals. *Scientometrics*, **21** (1), 99-113.

Full Text: [1991\Scientometrics21, 99.pdf](1991/Scientometrics21,%2099.pdf)

Abstract: the research developed from the identification of the most highly cited Soviet journals in the physical and life sciences. Several measures of growth and citedness were taken at the beginning and end of a recent five-year period, 1982-87, in order to generally assess the functions of these journals. The research involved making comparisons among these groupings of journals and control groupings of journals with similar content, but not published in the Soviet Union. Differences in citedness could be related, in the physical sciences, to the scale of Russophone science within world sciences, but not in the life sciences. In the physical sciences, there are increases in the citedness across Soviet and Western journals; but in the Soviet journals the increase is several times greater than in the control grouping. In sharp contrast, the largest, most cited, Western life sciences’ journals have increased in citedness and other groupings, including Soviet journals, have declined. The measures on control groups show that the extreme levels of improvement in citedness on the part of Soviet physical sciences’ journals reflect local, i.e. Soviet, developments. The decrease in citedness of Soviet life sciences’ journals seems, instead, tied broadly to events in the world life sciences’ literature. There has been, apparently a “centralizing” of attention within those discipline on those few journals publishing major findings while leaving the rest of the world literature behind. In addition, the research developed several findings on the formal properties of the measures used.

Keywords: Control Groups, Functions, Growth, Identification, Journals, Life, Life Sciences, Literature, Physical Sciences, Publishing, Research, Science, Sciences

? Cesaratto, S., Mangano, S. and Sirilli, G. (1991), The innovative behavior of italian firms - A survey on technological innovation and research-and-development. *Scientometrics*, **21** (1), 115-141.

Full Text: [1991\Scientometrics21, 115.pdf](1991/Scientometrics21,%20115.pdf)

Abstract: This paper is based on the findings of a survey on technological innovation in the Italian industry. All Italian manufacturing firms were screened in the analysis and, at the end of a screening process, 8,220 of them, which had introduced relevant technological innovations over the period 1981-1985, filled out either a mail questionnaire or were covered through a personal interview. Data and preliminary comments on the following problem-areas are set in the paper type of innovation introduced in the firm (product, process), impact of innovations on the firm’s products and sales, cost of innovation, technological relevance of innovations introduced, impact of innovations on the utilization of input factors, factors linked to the introduction of innovation, performance of R & D. Data show that technological innovation is a complex aspect of company life; it relates to both products and production processes: in more than half of the cases firms introduced both product and process innovations, whereas only products or processes were introduced in about 20 per cent of cases, respectively. It is also apparent that the majority of innovations are new only for the firm, and that only a limited share are new for the sector or for the country. Looking at the techno-scientific “quality” of the innovations introduced, quite often innovations were classified as technical improvements or enhancements, and in a very limited number of cases they were considered as applications of a scientific breakthrough. The breakdown of the innovation costs shows that, on average, more than half of the cost is attributed to investment (machinery, equipment, etc) one fourth to engineering and design activity, one fifth to R & D and the remaining 5 per cent to marketing activities. The most important factor linked to the introduction of innovation appears to be the acquisition of plant and machinery. This confirms the result of previous analyses which show that the introduction of new technologies hinges upon new machinery and equipment, often the sole means for the acquisition of technology produced by other economic agents - a diffusion and adaptation process is occurring. R & D was mentioned in a limited number of cases. In the paper a quantitative and qualitative analysis of the R & D performed by the firm is reported. In particular, it is shown that the number of R & D performing manufacturing firms is more than double that which emerges from the annual survey on research and development activities carried out by the Italian Central Statistical Office.

Keywords: Adaptation, Analysis, Breakthrough, Cost, Costs, Development, Diffusion, Equipment, Innovation, Life, Marketing, Plant, Qualitative, Qualitative Analysis, Questionnaire, Relevance, Research, Research and Development, Screening, Sector, Survey, Technological Innovation, Technologies, Technology, Utilization

Vinkler, P. (1991), Magic triangle for three relative impact indicators. *Scientometrics*, **21** (1), 143-146.

Full Text: [1991\Scientometrics21, 143.pdf](1991/Scientometrics21,%20143.pdf)

Abstract: Simple relations were found between Relative Citation Rate (RCR), Relative Subfield Citedness (R(w)) and Subfield Publication Strategy (P(s)) indicators. The R(w) indicator is supposed to be more characteristic of the international scientific impact of papers than RCR using mean citation rate of journals representing the respective subfield, as standard.

Keywords: Citation, Indicator, Indicators, International, Journals, Papers, Relations, Standard

? Garg, K.C. and Sharma, P. (1991), Solar power research - A scientometric study of world literature. *Scientometrics*, **21** (2), 147-157.

Full Text: [1991\Scientometrics21, 147.pdf](1991/Scientometrics21,%20147.pdf)

Abstract: An analysis of the output of the literature scanned in Engineering Index during 1970-84 on solar power research indicates that the growth of the literature had been vigorous after the energy crisis in 1973 till 1982. The number of papers at conferences are quite close to the number of references in journals. The area of solar collectors and solar cells has received maximum attention. Publication output of literature by different countries follows the trend in basic sciences with USA being the major producer. The research activity became global after the energy crisis. Performance of the developed countries is low in some fields of solar power.

Keywords: Analysis, Conferences, Growth, Journals, Literature, Papers, Research, Sciences, USA

? Englisch, H. (1991), Monotonous structure measures for social-groups. *Scientometrics*, **21** (2), 159-169.

Full Text: [1991\Scientometrics21, 159.pdf](1991/Scientometrics21,%20159.pdf)

Abstract: the structure measure by Kretschmer1 estimates the cooperation of a scientist. It is generalized in such a way that it increases with respect to the cooperation strength with one of the collaborators. An alternative to the hierarchical structure measure is proposed which is continuous in all cooperation strengths.

Keywords: Alternative, Citations, Cooperation, Estimates, Hierarchical Structure, Structure

? Zhu, J., Meadows, A.J. and Mason, G. (1991), Citations and departmental research ratings. *Scientometrics*, **21** (2), 171-179.

Full Text: [1991\Scientometrics21, 171.pdf](1991/Scientometrics21,%20171.pdf)

Abstract: A recent extensive review of research in British universities has produced a research rating for each university department based primarily on peer review of the department’s publications. In this preliminary study, we compare these ratings with publication and citation data for the chemistry departments at two British universities. The results underline the importance of the most productive researchers in departments. This point is supported by citation data from a chemical engineering department.

Keywords: Chemistry, Citation, Peer Review, Peer-Review, Publication, Publications, Research, Review, Universities, University

? Burrell, Q.L. (1991), The Bradford distribution and the Gini index. *Scientometrics*, **21** (2), 181-194.

Full Text: [1991\Scientometrics21, 181.pdf](1991/Scientometrics21,%20181.pdf)

Abstract: It is pointed out that the so-called “Bradford distribution” derived by Leimkuhler is more properly viewed as the theoretical form of a variant of the Lorenz curve. The equation of this Leimkuhler curve allows an easy calculation of the Gini coefficient of concentration which can be compared with empirical values.

Keywords: Lorenz, Rule

Notes: UUniversity

? Zachos, G. (1992), Research output evaluation of two university departments in Greece with the use of bibliometric indicators. *Scientometrics*, **21** (2), 195-221.

Full Text: [1991\Scientometrics21, 195.pdf](1991/Scientometrics21,%20195.pdf)

Abstract: the results of a study for evaluating research performance of two Greek University Departments of Mathematics are presented. In order to achieve this elements from the Sussex and Leiden methodologies of constructing and using bibliometric indicators were used. Comparison of the two groups were based on their similarities. The convergence of bibliometric indicators procedure as applied in Leiden methodology together with a number new bibliometric indicators were used. Results shown that bibliometric indicators if applied properly may give very interesting information on the research performance and nature of research carried out in University Departments.

Keywords: Bibliometric, Bibliometric Indicators, Greece, Indicators, Information, Methodology, Research, Research Performance, Science

Lewison, G. and Cunningham, P. (1991), Bibliometric studies for the evaluation of trans-national research. *Scientometrics*, **21** (2), 223-244.

Full Text: [1991\Scientometrics21, 223.pdf](1991/Scientometrics21,%20223.pdf)

Abstract: Results are given of an analysis of the scientific papers describing work carried out under two European Community research programmes, in biotechnology and environmental chemicals. They were shown to be more multinational in their authorship than other papers in the same journals, and as a consequence, more frequently cited in the 5 years following publication. The citation rates peak early for the biotechnology papers suggesting that effective measures have been taken to disseminate the results of the work to other scientists so that they have become aware of them earlier than usual

Keywords: Analysis, Authorship, Biotechnology, Citation, Environmental, Journals, Papers, Publication, Research, Work

? Bonzi, S. and Snyder, H.W. (1991), Motivations for citation - A comparison of self citation and citation to others. *Scientometrics*, **21** (2), 245-254.

Full Text: [1991\Scientometrics21, 245.pdf](1991/Scientometrics21,%20245.pdf)

Abstract: the citation motivations among 51 self citing authors in several natural science disciplines were investigated. Results of a survey on reasons for both self citation and citation to others show that there are very few differences in motivation, and that there are plausible intellectual grounds for those differences which are substantial. Analysis of exposure in text reveals virtually no differences between self citations and citations to others. Analysis of individual disciplines also uncover no substantive differences in either motivation or exposure in text.

Keywords: Citation, Citations, Classification, Exposure, Science, Self, Self-Citation, Survey

? Massimo, L. (1991), The use of indicators in the research-and-development evaluation activity of the European communities. *Scientometrics*, **21** (3), 255-262.

Full Text: [1991\Scientometrics21, 255.pdf](1991/Scientometrics21,%20255.pdf)

Abstract: the goals of the evaluation of the R & D programmes of the Commission of the European Communities is to assess, beside scientific and technical achievements, the added value due to the implementation of these activities at European level. This requires the development of techniques different from those normally used for the measurement of scientific output. In particular a number of indicators have been developed to assess international cooperation promoted by EC programmes and the resulting economic and industrial impact.

Keywords: Cooperation, Development, EC, Evaluation, Indicators, International, International Cooperation, Measurement, Scientific Output, Techniques

? Bobe, B. (1991), Trends in the use of research-and-development output indicators in EC program-evaluation. *Scientometrics*, **21** (3), 263-282.

Full Text: [1991\Scientometrics21, 263.pdf](1991/Scientometrics21,%20263.pdf)

Abstract: This paper rests upon a review of 15 evaluation reports of R & D programmes worked out during the 80’s by the European Commission. The analysis aims at answering the main questions: Why did emerge the needs for output indicators in the middle of the 80’s? What kind of output indicators were built up (or tentative)? With which methodology? What were their actual use in the evaluation reports? the linkage between EC R & D policies and evaluation is examined in order to discuss the relationships between the goals of R & D programmes and the criteria for evaluation. It is shown that the followed evaluation methodology and the evaluation goals at hand are paramount for the choice of output indicators: such goals encompass a.o. The description of the programmes, the assessment of the contractors opinion, the appraisal of the “techno-economic” effects of the programmes. As a result “expected output indicators” were developed (BRITE programme). On the other hand, one has called “meta-evaluation”, the indirect measurement of Scientific results by bibliometry (BEP-BAP programmes). Similarly, “intermediate indicators” were built up for evaluating the programmes management performance (ESPRIT programme). At last “derived output indicators” were used for techno-economic evaluation, (EURAM programmes) leading to the quantified global judgement of a “before-after” methodology, (SCIENCE-STIMULATION programmes).

Keywords: Analysis, Assessment, Bibliometry, Criteria, Ec, Evaluation, Indicators, Linkage, Management, Measurement, Methodology, Needs, Review

? Collins, P.M.D. and Ringe, M.J. (1991), Europeanization of the market for contract research. *Scientometrics*, **21** (3), 283-289.

Full Text: [1991\Scientometrics21, 283.pdf](1991/Scientometrics21,%20283.pdf)

Abstract: This paper outlines the results of a recent survey of the UK contract research market, estimated at 900 MECU (1988/89). Most UK contract research organization (CROs) undertake a small but significant amount of overseas contract R & D (both for other Member States and elsewhere), and see this increasing as the Single European Market (SEM) develops. Most UK CROs have participated in EC R & D programmes and viewed involvement as a, generally, positive experience. UK Industrial customers of contract R & D, although more UK orientated, also believe the SEM will increase the amount of contracting from Member States. Industrial companies involved in EC R & D programmes also noted benefits from involvement. Both UK CROs and the industrial customer organizations saw the SEM and the associated Europeanization process as enhancing commercial contacts with organizations in other Member States.

Keywords: Contract, EC, Market, Research, SEM, Small, Survey, UK

? Moed, H.F., Debruin, R.E., Nederhof, A.J. and Tijssen, R.J.W. (1991), International scientific cooperation and awareness within the European community - Problems and perspectives. *Scientometrics*, **21** (3), 291-311.

Full Text: [1991\Scientometrics21, 291.pdf](1991/Scientometrics21,%20291.pdf)

Abstract: International scientific co-operation (ISC) and awareness are topics of increasing interest for both scientists and science policy makers. In this paper, we adopt primarily the science policy point of view. After a concise overview of the literature we summarize the main results of the research we conducted. The main outcome with respect to ISC is that it increases. However, large differences exist between countries and between scientific disciplines. ISC and awareness constitute a complex phenonenon, affected by several factors, science-internal, as well as external. In the paper several techniques are described, amongst which those that can visualize ISC relations through analytical maps. An important aspect of our research methodology is the combination of various quantitative, bibliometric analyses and qualitative research on the structure of science and the relations between science and society. Finally, we sketch perspectives for future research.

Keywords: Bibliometric, Cooperation, Literature, Methodology, Policy, Qualitative, Qualitative Research, Relations, Research, Science, Science Policy, Society, Structure, Techniques

Narin, F., Stevens, K. and Whitlow, E.S. (1991), Scientific co-operation in Europe and the citation of multinationally authored papers. *Scientometrics*, **21** (3), 313-323.

Full Text: [1991\Scientometrics21, 313.pdf](1991/Scientometrics21,%20313.pdf)

Abstract: Under the sponsorship of the U.S. National Science Foundation, CHI Research, Inc. developed the bibliometric indicators for the U.S. National Science Board’s Science Indicators Reports starting with Science Indicators 1972. In the work reported here, for the Commission of the European Communities, CHI has extended the Science Indicators techniques and database to a study of publication, coauthorship and citation within 28 scientific fields related to various European Community programs.

Perhaps the most important finding of the research was that internationally coauthored papers - papers authored by scientists affiliated with institutions in more than one EC country - were cited two times as highly as papers authored by scientists working at a single institution within a single country. These EC-EC internationally coauthored papers were cited as highly as EC-Non EC and Non-EC papers. This indicates that the internationally linked European science is of as high impact as any other science in the world.

A second key finding was that, after compensating for national scientific size, the degree of international coauthorship did not appear to be particularly dependent upon size. However, linguistic and cultural factors were found to be very strong. The patterns of coauthorship amongst the European countries are far from homogeneous, and are quite heavily affected by linguistic, historical, and cultural factors.

Finally, it was found that international coauthorship is increasing steadily, both within and outside of the Community, with some evidence that international cooperation is increasing more rapidly in scientific fields that have been targeted by the Commission.

Keywords: Bibliometric, Bibliometric Indicators, Citation, Coauthorship, Cooperation, Cultural, Database, EC, Europe, Evidence, Indicators, Institutions, International, International Cooperation, Papers, Publication, Research, Science, Size, Techniques, Work

? Dahl, M. and Lahlou, S. (1991), Measurement of network effects from the EC science stimulation programs. *Scientometrics*, **21** (3), 325-342.

Full Text: [1991\Scientometrics21, 325.pdf](1991/Scientometrics21,%20325.pdf)

Abstract: Each of the EC research programmes has to be evaluated with respect to their objectives. This paper describes the study of the effects of the SCIENCE/STIMULATION Programmes on all the laboratories that participated in contracts which were still running at the time of the study. The study was designed with special regard to the short time available. Nevertheless, it yielded sufficient data to justify a clustering of the laboratories networks in four classes as they looked before the contract and in six classes as they looked afterwards. Thus, the study provided quantification of the links among the laboratories. We find that the method is feasible within the constraints set, but we recommend that further theoretical work be done on the concept of networks as well as on the processing of the data and, more ambitiously, that more global studies be made possible by use of this method on other surveys.

Keywords: Clustering, Contract, EC, Research, Work

? Teichler, U. (1991), Evaluation of the EC training fellowship program based on a fellows questionnaire survey. *Scientometrics*, **21** (3), 343-365.

Full Text: [1991\Scientometrics21, 343.pdf](1991/Scientometrics21,%20343.pdf)

Abstract: Major findings are reported of a survey of scientists and engineers awarded an EC Training Fellowship between 1966 and 1988. 472 former fellows and 140 renonces, i.e. declining the fellowship awarded, report about academic experiences in another EC country and administrative issues of the fellowship as well as subsequent careers. The article places special emphasis on the 12 percent of former fellows from less favoured regions of the European community. They turn out to regard the fellowship more favourably than fellows from advanced regions, but would prefer other options, if they could decide again.

Keywords: Careers, Community, EC, Survey

? Higgins, T. (1991), Indicators of European scientific cohesion. *Scientometrics*, **21** (3), 367-381.

Full Text: [1991\Scientometrics21, 367.pdf](1991/Scientometrics21,%20367.pdf)

Abstract: Cohesion, as a concept, may be related to symbiosis. It implies an association of dissimilar entities to their mutual advantage. It is a particularly appropriate concept for the Community itself, and a very important one, as Europe moves towards greater integration. Economic, political and institutional integration will occur more easily and quickly if cohesion between the different elements involved can be achieved. Cohesion of the European scientific Community, can play a role in assisting (or delaying) the overall movement of the Community towards greater and more lasting integration. Cohesion of the scientific community implies, among other things; - free and open exchange of information, - joint planning and execution of projects, - access to facilities and results, - narrowing of disparities in scientific and technical capability between regions and Member States. There is evidence that progress is being made in respect of a number of these. Under the stimulus of the Framework Programme, the scientific community in Europe has become a more cohesive force. An important indicator of this is the level of participation by regions and Member States in the Programme. However, while some regions and Member States are major participants, there are grounds for concern about the level of participation of certain peripheral and Less Favoured Regions.

Keywords: Access, Association, Community, Europe, Evidence, Facilities, Force, Indicator, Information, Integration, Planning

Lewison, G. (1991), The scientific output of the ECs less favored regions. *Scientometrics*, **21** (3), 383-402.

Full Text: [1991\Scientometrics21, 383.pdf](1991/Scientometrics21,%20383.pdf)

Abstract: Results are given of a bibliometric study covering 1977-86 and 28 scientific fields defined by journals and title keywords. Attention was focussed on publications from less favoured regions of the EC, containing 20% of the population, 10% of the g.d.p., but only 5% of scientific output, although this is growing rapidly. The scientific strengths of the different LFRs vary and details are given. Finally, some appropriate indicators are suggested to measure the effectiveness of scientific infrastructure support planned for these regions.

Keywords: Bibliometric, Bibliometric Study, EC, Effectiveness, Indicators, Journals, Population, Publications, Scientific Output

Tsipouri, L.J. (1991), Effects of EC research-and-development policy on Greece: Some thoughts in view of the stride program. *Scientometrics*, **21** (3), 403-416.

Full Text: [1991\Scientometrics21, 403.pdf](1991/Scientometrics21,%20403.pdf)

Abstract: Evidence from Greece suggests that after its accession to the EC the country benefited from a limited transfer of resources in form of R & D subsidies, which were heavily concentrated both sectorally and institutionally, hardly leading to marketable innovations. A detailed analysis shows though that the country benefited more from the EC technology policy in the form of a) subsidies for R & D infrastructure and b) quick adaptation of its institutions to new challenges. Based on this experience it is suggested that STRIDE, a Community R & D programme for less favoured regions, be evaluated with both cohesion and excellence indicators.

Keywords: Adaptation, Analysis, Countries, EC, Figures, Greece, Indicators, Institutions, Management, Policy, Publication Output, Relative Citation Impact, Science, Search, Technology, Version

? Grupp, H., Schmoch, U. and Kuntze, U. (1991), Patents as potential indicators of the utility of EC research programs. *Scientometrics*, **21** (3), 417-445.

Full Text: [1991\Scientometrics21, 417.pdf](1991/Scientometrics21,%20417.pdf)

Abstract: In the framework of the MONITOR-SPEAR programme of the Commission of the European Communities a critical review of the literature with regard to the utility of patent indicators being in use for evaluation world-wide has been undertaken. Availability, scope and complementarity of these indicators are discussed. A practical tool to use patent indicators for evaluation committees of EC programmes is designed and recommendations for EC procedures are given. The suggested procedures will be implemented alongside three sample exercises. One of the exercise programmes is science-led (BEP and BAP), one industry-led (BRITE I) and one interphase (MHR). In this paper only selected examples with respect to the MHR programme are outlined and discussed. The project is not completed yet and only preliminary findings will be given in this paper. From the viewpoint of its present state it is concluded that patent indicators may play a very useful role within a mixed set of evaluation procedures. The intersection with other methods is not very large, that is, patent indicators may provide supplementary information to a large extent. However, their use is limited to those types of programmes which are relevant for intellectual property rights mostly in the commercial realm. Patent indicators share with other evaluation tools the problem of best adjustment of time windows between observation and execution of the programme. Despite of these limitation, patent indicators may be employed properly as output indicators related to ongoing EC programmes, but as well for prospective analysis of applied fields of R & D and may thus help in the definition phase of new R & D programmes.

Keywords: Analysis, EC, Evaluation, Framework, Indicators, Information, Innovation, Intellectual Property, Literature, Methods, Patent, Procedures, Recommendations, Review, Rights, Utility

? Courtial, J.P. and Callon, M. (1991), Indicators for the Identification of Strategic Themes Within A Research-Program. *Scientometrics*, **21** (3), 447-458.

Full Text: [1991\Scientometrics21, 447.pdf](1991/Scientometrics21,%20447.pdf)

Abstract: the co-word method (Leximappe programme) is used to illustrate the essential themes of international research based on the computer analysis of databases of scientific articles and patents. Further, we illustrate that these themes often follow characteristic cycles. Research projects submitted to a research funding organisation were subjected to a similar analysis. It was then possible in one sense to evaluate the relevance of funding support, particularly in terms of the degree of maturity of international research.

Keywords: Analysis, International, Patents, Relevance, Research, Research Funding

? Parthey, H. and Schuetze, W. (1991), Distribution of publications as an indicator for the evaluation of scientific programs. *Scientometrics*, **21** (3), 459-464.

Full Text: [1991\Scientometrics21, 459.pdf](1991/Scientometrics21,%20459.pdf)

Abstract: This article describes investigations into the publication behaviour of scientific authors from the GDR. The obtained data revealed that - analogous to the Lotka-distribution - not only a fifth of all authors produce half of the publications of a certain institute, but that these authors also have a quicker reaction time and receptivity to new international research problems. These findings may make it possible to substantiate proposals by guiding scientists in the direction of themes, respectively to help the science policy in the process of the elaboration of new research programs.

Keywords: Behaviour, International, Policy, Publication, Publications, Research, Science, Science Policy

? Barre, R. (1991), Indicators of the emerging european S-and-T space - Results of the 1st international-conference on european S-and-T indicators. *Scientometrics*, **21** (3), 465-469.

Full Text: [1991\Scientometrics21, 465.pdf](1991/Scientometrics21,%20465.pdf)

Abstract: the European construction has been developping in new areas and at an accelerated pace for the last few years, in the perspective of the single European market of 1993. One of the important aspects of this evolution has been the establishment of a “European science and technology (S & T) space”, through the successive “Framework Programs” of the Commission of the European Community. The present conference highlighted one result: we have now measurable hints of the emergence of such a “European S & T space”. The various papers which were presented document indeed the various facets of this new reality of a multinational research system taking shape. This new reality has been put in evidence through a series of appropriate S & T indicators. These indicators have been developped by a number of research teams, in general with the financial support of the EC, as a response to an evaluation challenge linked itself to a S & T policy one. In turn, they led to a challenge on S & T indicators: this conference showed that the latter could - at least partially - be met.

Keywords: EC, Evaluation, Evidence, Evolution, Financial Support, Indicators, Market, Papers, Policy, Research, Science, Science and Technology, Technology

Notes: CCountry

? Turner, W.A. (1991), An introduction to scientometrics in France. *Scientometrics*, **22** (1), 5-8.

Full Text: [1991\Scientometrics22, 5.pdf](1991/Scientometrics22,%205.pdf)

Keywords: France, Scientometrics

? Davoust, E. and Schmadel, L.D. (1991), A study of the publishing activity of astronomers since 1969. *Scientometrics*, **22** (1), 9-39.

Full Text: [1991\Scientometrics22, 9.pdf](1991/Scientometrics22,%209.pdf)

Abstract: This is a statistical analysis of the publishing activity of astronomers worldwide, as measured by the number of papers and monographs published in the period 1969-87. Both the astronomical literature and the number of authors publishing in the field are increasing rapidly. The distribution of productivity among astronomers is followed in time, thus revealing the evolution of research methods and publication strategies in the past 19 years. Fourteen “superproductive” astronomers, who published over 150 papers in 15 years, and the subsample of French astronomers active in 1986 are investigated separately.

Keywords: Ages, American Astronomers, Analysis, Citations, Evolution, Growth, Literature, Methods, Most-Cited Papers, Papers, Publication, Publishing, Rates, Research, Statistical Analysis

Notes: UUniversity

? Le Minor, S. and Dostatni, P. (1991), A bibliometric study of the publications of the French national institute for health and medical research (INSERM). *Scientometrics*, **22** (1), 41-64.

Full Text: [1991\Scientometrics22, 41.pdf](1991/Scientometrics22,%2041.pdf)

Abstract: An ‘INSERM bibliometric database’, which lists the publications of researchers at the French National Institute for Health and Medical Research, was compiled by downloading references from the MEDLINE and the Science Citation Index (SCI) bibliographical databases, and by using micro-computing techniques. MEDLINE and the SCI proved to be complementary data sources well-suited to this work. Initial results of an analysis of this INSERM bibliometric database are given. They help to situate the organization’s written production in a national and an international context and, in particular, to trace the ‘profile’ of the Institute’s researchers and the impact of the journals used in their publications.

Keywords: Analysis, Bibliometric, Complementary, Database, International, Journals, MEDLINE, Publications, SCI, Science Citation Index, Techniques, Work

? Jagodzinskisigogneau, M., Bauin, S., Courtial, J.P. and Feillet, H. (1991), Scientific innovation in bibliographical databases - A comparative-study of the science-citation-index and the pascal database. *Scientometrics*, **22** (1), 65-82.

Full Text: [1991\Scientometrics22, 65.pdf](1991/Scientometrics22,%2065.pdf)

Abstract: This study compares information obtained from the INIST/CNRS bibliographical database PASCAL with that found in the Atlas of Science published by ISI. The goal of the comparison was to contribute to a better understanding of how databases can be used to carry out fine-grained studies of social and cognitive factors which affect the definition of a scientific research program. The program studied concern the development of research on “brush-border” cell membranes.

Keywords: Comparison, Database, Development, Information, ISI, Research, Science Citation Index, Scientific Research, Understanding

? Dou, H., Quoniam, L. and Hassanaly, P. (1991), The scientific dynamics of a city - A study of chemistry in Marseilles from 1981 to the present. *Scientometrics*, **22** (1), 83-93.

Full Text: [1991\Scientometrics22, 83.pdf](1991/Scientometrics22,%2083.pdf)

Abstract: In a study of scientific publications originating from laboratories in the city of Marseille, we look at both the quantitative evolution of these publications over time and their thematic development. Using the section headings of the Chemical Abstract database, we identify the principal research poles of the city and their relationships.

Keywords: Database, Development, Evolution, Publications, Research, Scientific Publications

? Barre, R. (1991), Clustering research fields for macro-strategic analysis - A comparative specialization approach. *Scientometrics*, **22** (1), 95-112.

Full Text: [1991\Scientometrics22, 95.pdf](1991/Scientometrics22,%2095.pdf)

Abstract: the goal of this article is to show that it is possible to construct an index to measure a country’s relative specialization in different scientific fields in a way which is both reliable and relevant for macro-strategic analysis. We will call this index a “Revealed Scientific Advantages Index”. The technical problem to be discussed is one of aggregation: how can we be sure that an index calculated for a small number of relatively large fields does not mask significant differences that might have shown up had a lower level of data aggregation been used? Science policy needs synthetic measures which am easy to interpret. We will show that the “Revealed Scientific Advantages’ approach offers the possibility of building them. The study itself is based on figures obtained through an exploitation of the INIST/CNRS PASCAL database classification of science. 107 sub-fields of this classification were initially used to determine the areas of specialization for 11 countries (“revealed national advantages”). Clustering techniques were then used to aggregate this data and 13 specific fields were identified. The science policy information produced during the study concerned these 13 fields. It proved to be both easily understandable and relevant for macro-strategic analysis.

Keywords: Aggregation, Analysis, Classification, Database, Information, Needs, Policy, Science, Science Policy, Small, Techniques

Bauin, S., Michelet, B., Schweighoffer, M.G. and Vermeulin, P. (1991), Using bibliometrics in strategic analysis: ‘Understanding chemical reactions’ at the CNRS. *Scientometrics*, **22** (1), 113-137.

Full Text: [1991\Scientometrics22, 113.pdf](1991/Scientometrics22,%20113.pdf)

Abstract: This article presents the results of a study carried out for CNRS policy makers. The goal of the study was two-fold; first, it was aimed at evaluating the research effort devoted to ‘understanding chemical reactions’ both in France and throughout the world; second, it was designed to test the usefulness of bibliometric techniques for strategic analysis. One feature of this article merits special attention. It is co-signed by the researchers who carried out the study and by the policy makers for whom it was intended.

Keywords: Analysis, Bibliometric, Bibliometric Techniques, Bibliometrics, Citation, Co-Word Analysis, Feature, First, France, Policy, Research, Science, Techniques

? Turner, W.A. and Rojouan, F. (1991), Evaluating input output relationships in a regional research network using co-word analysis. *Scientometrics*, **22** (1), 139-154.

Full Text: [1991\Scientometrics22, 139.pdf](1991/Scientometrics22,%20139.pdf)

Abstract: In this study, a network management approach to science policy decision-making guided our efforts to develop new co-word analysis techniques for the evaluation of regional research policies. A rich collection of factual data was gathered on inputs into the local research system (funding, personnel, equipment, ...). This data was then combined with the results of a co-word analysis of the region’s publication output. The network management approach is useful in helping to determine the nature of input/output relationships in a regional context.

Keywords: Analysis, Decision Making, Decision-Making, Equipment, Evaluation, Management, Network, Personnel, Policy, Publication, Research, Science, Science Policy, Techniques

? Callon, M., Courtial, J.P. and Laville, F. (1991), Co-word analysis as a tool for describing the network of interactions between basic and technological research - the case of polymer chemistry. *Scientometrics*, **22** (1), 155-205.

Full Text: [1991\Scientometrics22, 155.pdf](1991/Scientometrics22,%20155.pdf)

Abstract: the goal of this paper is to show how co-word analysis techniques can be used to study interactions between academic and technological research. It is based upon a systematic content analysis of publications in the polymer science field over a period of 15 years. The results concern a.) the evolution of research in different subject areas and the patterns of their interaction; b.) a description of subject area “life cycles”; c.) an analysis of “research trajectories” given factors of stability and change in a research network; d.) the need to use both science push and technology pull theories to explain the interaction dynamics of a research field. The co-word techniques developed in this paper should help to build a bridge between research in scientometrics and work underway to better understand the economics of innovation.

Keywords: Analysis, Dynamics, Economics, Evolution, Innovation, Interaction, Network, Polymer, Publications, Research, Science, Scientometrics, Stability, Techniques, Technology, Work

? Mauguin, P. (1991), Using a contracts database for evaluating the dynamics of a technological program - the case of the European nonnuclear energy program. *Scientometrics*, **22** (1), 207-228.

Full Text: [1991\Scientometrics22, 207.pdf](1991/Scientometrics22,%20207.pdf)

Abstract: In the scope of the evaluation of the European program of the R & D on non nuclear energies, we have chosen to study the contracts between the operator of the program, here the Commission of the European Communities, and the teams selected at the issue of a call for tenders. These contracts, recorded on a computerised accounting database, gather information on the 3 important inputs of a program: the teams involved the themes of the research and the financial level. After corrections, the base gathered 421 research actions, summing up nearly 650 teams for a total cost of 350 MECU. Different statistical treatments have been applied to this base, allowing to characterize the main outlines of the program, its advancement and its dynamic, globally and more acutely on the research’s fields that it has supported. The method of analysis ‘themes allois’ which is proposed applied to a base of contracts slightly transformed thus prefigures a tool for strategic management of technological programs.

Keywords: Analysis, Cost, Database, Evaluation, Information, Management, Research, Strategic Management

Zitt, M. (1991), A simple method for dynamic scientometrics using lexical analysis. *Scientometrics*, **22** (1), 229-252.

Full Text: [1991\Scientometrics22, 229.pdf](1991/Scientometrics22,%20229.pdf)

Abstract: Techniques for studying problematic networks in science and technology are principally derived either from citation analyses or from lexical methods. The former have been the object of many developments and improvements. A considerable range of applications exists within the practical constraint of their being limited to fields covered by the ISI databases. for the latter, the co-word method has a register of applications that up until now have been more specialized in the sociology of ‘science as it is done’, but it has in principle no field limitations. An important question is whether we can extend the application range of this analytical method to take in longer periods, and in particular to deal with historiography either on a large scale (at the level of a research field) or on a small scale (at the level of a process of discovery or invention). Here we propose a way of rendering lexical methods dynamic, more particularly through developing a rudimentary but precise technique to aid historiographical analysis. This method of critical variations is illustrated in a working example.

Keywords: Analysis, Citation, Co-Citation, Discovery, ISI, Methods, Research, Science, Science and Technology, Scientometrics, Small, Sociology, Technology

? Gillett, R. (1991), Pitfalls in assessing research performance by grant income. *Scientometrics*, **22** (2), 253-263.

Full Text: [1991\Scientometrics22, 253.pdf](1991/Scientometrics22,%20253.pdf)

Abstract: the strategy of judging the quality of scientific research by the level of funding it attracts is critically examined. It is argued that an index such as per capita research income, which is based on grant-giver peer review, yields an unsatisfactory measure of scientific performance. It fails to fulfil a basic requirement of a performance indicator, namely, that it should relate outputs to inputs. It has intrinsically low validity, and is strongly confounded with a variety of extraneous factors that are unrelated to research performance.

Keywords: Departments, Indicator, Peer Review, Peer-Review, Quality, Requirement, Research, Research Performance, Review, Scientific Research, UGC Evaluation, Validity

? Jaschek, C. (1991), The size of the astronomical community. *Scientometrics*, **22** (2), 265-282.

Full Text: [1991\Scientometrics22, 265.pdf](1991/Scientometrics22,%20265.pdf)

Abstract: the number of astronomers living at different times is analyzed, from the classic antiquity to modern times through the different available statistics. for present times the number is estimated to be about 9.000; this number grows exponentially. A zero order model is proposed to pass from the annual number of authors of papers to the number of active astronomers.

Keywords: Living, Model, Papers, Statistics

Sengupta, I.N. and Henzler, R.G. (1991), Citedness and uncitedness of cancer articles. *Scientometrics*, **22** (2), 283-296.

Full Text: [1991\Scientometrics22, 283.pdf](1991/Scientometrics22,%20283.pdf)

Abstract: There is a rapid growth of cancer literature. ThoUSAnds of papers are being regularly published every year not only in speciality journals, but also in journals of other disciplines. Citation studies are nowadays considered a major basis of science indicators for ascertaining the importance of a scientific journal and that of the published articles on a particular subject. In oncological research the journal Cancer is considered as one of the top most journals and is universally well known for its high standard and excellence. In this paper an attempt has been made to find out the importance of all the articles published in it for a particular year. Side by side bibliometric analysis was made to ascertain various other aspects like time lag between publication and first citation of articles, average citation time, subject scattering and identification of most important journals in the field etc. It is believed that this study would be of help to the working oncologists, librarians and information scientists to assess the importance of articles published in a top ranking journal of cancer and also that of different journals publishing oncological research results.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Cancer, Citation, First, Growth, Identification, Indicators, Information, Journal, Journals, Literature, Papers, Publication, Publishing, Ranking, Research, Scattering, Science, Science Indicators, Standard

? Cano, V. and Lind, N.C. (1991), Citation life cycles of ten citation classics. *Scientometrics*, **22** (2), 297-312.

Full Text: [1991\Scientometrics22, 297.pdf](1991/Scientometrics22,%20297.pdf)

Abstract: Not all highly cited papers have the same citation life cycle curves, i.e. curves of frequency of citations received vs. time. The citation life of ten randomly selected Citation Classics, five in medicine and five in biochemistry, are studied longitudinally in time and compared with a random sample of ten non-classics of the same cohort. There are pronounced differences in the life cycle curves; two distinct types are suggested. Type A, comprised of both high and low cited papers in both fields, has an early peak of citation rate and may be approximated by a bilinear cumulative citation curve with a break at six years of age, when three quarters of the total number of citations have occurred. Type B, in this study comprised of extremely highly cited methodological Citation Classics, exhibit a constant or slowly accelerating growth rate with a vigorous citation life extending over the entire period studied and typically one third or less of the total citations accumulated at six years of age.

Keywords: Biochemistry, Citation, Citations, Growth, Growth Rate, Life, Medicine, Papers, Patterns, Random Sample

? Lindsey, D. (1991), Precision in the manuscript review process - Hargens and herting revisited. *Scientometrics*, **22** (2), 313-325.

Full Text: [1991\Scientometrics22, 313.pdf](1991/Scientometrics22,%20313.pdf)

Abstract: Lindsey recently examined the precision of the manuscript review process using a stochastic model. The study reported that the low reliability found by previous studies results in journals publishing a large number of papers that should otherwise be rejected and rejecting an equally large number of papers that should be accepted. Hargens and Herting have criticized this view. This paper addresses their criticisms. The paper includes an examination of sociology journals using impact scores. The differences between journals is noted. Part of the variation between sociology journals derives from their editorial operations. Central to their editorial operations is the reviewing of manuscripts for publication. Not all journals perform this task equally well. The consequences of poor editorial management are discussed. To improve the quality of published work journals need to reduce the low reliability of the current manuscript review process.

Keywords: Examination, Journals, Management, Model, Papers, Publication, Publishing, Quality, Referees, Reliability, Review, Review Process, Sociology, Stochastic Model, Work

? Frame, J. (1991), Modeling national technological capacity with patent indicators. *Scientometrics*, **22** (3), 327-339.

Full Text: [1991\Scientometrics22, 327.pdf](1991/Scientometrics22,%20327.pdf)

Abstract: Scientific, technological, and economic data are investigated for 128 countries. A stepwise regression analysis is carried out on the data, using domestic patent counts as the dependent variable. The form of the regression equations is the Cobb-Douglas production function. The analysis shows that domestic patents (as indicator of national technological capacity, and treated here as the dependent variable) are closely related to GNP (a measure of national economic size), counts of scientific publications (an indicator of scientific capacity), and counts of national patents obtained in the U.S. (a measure of world class technological capacity). Together, these three independent variables account for more than 92 percent of the variance in the dependent variable.

Keywords: Analysis, Capacity, Function, Indicator, Modeling, Patent, Patents, Publications, Regression Analysis, Scientific Publications, Size

? Pianta, M. and Archibugi, D. (1991), Specialization and size of scientific activities - A bibliometric analysis of advanced countries. *Scientometrics*, **22** (3), 341-358.

Full Text: [1991\Scientometrics22, 341.pdf](1991/Scientometrics22,%20341.pdf)

Abstract: the relationship between the size of national scientific activities of advanced countries and the degree of specialization by fields of science is examined using bibliometric indicators of the number of papers and of paper citations. A negative relation between the amount of scientific activity and the degree of scientific specialization has emerged, with Japan and, to a lesser extent Italy, showing a specilization degree higher than expected. Countries with established scientific traditions (such as the US, the UK, the Netherlands, and Switzerland) have a lower than expected specialization degree, suggesting a more diversified range of research activities. Over time, however, most countries have reduced their scientific specialization, a pattern which is in contrast with recent research on patents and technological specialization.

Keywords: Bibliometric, Bibliometric Indicators, British Science, Citations, Decline, Indicators, Italy, Japan, Paper Citations, Papers, Patents, Research, Science, Size, Switzerland, the Netherlands, UK, US

? Yamazaki, S. (1991), Academic origin of the 1st professors in American medical-schools before the civil-war. *Scientometrics*, **22** (3), 359-368.

Full Text: [1991\Scientometrics22, 359.pdf](1991/Scientometrics22,%20359.pdf)

Abstract: the development of American medical education before the Civil War was studied. One hundred and forty-three first professors in American medical schools before the Civil War were selected, and records of their academic origins, places of birth, and study abroad were collected from various biographical sources. Based on the prosopographical analysis of personal data of first professors, the historical changes and the characteristics in American medical education are discussed.

Keywords: Analysis, Antebellum, Changes, Development, Education, First, Medical, Medical Education, Medical Schools, Records

? Balmer, B. and Martin, B.R. (1991), Who’s doing what in human genome research. *Scientometrics*, **22** (3), 369-377.

Full Text: [1991\Scientometrics22, 369.pdf](1991/Scientometrics22,%20369.pdf)

Keywords: Biology, Project

? Schubert, A. and Braun, T. (1992), 3 Scientometric etudes on developing-countries as a tribute to Moravcsik, Michael. *Scientometrics*, **23** (1), 3-19.

Full Text: [1992\Scientometrics23, 3.pdf](1992/Scientometrics23,%203.pdf)

Abstract: the three scientometric etudes presented in this paper are dealing with three aspects of science in developing countries: (1) estimation of scientific manpower and publication potential is given using the Waring model of publication productivity; (2) co-authorship patterns are analyzed to conclude that local interactions among developing countries are dominant, but the historical-political-geographical connections are also vivid, and (3) a “quasi-4D comparison of socio-economic and scientometric indicators is presented using “Chernoff faces”.

Keywords: Citation Impact, Co-Authorship, Coauthorship, Comparison, Distributions, Indicators, Model, Potential, Productivity, Publication, Publication Output, Science, Scientometric

Meneghini, R. (1992), Brazilian production in biochemistry. The question of international versus domestic publication. *Scientometrics*, **23** (1), 21-30.

Full Text: [1992\Scientometrics23, 21.pdf](1992/Scientometrics23,%2021.pdf)

Abstract: This work describes a bibliometric survey on scientific production in biochemistry originated from 19 Brazilian institutions, which comprised 487 staff investigators, 70-80% of investigation-active biochemists. These investigators published about 3000 papers in international journals in the period 1970-1985, which generated about 17000 citations from 1983 to 1987, according to the Institute for Scientific Information data base. In this survey we distinguished what we called endogenous articles (produced in Brazil) from exogenous articles (produced abroad by Brazilian biochemists), in terms of the spectrum of journals in which they were published and the number of citations generated per article. A comparison was also performed for the two groups in terms of the impact factor generated by Brazilian articles in a given journal versus the expected impact factor for all articles published in that journal. In all cases we detected a certain disadvantage for endogenous articles, the possible reason of which is discussed. Biochemistry is one of the scientific areas in Brazil in which the investigators make a large effort to publish in international journals. We observed differences in the impact generated by these international papers, when biochemistry was compared with other areas which exhibit the same tendency towards an international output. From these observations we discuss the pertinence of publishing for an international audience as opposed in domestic journals

Keywords: Bibliometric, Bibliometric Survey, Biochemistry, Brazil, Citations, Comparison, Data Base, Impact Factor, Institute for Scientific Information, Institutions, International, Journal, Journals, Papers, Publishing, Scientific Production, Survey, Work

? Sen, B.K. and Shailendra, K. (1992), Evaluation of recent scientific research output by a bibliometric method. *Scientometrics*, **23** (1), 31-46.

Full Text: [1992\Scientometrics23, 31.pdf](1992/Scientometrics23,%2031.pdf)

Abstract: Describes a new method of evaluation of scientific output by laboratories engaged in diverse fields of research. This method helps to evaluate those outputs which are quite recent and not amenable to citation analysis. for the purpose of analysis, impact factor of journals in which papers are published are considered. A method for normalisation of impact factor of journals has been described and, normalised impact factors have also been used for the purpose of analysis. It is found that in such analysis normalised impact factor tends to show better results compared to simple impact factor. The analysis helps us to generate numerous performance indicators such as average impact factor and normalised impact factor for each laboratory and the research complex such as CSIR as a whole; average impact factor and normalised impact factor for each scientist of a laboratory and the research complex; spectral distribution of papers falling within various ranges of impact factors and normalised impact factors. By comparing the performances over several years the trend of research activity of each laboratory can also be obtained.

Keywords: Analysis, Citation, Citation Analysis, Evaluation, Impact Factor, Impact Factors, Indicators, Journals, Papers, Research, Scientific Output

? De Arenas, J.L. (1992), Partial assessment of Mexican health sciences research 1982-1986. *Scientometrics*, **23** (1), 47-56.

Full Text: [1992\Scientometrics23, 47.pdf](1992/Scientometrics23,%2047.pdf)

Abstract: the paper provides a picture of Mexican health sciences research for the years 1982-1986, measuring, bibliometrically, the size of its scientific activity. The most widely bibliometric indicators for research evaluation, publication count and citation analysis, are combined to determine the degree of production, productivity, and impact. The study also highlights the role of leading research institutions.

Keywords: Analysis, Basic Research, Bibliometric, Bibliometric Indicators, Citation, Citation Analysis, Citation Impact, Countries, Evaluation, Health, Health Sciences, Indicators, Institutions, Publication, Publication Output, Research, Research Evaluation, Sciences, Size

? Gaillard, J. (1992), Use of publication lists to study scientific production and strategies of scientists in developing-countries. *Scientometrics*, **23** (1), 57-73.

Full Text: [1992\Scientometrics23, 57.pdf](1992/Scientometrics23,%2057.pdf)

Abstract: A bibliometric study using the lists of publications and work of 207 scientists working in Asia, Latin America and Africa was conducted. Number of authored and co-authored articles published in scientific journals and bulletins, conference papers, books, chapters of books, reports were taken into consideration to measure the total scientific output. Local vs. international production was also determined by scientific fields, geographic areas, sexe and language of publication. Co-authorship studies were also used to particularly measure the degree of collaboration and dependence of Developing Countries’ (DC) scientists on foreign co-authors. An analysis of the references used (age, origins) was also made. Conclusions drawn concern the comparatively specific nature of science produces by DC’s researcher. Partly given the importance of the scientific production published in local journals, the inadequacy of international databases to study Dc science is confirmed. Most of the DC scientists publish in both national and international journals. They often cite their colleagues from the developed countries but their own work being less “visible” is seldom cited.

Keywords: Analysis, Asia, Bibliometric, Bibliometric Study, Co-Authors, Co-Authorship, Collaboration, India, International, Journals, Latin America, Mainstream Science, Papers, Publication, Publications, Science, Scientific Journals, Scientific Output, Scientific Production, Work, World

? Delgado, H. and Russell, J.M. (1992), Impact of studies published in the international literature by scientists at the National-University-of-Mexico. *Scientometrics*, **23** (1), 75-90.

Full Text: [1992\Scientometrics23, 75.pdf](1992/Scientometrics23,%2075.pdf)

Abstract: A total of 2192 articles published in the international literature with UNAM (National University of Mexico) first author affiliation and registered by the CICH (Centro de Iformacion Cientifica y Humanistica) BIBLAT database from 1978 - mid-1987 were included in our analysis. Distribution of articles according to the main subject areas of the 692 different journal titles used was as follows: Physics 24.1%, Medicine 19.7%, Biology 19.4%, Chemistry 9.7%, Engineering 8.9%, Exact Sciences 7.3%, Geosciences 4.7%, Psychology 0.96%, Agrosciences 0.27%. Thirty-seven percent of articles were published in journals with a known impact factor for 1987 of less-than-or-equal-to 1, 46.1% (920) in journals within the range of > 1-3 average citations/article and only 16.4% (327) in those titles with a factor > 3. Fifty-four percent (1082) of studies appeared in journals whose total citation count for 1987 was less-than-or-equal-to 5000; 7.3% (146) in journals cited > 50,000 times in that same year. UNAM scientists therefore as a group tend to publish in journals whose articles are not frequently cited in subsequent publications thus limiting their impact and visibility in the international scientific literature.

Keywords: Affiliation, Analysis, Citation, Database, First, Impact Factor, Indicators, International, Journal, Journals, Literature, Mainstream, Mexico, Publication, Publications

? Rabinovich, J.E. (1992), Publications of scientists of developing-countries in international journals - are they channels to the international circuit for colleagues that only publish in national journals - a case-study from the field of ecology in Argentina. *Scientometrics*, **23** (1), 91-103

Full Text: [1992\Scientometrics23, 91.pdf](1992/Scientometrics23,%2091.pdf)

Keywords: Argentina, Facts, Impressions, Science, Technology

Notes: UUniversity

Krauskopf, M. (1992), Scientometric indicators as a means to assess the performance of state supported universities in developing countries: the Chilean case. *Scientometrics*, **23** (1), 105-121.

Full Text: [1992\Scientometrics23, 105.pdf](1992/Scientometrics23,%20105.pdf)

Abstract: Chilean universities are responsible for more than 80% of the science produced in the country, which in the last 20 years with some periods of great difficulties, has grown more than 600%.

One of the underlying problems of the governments of developing countries to delineate suitable strategies to allocate efficiently the few funds available, has been the absence of clarity to distinguish the individuals and centers committed with competitive scientific research. As a consequence, the state funds, which in part are scarce because the region invest to little in science, do not always reach to the right people and to the right places, amplifying the already existing problems for the good scientists that resist to emigrate.

To evaluate the corresponding situation in Chile, and to follow the results of substantial actions to support the scientific activity in the country, we have examined the performance of state financed universities.

Keywords: Chile, Facts, Figures, Latin-America, Life Sciences, Newest Version, Physics, Publication Output, Relative Citation Impact, Research, Right, Science, Scientific Research, the Good, Universities

? Maciaschapula, C.A. (1992), Patterns of scientific communication among Latin-American countries, in the field of medical-education. *Scientometrics*, **23** (1), 123-135.

Full Text: [1992\Scientometrics23, 123.pdf](1992/Scientometrics23,%20123.pdf)

Abstract: This work reports on the medical subject headings that build-up the medical education field in Latin America, through the content and citation analysis of Educacion Medica y Salud (EMS). An attempt was made to establish the articulations between the citing and cited countries in the region. It was generally found that EMS was built-up by subjects of Medical Education, Health Manpower, Water Supply, and Health Policy. Although strongly citing/cited/indexed countries, Brazil, Mexico, and Colombia have not established significant information flows among them. Further research lines are proposed.

Keywords: Analysis, Brazil, Citation, Citation Analysis, Colombia, Education, EMS, Information, Latin America, Medical, Medical Education, Mexico, Research, Work

? Fernandez, M.T., Agis, A., Martin, A., Cabrero, A. and Gomez, I. (1992), Cooperative research projects between the Spanish-National-Research-Council and Latin-American institutions. *Scientometrics*, **23** (1), 137-148.

Full Text: [1992\Scientometrics23, 137.pdf](1992/Scientometrics23,%20137.pdf)

Abstract: Research projects in cooperation between Spanish National Research Council and Latin-American Organizations, that have been developed in the last eight years, were studied. Around forty Spanish research institutes have cooperated with Latin-American ones, mostly with Cuba, Chile, Brazil and Mexico. The interpretation of the collaboration rates with the different countries is discussed. Duration of the projects, number of researchers and research output were examined. The cooperation results were quantified through articles, presentations to congresses, reports, monographs, patents and thesis. Diffusion, languages and impact of the journals used for publication were studied. Non quantifiable outputs were also examined.

Keywords: Brazil, Chile, Collaboration, Cooperation, Journals, Languages, Mexico, Patents, Publication, Research

Thomas, S.M. (1992), The evaluation of plant biomass research: A case-study of the problems inherent in bibliometric indicators. *Scientometrics*, **23** (1), 149-167.

Full Text: [1992\Scientometrics23, 149.pdf](1992/Scientometrics23,%20149.pdf)

Abstract: the aim of this project was to evaluate research groups working in the broad field of plant biomass in the areas outside the USA and the EC. The assessment had two key elements: the measurement of scientific productivity and the investigation of factors affecting research performance. Research groups were identified from a range of information sources. Data on funding, information access, staffing, publication policy and degree of awareness of other research groups in the field were collected during the course of interviews. Two approaches - bibliometric analysis and peer review - were examined as a means of constructing indicators for assessing research output. Following a critical review of the use of bibliometric indicators in peripheral countries, the results from a study of eight countries are presented. Neither of two indicators employed proved to be a particularly successful method of evaluating research, and this finding is discussed in relation to publication patterns, the nature of the research community and the research field under study. Finally, the use of a ‘peripatetic expert’ was found to have some value as a means of assessment.

Keywords: Access, Analysis, Assessment, Beholder, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Biomass, Citation, Community, Course, Developed-Countries, EC, Indicators, Information, Interviews, Investigation, Measurement, Peer Review, Peer-Review, Performance, Plant, Policy, Publication, Research, Research Performance, Review, Science, Scientific Activity, USA

? Roseboom, J. and Pardey, P.G. (1992), Measuring the development of national agricultural-research systems. *Scientometrics*, **23** (1), 169-190.

Full Text: [1992\Scientometrics23, 169.pdf](1992/Scientometrics23,%20169.pdf)

Abstract: Starting in 1986, a small team at ISNAR has been working to establish a global database on national agricultural research systems. This paper provides an overview of the conceptual and practical difficulties of measuring the capacity of national agricultural research systems. Special attention is given to alternative procedures to translate research expenditures expressed in current local currency units into a constant common numeraire. The paper closes with a preliminary assessment of the development of national agricultural research systems over the period 1961-65 to 1981-85.

Keywords: Alternative, Assessment, Capacity, Database, Development, Procedures, Research, Small

Adamson, I. (1992), Access and retrieval of information as coordinates of scientific development and achievement in Nigeria. *Scientometrics*, **23** (1), 191-199.

Full Text: [1992\Scientometrics23, 191.pdf](1992/Scientometrics23,%20191.pdf)

Abstract: In the pioneering study on the quantitation of science in the first generation Nigerian Universities between 1975-79 using the scientific indicator of publication count of publishing scientists derived from ISI database, the data showed a real growth in scientific output. The growth correlated well with Federal Government funding of the Universities and the nation’s Gross Domestic Product (GDP). The decline and often erratic funding stemmed the rate of growth in most of the Universities. In spite of the modest growth recorded for the fastest growing science of Biochemistry, where nutrition was identified as the major front of research, high infant morality rate (an index of under-development) was unabated. Retrieval of information to aid prosecution of relevant research and lack of access to scientific information have resulted in intellectual isolation of Nigerian scientists and inapplicability of research findings. Apart from India, the pathetic state of scientific growth and relevance in Nigeria is typical of the Developing Countries (DC). The situation calls for awareness of the importance of science indicators in strengthening the coverage of third world science and for support of science in the DC. Refining of science indicators for suitability to measuring science in these countries is also advocated.

Keywords: Access, Countries, Database, First, Generation, Growth, India, Indicator, Indicators, Infant, Information, ISI, Morality, Nigeria, Nutrition, Publication, Publishing, Relevance, Research, Science, Science Indicators, Scientific Information, Scientific Output

? Whitney, G. (1992), Access to third-world science in international scientific and technical bibliographic databases. *Scientometrics*, **23** (1), 201-219.

Full Text: [1992\Scientometrics23, 201.pdf](1992/Scientometrics23,%20201.pdf)

Abstract: for the past eight years, the author has been examining trends in access to international scientific literature in major international bibliographic databases available on various information systems. A major portion of the research program examined and compared the languages of documents and countries of publication for items published between 1970-1990 and recorded on MEDLINE, PsycInfo, BIOSIS, Chemical Abstracts, and other databases on the DIALOG system. The second phase of this study examine the remaining scientific databases on DIALOG, including MATHFILE and AGRICOLA. A comparison of the international range of MEDLINE and EMBASE has also recently been completed. In order to attempt to assess actual amounts of literature produced, the Unesco statistics for literature production have been studied. In the course of this research, the author encountered a variety of system attributes that affect the ways in which Third World science can be identified. Some of the policies and procedures of database development that affect the inclusion of Third World science have been identified.

Keywords: Access, Comparison, Course, Database, Development, Information, Information Systems, International, Languages, Literature, MEDLINE, Procedures, Publication, Research, Science, Statistics, Trends

? Sancho, R. (1992), Misjudgments and shortcomings in the measurement of scientific activities in less-developed-countries. *Scientometrics*, **23** (1), 221-233.

Full Text: [1992\Scientometrics23, 221.pdf](1992/Scientometrics23,%20221.pdf)

Abstract: the bibliographic database widely used for measurement of scientific production either for developed or developing countries is Science Citation Index. So then, in the case of LDCs only their negligible contribution to the “mainstream” of science is evaluated. Eight LDCs productivity as obtained from SCI is compared to that from some international specialized or multidisciplinary databases, most of which give more information than SCI for each country. In the case of Cuba, BIOSIS and CA supply 17 and 15 times respectively more information than the SCI in the same period. The use of Cuban local database and its comparison with international ones is also discussed.

Keywords: Citation, Comparison, Database, Indicators, Information, International, Latin-America, Mainstream, Measurement, Multidisciplinary, Output, Periphery, SCI, Science, Science Citation Index, Scientific Production

? Chatelin, Y. and Arvanitis, R. (1992), Representing scientific activity by structural indicators - the Case of Cote-Divoire 1884-1968. *Scientometrics*, **23** (1), 235-247.

Full Text: [1992\Scientometrics23, 235.pdf](1992/Scientometrics23,%20235.pdf)

Abstract: Eight different indicators are calculated on the basis of an extensive bibliography on science in Cote d’Ivoire, and presented by scientific domain in polar graphs. They permit to have a synthetic image of scientific activity and distinguish different scientific styles. Moreover the notion of “colonial science” is re-evaluated, and a case is made in order to distinguish between different ways of doing science. The indicators and graphic representation proposed here may be a valid method to identify differing patterns at a glance.

Keywords: Citation, Indicators, Representation, Science

El Alami, J., Dore, J.C. and Miquel, J.F. (1992), International scientific collaboration in Arab countries. *Scientometrics*, **23** (1), 249-263.

Full Text: [1992\Scientometrics23, 249.pdf](1992/Scientometrics23,%20249.pdf)

Abstract: Through internationally coauthored scientific articles in the Science Citation Index data base, we analyse international collaboration of some Arab countries in science. Our findings show that international collaboration of these countries is concentrated on engineering & technology and fundamental & applied biology. Collaboration is often established through doctoral studies and the links thus created continue. Cultural and historical traditions play an important role in collaboration. We compare the SCI data base with a local survey of chemists in Morocco and discuss some of the limits of bibliometric methods.

Keywords: Bibliometric, Bibliometric Methods, Biology, Collaboration, Data Base, International, Methods, Morocco, SCI, Science, Science Citation Index, Survey, Technology

Notes: UUniversity

Roche, M. and Freites, Y. (1992), Rise and twilight of the Venezuelan scientific community. *Scientometrics*, **23** (2), 267-289.

Full Text: [1992\Scientometrics23, 267.pdf](1992/Scientometrics23,%20267.pdf)

Abstract: By the end of the seventies, there was in Venezuela a solidly entrenched scientific community. Scientists were mostly full time, satisfied or very satisfied with their work, relatively well paid and with adequate facilities to do research. Beginning in 1982, when a process of inflation and devaluation started in the country as a whole, there has been a twilight of the scientific community, leading to migration of scientists abroad or to industry. The Government has announced drastic measures to bring up the budget for science and technology from 0.3 to 2.0% of gross national product. If these measures are indeed implemented, there will be a dawn without having to go through a long night.

Keywords: Budget, Community, Facilities, Facts, Figures, Newest Version, Physics, Publication Output, Relative Citation Impact, Research, Science, Science and Technology, Technology, Work

? Sen, B.K. and Lakshmi, V.V. (1992), Indian periodicals in the Science-Citation-Index. *Scientometrics*, **23** (2), 291-318.

Full Text: [1992\Scientometrics23, 291.pdf](1992/Scientometrics23,%20291.pdf)

Abstract: the coverage of Indian S&T periodicals in SCI has been studied covering the period 1975-88. The study shows that coverage is rather poor due to a variety of reasons. Many of the Indian periodicals do not fulfil the criteria for getting covered in SCI. About 500 periodicals have been identified which are covered by at least one major indexing or abstracting service of the world. Total number of such periodicals is likely to be over 600. Slight improvement in the standard of these periodicals is likely to make many of them worthy of coverage by SCI.

Keywords: Criteria, Periodicals, SCI, Science Citation Index, Scientific Journals, Standard

? Todorov, R. (1992), Displaying content of scientific journals - A co-heading analysis. *Scientometrics*, **23** (2), 319-334.

Full Text: [1992\Scientometrics23, 319.pdf](1992/Scientometrics23,%20319.pdf)

Abstract: A co-heading analysis is proposed for representing the subject content of scientific journals. It is based on the subject headings assigned to documents before their input in bibliographic databases. The method utilizes specifically the co-appearance of headings in the document records to display the subject scope of a given journal not only by the topics covered but by their relationships as well. This analysis is applied in superconductivity for displaying the content of some physics journals using data from 1984 Physics Abstracts. The results (in the form of inclusion maps) could help information scientists and library staff in evaluating and selecting appropriate journals.

Keywords: Analysis, Information, Journal, Journals, Records, Scientific Journals, Selection

? Haitun, S.D. (1992), The problem of indicator-latent relationship in metric models. 1. statement and general-solution. *Scientometrics*, **23** (2), 335-351.

Full Text: [1992\Scientometrics23, 335.pdf](1992/Scientometrics23,%20335.pdf)

Abstract: Metric models, i.e. formalisms describing relationships between indicators and latent variables, are discussed. In modern metric models, a latent is regarded as independent of the measuring person. It is suggested that this defect of metric models be avoided if the latent is assignment a priori by fixing a form of latent distribution.

Keywords: Indicators, Models, Person, Scientific Activities, Variables

? Barre, R. (1992), Correction. *Scientometrics*, **23** (2), 353.

Full Text: [1992\Scientometrics23, 353.pdf](1992/Scientometrics23,%20353.pdf)

? Keay, C.S.L. (1992), Physics, psychology and respectability. *Scientometrics*, **23** (3), 355-359.

Full Text: [1992\Scientometrics23, 355.pdf](1992/Scientometrics23,%20355.pdf)

Abstract: Opportunities for obtaining a quantitative measure of respectability for ideas in the physical sciences appear to be rather infrequent. A unique set of statistics is presented which demonstrates the respectability gained when a centuries-old psychological rationalisation for a rare natural phenomenon is replaced by a viable physical explanation.

Keywords: Explanation, Physical Sciences, Sciences, Statistics

? Granovsky, Y.V., Luibimova, T.N., Murashova, T.I. and Myatlev, V.D. (1992), Information-based evaluation of the quality of doctoral theses. *Scientometrics*, **23** (3), 361-376.

Full Text: [1992\Scientometrics23, 361.pdf](1992/Scientometrics23,%20361.pdf)

Abstract: A method of information-based evaluation of the quality of doctoral theses has been worked out. It is based on a multidimensional classification system which includes: a list of attributes to characterize the given theses and their authors; singling out the most significant attributes; calculating a complex criterion showing the quality of a thesis on the basis of a series of significant attributes; ranging the theses according to this criterion. This method was used to evaluate 36 doctoral theses in chemistry according to 41 attributes considered. Four main attributes were singled out. Based on them a complex quality criterion which we termed the originality index was calculated. The values of the originality index of these theses differed by an order of magnitude. Two attributes affecting the index of originality were singled out: the place where the thesis was prepared, and the fact whether the author had any papers published in non-Academy journals (journals not published by the USSR Academy of Sciences).

Keywords: Chemistry, Classification, Evaluation, Journals, Papers, Quality

? Jaschek, C. (1992), The visibility of West European astronomical research. *Scientometrics*, **23** (3), 377-393.

Full Text: [1992\Scientometrics23, 377.pdf](1992/Scientometrics23,%20377.pdf)

Abstract: Publications and citations of five West European astronomical communities (Switzerland, Sweden, GFR, France and Spain) are compared. A large proportion of astronomers are sparsely cited or not cited at all, a fact which shows that estimations of the number of scientists based upon citation statistics are underestimates. It is found that publication rates are similar but citation rates very dissimilar in the five countries. No clear explanation of these differences is found, except for Spain. A plea is made to use citation statistics rather than publication statistics for evaluation.

Keywords: Citation, Citations, Evaluation, Explanation, France, Publication, Science, Spain, Statistics, Switzerland

? Jain, A. and Garg, K.C. (1992), Laser research in India - Scientometric study and model projections. *Scientometrics*, **23** (3), 395-415.

Full Text: [1992\Scientometrics23, 395.pdf](1992/Scientometrics23,%20395.pdf)

Abstract: An analysis of 785 papers, books and reports, in the field of laser, published from India during 1967-84, indicates that Indian output comprises almost 1% of the international output. The total output came from 77 academic and research institutions, out of which 10 institutions contributed almost 23%. Major portion of these publications appeared in foreign journals of repute, as reflected by their impact factors. Emphasis has been on theoretical aspects of laser research. The laser research performed in India appears to be a part of mainstream science as indicated by the pattern of publications and citations. The study also indicates that Indian scientists have few international collaboration in this field. A mathematical model for growth of literature output shows that though the rate of Indian literature output peaked at about the same time as that of the world output, Indian output may start getting marginalised by 1995. The model indicates that reasons for this lie in relatively less emphasis in India on experimental and applied aspects of laser research compared to international averages.

Keywords: Analysis, Bibliometric Analysis, Citations, Collaboration, Experimental, Growth, Impact Factors, India, Institutions, International, Israel, Journals, Literature, Mathematical Model, Model, Papers, Pattern of Publications, Performance, Publications, Research, Science, Superconductivity

? Law, J. and Whittaker, J. (1992), Mapping acidification research - A test of the co-word method. *Scientometrics*, **23** (3), 417-461.

Full Text: [1992\Scientometrics23, 417.pdf](1992/Scientometrics23,%20417.pdf)

Abstract: This paper extends the co-word method for mapping science, adopting new statistical and graphical methods to explore time-series data and the changing distribution of effort between different research themes. It also tests the reliability of the co-word method, comparing co-word data on the acidification of the environment with data derived from a large scale interview study. Overall, the study increases our confidence in the reliability of the co-word method. In particular, it leads us to the following conclusions: (a) that the PASCAL database is representative, at least in the area of acidification research; (b) that indexer bias is negligible; and (c) that the co-word method satisfactorily identifies groups of research themes and the way in which these evolve.

Keywords: Bias, Confidence, Database, Environment, Methods, Reliability, Research, Science

? Rubio, A.V. (1992), Scientific production of Spanish universities in the fields of social-sciences and language. *Scientometrics*, **24** (1), 3-19.

Full Text: [1992\Scientometrics24, 3.pdf](1992/Scientometrics24,%203.pdf)

Abstract: This article reviews the scientific production of the Spanish universities in the areas of Social Sciences and Language Sciences during the period 1986-1988. A series of quantitative criteria are being applied to the submission of data on total scientific production, productivity rate, publications/authors ratio, coauthorship, type of documents edited and their distribution, all of them broken down per university. Last but not least, a review is made of the distribution by subjects of each publication. The results obtained underline the increasing rate of production achieved in the three-year period, a certain stagnation in the number of authors and in team research activities, a far too endogamic diffusion in periodical publications and a somewhat unbalanced thematic diversification as compared to the geographical and cultural variety of our country. The article concludes by suggesting new lines of study for determining the factors that may explain the existing patterns of scientific production, and for identifying useful bibliometric measures aiming at an assessment of this type of literature.

Keywords: Assessment, Bibliometric, Coauthorship, Criteria, Cultural, Diffusion, Humanities, Literature, Periodical, Publication, Publications, Research, Review, Scientific Production, Universities, University

? Ortega, C., Plaza, L.M., Martin, M.J. and Urdin, M.C. (1992), Spanish scientific and technical journals - state-of-the-art. *Scientometrics*, **24** (1), 21-42.

Full Text: [1992\Scientometrics24, 21.pdf](1992/Scientometrics24,%2021.pdf)

Abstract: This article analyses the current situation in the field of scientific and technical journals published in Spain, by determining the following scientific indicators for each: 1: Specifications. 11: Scientific production covered. III: Visibility and accessibility. The first section provides a qualitative and quantitative study of the journals, asking what subjects they cover, who publishes them, how often they are published, how up to date they are and whether the way they are presented meets international publishing standards. The second section analyses scientific production by research sectors and the percentage of articles collected in the ICYT database compared with the total number of papers published in the journals studied. It also studies the reference habits of the authors published therein to identify whether the literature referred to is of local origin or international. Finally, the third section deduces these journals’ degree of visibility by analysing how they are distributed amongst the usual media, i.e. international periodicals directories and databases, and how efficiently they work as vehicles for the diffusion of research by foreign authors. The study covers 10 years (1980-1989), thus enabling to recognise past and current trends in Spanish scientific literature.

Keywords: Country, Database, Diffusion, First, Flow, Indicators, Information, International, Journals, Literature, Mainstream, Media, Origin, Papers, Periodicals, Publishing, Qualitative, Research, Science, Scientific Production, Spain, Standards, Trends, Work

? Cano, F. and Julian, S. (1992), Some indicators in Spanish scientific production. *Scientometrics*, **24** (1), 43-59.

Full Text: [1992\Scientometrics24, 43.pdf](1992/Scientometrics24,%2043.pdf)

Abstract: This is an analysis of the scientific production of the Spanish research community compiled by the Institute for Scientific Information (ISI) during the period 1983-1989 through indicators of publications (scientific output) that have been accepted, more and more frequently, as tools for decision-making. The percentages of the total number of articles per year are defined and the temporal evolution is shown of the orders of quality of the hypothetical journals that represent the whole production. A new indicator is used for comparisons between scientific subjects and thematic areas. Finally, mention is made of the spectacular growth of the Spanish scientific production in the period referred to, not only in quantity but also in quality through the indicators considered.

Keywords: Analysis, Community, Decision Making, Decision-Making, Evolution, Growth, Indicator, Indicators, Institute for Scientific Information, ISI, Journals, Publications, Quality, Research, Scientific Output, Scientific Production

? Mendez, A. and Salvador, P. (1992), The application of scientometric indicators to the-Spanish-scientific-research-council. *Scientometrics*, **24** (1), 61-78.

Full Text: [1992\Scientometrics24, 61.pdf](1992/Scientometrics24,%2061.pdf)

Abstract: the assessment of the research performance of the Spanish Scientific Research Council using scientometric indicators was done. Number of scientists and budget involved in research projects were used as input measures while articles published in foreign journals, patent applications and citations received provided output figures. The time period studied was 1984-1987. Target of the analysis were wide research areas and the research Institutes included in them. The obtained results point out that very often costs, productivity and impact do not go in the same direction. Most likely, other activities no measurable by scientometric indicators may have played an important role in some Institutes. Besides, the presence of highly cited articles at Institutes with low productivity scores indicates not correspondence of quantity with impact. It is suggested that the research group level would be a more reliable unit for analysis than the aggregated level of Institute or research area.

Keywords: Analysis, Assessment, Budget, Citations, Costs, Indicators, Journals, Patent, Research, Research Performance, Scientometric

? Blasco, P.G. (1992), Socioeconomic indicators on research-and-development in Spain. *Scientometrics*, **24** (1), 79-93.

Full Text: [1992\Scientometrics24, 79.pdf](1992/Scientometrics24,%2079.pdf)

Abstract: This essay analyses some aspects of the situation of scientific policy in Spain, mainly from a socio-economic point of view. The funds dedicated to R and D, its sources, evolution by years and distribution in relation with the GNP and different sectors such as public institutions and private enterprises are studied, as well as the relations of those funds with the inhabitants of the country and with the number of scientific researchers, the areas of research and the percentages dedicated to applied research and to development. In a similar way personnel engaged in R and D, their number, types of researchers, centers and scientific areas of research are presented.

Keywords: Development, Enterprises, Evolution, Institutions, Personnel, Policy, Relations, Research, Scientific Policy, Spain

? Pestana, A. (1992), Spanish performance in life sciences - A comparative appraisal of the scientific production of Spain and 5 other European countries in 1989. *Scientometrics*, **24** (1), 95-114.

Full Text: [1992\Scientometrics24, 95.pdf](1992/Scientometrics24,%2095.pdf)

Abstract: the output in life science disciplines from Spain and five other European countries has been measured in a datafile derived from the Current Contents-Life Sciences on diskette (1989). The results of this flash evaluation were contrasted with data retrieved from a survey covering the yearly output during the 1973-83 period and thee 1981-85 aggregated value from Schubert, Glänzel, Braun datafiles. The results of these studies showed an increasing share of Spain in the six countries’ output, especially in the subfields of organic chemistry and phytochemistry. However, the quality of the Spanish articles - as deduced from the journal impact factors (JRC - 1989) - is below the six countries average- the usefulness of the Current Contents on diskette for handy and reliable flash evaluations has been ascertained through a comparative analysis with more comprehensive surveys.

Keywords: Analysis, Chemistry, Evaluation, Impact Factors, Journal, Journal Impact, Journal Impact Factors, Life, Quality, Science, Spain, Survey

Sancho, R., Pastor, A. and Criado, E. (1992), Bibliometric approach to research performance in the field of refractory materials used in iron and steelmaking processes. *Scientometrics*, **24** (1), 115-136.

Full Text: [1992\Scientometrics24, 115.pdf](1992/Scientometrics24,%20115.pdf)

Abstract: A bibliometric study based on worldwide scientific and technical publications on refractory materials used in iron and steelmaking processes during 1980-87, has been carried out. Six bibliographic databases were searched and from them 2464 references were retrieved. The highest percentage of published documents were journal articles (60%), followed by patents (33%). The core journals are Ogneupory (USSR) and Taikabutsu (Japan). The USSR was by far the most productive country, both in number of published papers and in number of journal titles devoted to the subject. In the Soviet Union research work is mainly carried out in universities and institutes of the Academy of Sciences. On the other hand, Japan is the most productive country in patent registered, and research work is carried out there either in private refractory companies or in steelmaking enterprises. The trend in worldwide research points towards shaped refractories, particularly based in high alumina, magnesia, zircon carbides and mixtures containing oxides and carbon, which are largely used in converters, transport ladles and continuous casting processes

Keywords: Alumina, Bibliometric, Bibliometric Study, Carbon, Enterprises, Iron, Japan, Journal, Journal Articles, Journals, Magnesia, Oxides, Papers, Patent, Patents, Publications, Research, Research Work, Transport, Universities, Work

? Mendez, A. and Gomez, I. (1992), Collaborative research in Spain in the field of pharmacy and pharmacology. *Scientometrics*, **24** (1), 137-147.

Full Text: [1992\Scientometrics24, 137.pdf](1992/Scientometrics24,%20137.pdf)

Abstract: Collaborative research in Spain in the field of pharmacology is studied. Co-authored papers in periodicals were one of the indicators used to quantify collaborative research results. Through Spanish publications of pharmacologists, collaborations between different institutions in the same city are mostly detected. Through foreign papers quite different networks were found, both amongst Spanish cities and with institutions in other countries. In case of Spanish pharmaceutical industry questionnaires were used to determine their links with other institutions, mostly through research projects.

Keywords: Collaborative Research, Indicators, Institutions, Papers, Periodicals, Pharmaceutical Industry, Publications, Questionnaires, Research, Spain

? Ferreiro, L. and Ugena, S. (1992), Citation mechanics in journals covered by the journal citation reports. *Scientometrics*, **24** (1), 149-162.

Full Text: [1992\Scientometrics24, 149.pdf](1992/Scientometrics24,%20149.pdf)

Abstract: Citations from 1980 to 1988, obtained from fifty biomedical journals covered by the Journal Citation Reports (JCR) are studied. In purely numerical terms, the evolution of each citation (journal citation), including its impact factor (IF), would depend essentially on three variables for each journal: (i) the yearly rate of increase of items that could be cited (citable items), (ii) the relative yearly increment of the citing journals, (iii) the relative yearly increment of citations. The mechanics of this give rise to the three standard patterns for journal citations, namely. (i) annual impact factor’s increase each year (ascending evolution), (ii) annual impact factors remain the same each year (constant evolution), (iii) annual impact factors decrease each year (descending evolution). The reason why some journal citation profiles do not fit into the standard patterns is presumably that forces are at work able to alter the numerical mechanics described. The concepts of saturation/unsaturation of the demand for scientific information are introduced, showing how they are reflected in the impact factor figures for the journals cited.

Keywords: Biomedical, Biomedical Journals, Citation, Citations, Demand, Evolution, Impact, Impact Factor, Impact Factors, Indicators, Information, Journal, Journal Citation Reports, Journal Citations, Journals, Scientific Information, Standard, Work

Notes: TTopic

Bordons, M., García-Jover, F. and Barrigon, S. (1992), Bibliometric analysis of publications of Spanish pharmacologists in the SCI (1984-89). 1. Contribution to the pharmacology and pharmacy subfield (ISI). *Scientometrics*, **24** (1), 163-177.

Full Text: [1992\Scientometrics24, 163.pdf](1992/Scientometrics24,%20163.pdf)

Abstract: the present study is a bibliometric analysis of publications of Spanish pharmacologists, referenced in the journals of the Pharmacology & Pharmacy subfield of the Science Citation Index- CD Edition from 1984 to 1989. During this time the scientific output of Spanish pharmacologists has been growing at an impressive rate being almost doubled. This rate being notably greater than that corresponding to publications of Spain in all science fields. This increase in scientific output was accompanied by a time-dependent decrease on year by year step basis in the expected impact factor (EIF) of publications (Articles plus Notes), from 1.71 in 1984 to 1.28 in 1989, in close correlation with an increase of mean number of authors per paper, from 3.67 to 4.16 authors/paper, respectively. Moreover, the larger the number of authors/paper, the smaller the EIF. Only 8 journals cumulated more than 50% of the papers. The scientific production was geographically localized at a high extent (Barcelona, Madrid, Valencia accounted for the 63.7% of all the papers) in governmental institutions (University, 75.2%; Hospitals, 14.1%; CSIC, 10.5%) with one large geographical area lacking any productivity.

Keywords: Analysis, Basic Science, Bibliometric, Bibliometric Analysis, CD, Impact Factor, Institutions, Journals, Papers, Publications, Science, Science Citation Index, Scientific Output, Scientific Production, Spain

? Pao, M.L. (1992), Correction. *Scientometrics*, **24** (1), 179.

Full Text: [1992\Scientometrics24, 179.pdf](1992/Scientometrics24,%20179.pdf)

? Braun, T., Gomez, I., Mendez, A. and Schubert, A. (1992), International coauthorship patterns in physics and its subfields, 1981-1985. *Scientometrics*, **24** (2), 181-200

Full Text: [1992\Scientometrics24, 181.pdf](1992/Scientometrics24,%20181.pdf)

Keywords: Scientific Collaboration

? Rousseau, R. and Zhang, Q.Q. (1992), Zipf data on the frequency of Chinese words revisited. *Scientometrics*, **24** (2), 201-220.

Full Text: [1992\Scientometrics24, 201.pdf](1992/Scientometrics24,%20201.pdf)

Abstract: At the occasion of the 40th anniversary of George Zipf’s premature dead, we reanalyse his data on the frequency of Chinese words. We find the best fitting Lotka, Zipf, Bradford and Leimkuhler distribution and show that only Lotka’s function is not rejected by a Kolmogorov-Smirnov test. Using an additional term to Leimkuhler’s function leads to a statistically acceptable fit. In this way we can determine a core (nucleus) of most frequently used Chinese words.

Keywords: Chinese, Function, Law, Lotka, Zipf

? Haitun, S.D. (1992), The problem of indicator-latent relationship in metric models. 2. metric models with a priori latent assignment. *Scientometrics*, **24** (2), 221-235.

Full Text: [1992\Scientometrics24, 221.pdf](1992/Scientometrics24,%20221.pdf)

Abstract: Metric models in which indicator distribution and a priori assigned latent distributions coincide in form are developed.

Keywords: Indicator, Models, Non-Additivity, Quantitative-Analysis, Scientific Activities, Stationary Scientometric Distributions

? Hall, D.H. (1992), The science-industry interface - Correlation of time-series of indicators and their spectra, and growth-models in the nuclear-fuels industry. *Scientometrics*, **24** (2), 237-280.

Full Text: [1992\Scientometrics24, 237.pdf](1992/Scientometrics24,%20237.pdf)

Abstract: This paper is the third in a series on the flows of influence at the interface between geoscience research and the exploration for and mining of nuclear fuels. It deals with the application of signal processing methods to research and industry indicators, with emphasis on time and frequency domain correlations and lap, and on growth modelling of the indicators using the special and general logistic models. The findings include the following: there was a strong interchange across the science-industry interface; quantitative methods. can establish the degree of correlation and the time periods in which these correlations mainly reside; also the timing of decisions to initiate exploration and research can be specified in this cue. A strategy of applying quantitative methods, history of science, and periodic analyses of the state of the industry to studies of science policy is suggested by this research.

Keywords: Correlations, Geoscience, Growth, History, History of Science, Indicators, Methods, Mining, Modelling, Models, Policy, Quantitative Methods, Research, Science, Science Policy

? Lemoine, W. (1992), Productivity patterns of men and women scientists in Venezuela. *Scientometrics*, **24** (2), 281-295.

Full Text: [1992\Scientometrics24, 281.pdf](1992/Scientometrics24,%20281.pdf)

Abstract: This paper examines the applicability of Lotka’s formulation as a general inverse power (alpha not-equal 2) and as an inverse square power relationship (alpha = 2) to the distribution of the scientific output in Venezuela. The analysis takes into consideration the sex of the authors and the type of journal, mainstream or national, in which they publish their articles. The data were taken from the last census of scientist. and technologists carried out in 1983 by the Venezuelan government. A K-S and a t-test were applied to measure the degree of agreement between the distribution of the observed set of data against the inverse general power relationship (the former test) and the theoretical value of alpha = 2 (the latter). It was found that a general inverse power relationship only describes the productivity pattern of those Venezuelan women scientists who publish in foreign journals. An inverse square power relationship characterizes the distribution pattern for the data set of female authors in all journals and for scientists of both sexes whose contributions appeared in national journals. The values of alpha suggest that women am less productive than men except in national journals, and Lotka’s formulation seems to be useful as an indicator of inequality in male/female scientific productivity.

Keywords: Analysis, Female, Indicator, Inequality, Inverse Power, Journal, Journals, Lotkas Law, Men, Nigeria, Scientific Output, Sex, Women

? Luukkonen, T. (1992), Is scientists publishing behavior reward-seeking. *Scientometrics*, **24** (2), 297-319.

Full Text: [1992\Scientometrics24, 297.pdf](1992/Scientometrics24,%20297.pdf)

Abstract: the use of bibliometric indicators in research evaluation makes many hidden assumptions about scientists’ publishing habits. This paper tests an assumption that scientists am reward oriented and attempt to publish in as prestigious channels as possible, seeking an optimal level in the hierarchy of publications. The data am based on interviews with teaching and research personnel in four university departments in the fields of zoology, biomedicine, and automation and control technology. The author concludes that in all studied fields scientists placed equal emphasis on the reward and communication functions of publishing. The actual publishing behaviour of biomedical scientists, nevertheless, accorded best with the assumption of seeking an optimal level of publishing in terms of prestige. By contrast, in zoology and technical fields, local and field-related publishing habits appeared strong.

Keywords: Assumptions, Automation, Behaviour, Bibliometric, Bibliometric Indicators, Biomedical, Biomedicine, Communication, Evaluation, Functions, Indicators, Interviews, Personnel, Publications, Publishing, Research, Research Evaluation, Teaching, Technology, University

? Leydesdorff, L. (1992), Irreversibilities in science and technology networks - An empirical and analytical approach. *Scientometrics*, **24** (2), 321-357.

Full Text: [1992\Scientometrics24, 321.pdf](1992/Scientometrics24,%20321.pdf)

Abstract: the theory of autopoiesis, i.e., self-referentiality in the operation of the system, provides us with a production rule for change in the structure of the network. Using information theory, a model system is developed to study the relative likelihood of “dynamic” transitions: various senses of ‘irreversibility” (“emergence”, and “path dependency) are distinguished. A test for “path dependency” is applied to two sets of empirical data which supposedly reflect historical discontinuities: the budget of the Fraunhofer Gesellschaft, and the citation network among AIDS research related journals. The model for the interaction between self-referential developments and goal-referential boundary conditions is further specified, using the example of technological trajectories and selection environments.

Keywords: AID, AIDS, Budget, Citation, Citation Network, Count, Dependency, Indicators, Information, Interaction, Journals, Model, Network, One Might Wish, Research, Structure, Texts, Theory

? Garrison, H.H., Herman, S.S. and Lipton, J.A. (1992), Measuring characteristics of scientific-research - A comparison of bibliographic and survey data. *Scientometrics*, **24** (2), 359-370.

Full Text: [1992\Scientometrics24, 359.pdf](1992/Scientometrics24,%20359.pdf)

Abstract: Three characteristics of scientific research (subject matter, researchers’ institutional sectors, and funding sources) were compared using bibliographic and survey data from a study of restorative dental materials research. Both types of data yielded similar findings on the distribution of research across subject areas and the distribution of researchers in government, university and industry sectors. Findings on the sources of research funding, however, were dissimilar and university research support appeared underreported in the bibliographic data. In general, data on publications (from bibliographic files or surveys) yielded lower estimates of industrial participation in research than data pertaining to projects.

Keywords: Estimates, Productivity, Publications, Research, Research Funding, Research Support, Scientific Research, Survey, University

? Martin, B.R. (1992), Big history for big science - Critical-review of history of CERN - Hermann, A, Krige, J, Mersits, U, Pestre, D. *Scientometrics*, **24** (2), 371

Full Text: [1992\Scientometrics24, 371.pdf](1992/Scientometrics24,%20371.pdf)

? Narvaezberthelemot, N., Frigoletto, L.P. and Miquel, J.F. (1992), International scientific collaboration in Latin-America. *Scientometrics*, **24** (3), 373-392.

Full Text: [1992\Scientometrics24, 373.pdf](1992/Scientometrics24,%20373.pdf)

Abstract: This study attempts to analyse the USAbility of international databases such as the Science Citation Index (SCI) for the observation of the international collaboration in lesser-developed countries. We have examined the adequacy of this data source (the SCI) in perceiving the international scientific activities of nine Latin American countries. We have studied the relationships of these countries with their main foreign partners in the large fields of science. It has been observed that some of these relationships are not covered by the data source under study. The creation of an information system storing complementary data suited for the identification of existing international collaborative projects is recommended. In the long-range future such a system would provide more appropriate information for the analyses of international collaboration.

Keywords: Collaboration, Complementary, Identification, Information, International, Latin America, SCI, Science, Science Citation Index, USAbility

Notes: UUniversity

Nederhof, A.J. and Noyons, E.C.M. (1992), Assessment of the international standing of university departments’ research: A comparison of bibliometric methods. *Scientometrics*, **24** (3), 393-404.

Full Text: [1992\Scientometrics24, 393.pdf](1992/Scientometrics24,%20393.pdf)

Abstract: Several bibliometric methods of assessing the research performance of departments are examined: intranational comparison of departments, comparison with foreign departments of good standing, and comparison with a bibliometric world average. In the study, two Dutch experimental psychology departments were compared with one good US and one outstanding UK department. The better of the Dutch departments performed below both foreign departments. However, using the method involving Journal Citation Scores, it was shown that this Dutch department scored above world average recently, while the other department consistently scored below world average. The best picture is obtained when both methods are combined, which shows that the better Dutch department is ranking in the sub-top of the world, while the other department performs below average

Keywords: Behavioral-Sciences, Bibliometric, Bibliometric Methods, British, Citation, Comparison, Experimental, Humanities, Indicators, Methods, Productivity, Psychology, Ranking, Research, Research Performance, UK, US

? Thomas, K.S. (1992), The development of eponymy - A case-study of the southern blot. *Scientometrics*, **24** (3), 405-417.

Full Text: [1992\Scientometrics24, 405.pdf](1992/Scientometrics24,%20405.pdf)

Abstract: Direct, indirect, and implicit citation to an eponymous paper is examined to determine the time span over which eponymy develops. The eponym of a very highly cited method paper was commonly used, indexed, and became a chapter title within 5 years after publication. It began to receive implicit citations within about 6 years, and within 14 years, the implicit citation rate exceeded 50%. Definitions of three forms of citation are given, and an empirical definition of eponymy is offered.

Keywords: Citation, Citations, Nitrocellulose, Publication

? Lancaster, F.W., Burger, R.H. and Rauchfuss, B.M. (1992), Use of literature by East European scientists - What influences place of publication of sources cited. *Scientometrics*, **24** (3), 419-439

Full Text: [1992\Scientometrics24, 419.pdf](1992/Scientometrics24,%20419.pdf)

Abt, H.A. (1992), Publication practices in various sciences. *Scientometrics*, **24** (3), 441-447.

Full Text: [1992\Scientometrics24, 441.pdf](1992/Scientometrics24,%20441.pdf)

Abstract: From a study of Papers published in 1990 in major journals in eight sciences (astrophysics, biology, chemistry, geophysics, mathematics, physics, psychiatry, and radiology) we learn the following. The median numbers of authors per paper range from 1.0 (in mathematics) to 3.7 (in the medical fields). Only a few percent (0-5%) of the papers have more than eight authors. Nearly half (30-55%) of the papers in American journals are partly or totally from abroad, except in the medicinal fields (10%). The fractions of papers with authors from two or more countries are as high as 26% (in astrophysics and geophysics). Mean paper lengths range from 4.6 1000-word pages in the medical fields to 8-13 pages in the observational sciences (astrophysics, biology, geophysics) and mathematics. The fraction of papers revised range from 8% in mathematics to 100% in geophysics. The mean publication times (submission to publication) range from 200 days in physics to 600 days in mathematics.

Keywords: Biology, Chemistry, Journals, Medical, Papers, Psychiatry, Publication, Radiology, Sciences

Notes: MModel

Lemoine, W. (1992), The frequency-distribution of research papers and patents according to sex - the case of Csir - India. *Scientometrics*, **24** (3), 449-469.

Full Text: [1992\Scientometrics24, 449.pdf](1992/Scientometrics24,%20449.pdf)

Abstract: the frequency distribution of research papers and patents produced by men and women scientists working at CSIR, India, is tested against the distribution function of the inverse power type (general or square). A K-S test and a t-test were applied to measure the conformity to the inverse power relationship. for both sexes the distribution of research papers took a bimodal shape and the entire data set did not follow an inverse power function. The male and female CSIR population of authors were divided into two groups, one comprising those researchers (50% of authors) who have written up to 10 articles, the other those scientists with 11 or more research papers. The first conform to a flat productivity distribution, whilst the second were well described by an inverse square power relationship. The distribution of patents did not show signs of the presence of two distinct sections of the distribution; however only the male-data fitted the inverse power relationship of the square type. It was also found that the proportion of less productive scientists was slightly greater for men than for women. Some preliminary ideas based on the characteristics of the data and on Indian cultural heritage, were discussed in order to explain some of the results here delineated.

Keywords: Cultural, Female, First, Function, India, Inverse Power, Inverse Power Function, Lotka Law, Male, Men, Nigeria, Papers, Patents, Population, Research, Science, Scientific Productivity, Women

? Hurt, C.D. and Budd, J.M. (1992), Modeling the literature of superstring theory - A case of fast literature. *Scientometrics*, **24** (3), 471-480.

Full Text: [1992\Scientometrics24, 471.pdf](1992/Scientometrics24,%20471.pdf)

Abstract: This paper used data generated in a previous study to model what can be termed fast literature. In this case, the literature of superstring theory was examined to determine if an anomalous case, such as superstring literature, might fit a theoretical distribution. Price’s Index was examined and found not to fit the data. The lognormal and the Weibull Distributions both appear to fit the observed distribution; however, the Weibull has better practical as well as theoretical strengths to model superstring literature. It is suggested that the literature of superstrings belongs in a separate class of literature, what we term fast literature. Additional study is indicated to determine if this type of literature is a significant factor in scientometrics.

Keywords: Information-Transfer, Literature, Model, Modeling, Scientometrics, Theory

? Egghe, L. and Ravichanra Rao, I.K. (1992), Classification of growth models based on growth rates and its applications. *Scientometrics*, **25** (1), 5-46.

Full Text: [1992\Scientometrics25, 5.pdf](1992/Scientometrics25,%205.pdf)

Abstract: In this paper, growth models are classified and characterised using two types of growth rates: from time t to t + 1 and from time t to 2t. They are interesting in themselves but can also be used for a quick prediction of the type of growth model that is valid in a particular case. These ideas are applied on 20 data sets collected by *Wolfram, Chu and* Lu. We determine (using the above classification as well as via nonlinear regression techniques) that the power model (with exponent > 1) is the best growth model for SCI-Tech online databases, but that Gompertz-S-shaped distribution is the best for social sciences and humanities online databases.

Keywords: Classification, Growth, Humanities, Model, Models, Prediction, Sciences, Social Sciences, T, Techniques

? Leemans, M.J., Maes, M., Rousseau, R. and Ruts, C. (1992), The negative binomial-distribution as a trend distribution for circulation data in flemish public-libraries. *Scientometrics*, **25** (1), 47-57.

Full Text: [1992\Scientometrics25, 47.pdf](1992/Scientometrics25,%2047.pdf)

Abstract: Based on data collected by the authors in Flemish public libraries, we show how the negative binomial distribution (NBD) can be used as a trend distribution for library circulation data. Although actual data show more variation than simple statistics can explain, we recommend the use of the NBD for practical, managerial purposes. As a consequence we also recommend the teaching of these methods in introductory library management courses.

Keywords: Management, Methods, Model, Statistics, Teaching

? Reyniers, P. (1992), Facts and figures on interlibrary lending in Dutch-speaking Belgium in 1989. *Scientometrics*, **25** (1), 59-76.

Full Text: [1992\Scientometrics25, 59.pdf](1992/Scientometrics25,%2059.pdf)

Abstract: A survey of interlending activities in Dutch-speaking Belgium was taken in order to coordinate future developments. Data on a broad range of topics were collected. The processing of numerical data is outlined. The figures must be put in perspective, due to the presence of estimates. The investigation remains however the first serious attempt to get an overall picture of interlending in Flemish libraries.

Keywords: Belgium, Estimates, First, Interlending, Investigation, Numerical Data, Survey

? Rousseau, R. (1992), Category theory and informetrics - Information production processes. *Scientometrics*, **25** (1), 77-87.

Full Text: [1992\Scientometrics25, 77.pdf](1992/Scientometrics25,%2077.pdf)

Abstract: Egghe’s continuous information production processes (in short IPP’s) are described using category theory. Therefore, we first review the main ingredients of this mathematical theory, introduced by Eilenberg and Mac Lane more than four decades ago. Then we show how the notion of duality, as used by Egghe, can be placed in the abstract framework of categorical duality. This leads to a natural isomorphism involving the identity functor on a category of continuous IPP’s. This natural isomorphism is completely similar to the well-known natural isomorphism between a finite-dimensional vector space and its double dual. We further show that to develop Egghe’s theory on IPP’s one needs no other intervals than the unit interval.

Keywords: First, Framework, Information, Intervals, Laws, Needs, Review, Theory

? Vanborm, J. (1992), From interlibrary lending statistics to clearinghouse - the use of ill statistics in Belgium. *Scientometrics*, **25** (1), 89-100.

Full Text: [1992\Scientometrics25, 89.pdf](1992/Scientometrics25,%2089.pdf)

Abstract: As in many other countries interlibrary lending (ILL) statistics were not systematically collected in Belgium until the seventies. Even today they give not always a complete coverage of the ILL situation in Belgium (an estimated 200.000 requests per year). However, electronic document ordering systems will change the present situation. They can be used to measure the performance of ILL, to improve its quality, to assess weaknesses in the ILL-system, to collect statistical data and to act as a clearinghouse for ILL billing.

Keywords: Belgium, Ill, Quality, Statistics

? Desmet, E. (1992), Information behavior in a scientific-technical environment - A survey with innovation engineers. *Scientometrics*, **25** (1), 101-113.

Full Text: [1992\Scientometrics25, 101.pdf](1992/Scientometrics25,%20101.pdf)

Abstract: A small written survey with innovation engineers in a large company is discussed, giving some figures on both behaviour and attitudes with respect to 1) information gathering, 2) information production/dissemination and 3) information storage and management. Most results confirm the trends in other research with R & D engineers: the use and management of information is rather improvised with low levels of sophistication. High tech information techniques (databases, online...) are only marginally important in this high-tech environment. Only younger engineers do some structured efforts. The general attitude is to rely mostly on oral, personal and occasional information sources. By combining positive attitudes and behaviour aspects towards information in the job, a measure of ‘information-orientation’ was constructed, which can be seen as an extension of the classical concept of ‘gate-keepers’ in a company. A few questions to reconstruct a ‘critical incident’ with respect to information problems reveal that information situations can be very time- and money-consuming but again solutions depend on occasional and unstructured information work. However the restricted written approach did not prove to be a good one for this kind of analysis. More in-depth interview-techniques will be necessary for analysis within the ‘critical incident theory’-frame.

Keywords: Analysis, Attitude, Attitudes, Behaviour, Environment, Gatekeepers, Information, Innovation, Management, Research, Small, Survey, Techniques, Trends, Work

Notes: MModel

? Dierick, J.C.J. (1992), Determining the Lotka parameters by sampling. *Scientometrics*, **25** (1), 115-148.

Full Text: [1992\Scientometrics25, 115.pdf](1992/Scientometrics25,%20115.pdf)

Abstract: In order to determine the Lotka parameters for a bibliography, one usually uses the complete data set. In this paper it is shown that it is possible to use only a fraction of the original data, namely by sampling randomly. However, sampling can be done either by source, i.e. selecting a fraction of the authors, or by item, i.e. selecting a fraction of the publications. It is shown here both by experiments, using computer simulations, and by mathematical approach, that only sampling by source is allowed for the mentioned purpose. Item samples give a completely disturbed idea about the Lotka’s law for the bibliography. From source sample size equal to 10% onwards, one gets good results. for the calculation of the Lotka exponent, a known, simple and fitting method is used and refined.

Keywords: Experiments, Law, Lotka, Publications, Sample Size, Size

Dorban, M. and Vandevenne, A.F. (1992), Bibliometric analysis of bibliographic behaviors in economic sciences. *Scientometrics*, **25** (1), 149-165.

Full Text: [1992\Scientometrics25, 149.pdf](1992/Scientometrics25,%20149.pdf)

Abstract: A bibliometric study based on the analysis of six Ph. D. Thesis in economics. In this study the methodology is based on the distinction we made between two different information sources in each thesis: (1) the bibliography cited either at the end or at the beginning of the thesis; it represents the stock of useful or necessary publications; (2) the citations appearing in each dissertations as a whole; it determines the extent to which the stock is used, because it shows how many times a publication cited in the bibliography is cited in the thesis itself. The results concern the ratio ‘number of titles, authors’, the journal, monograph proportion, languages allocation, study of obsolescence. In the bibliography, 95% of books and articles are less than 30 years old. In the citations, articles and 95% of books are less than 20 years old

Keywords: Analysis, Bibliometric, Bibliometric Study, Citations, Economics, Information, Languages, Libraries, Methodology, Obsolescence, Publication, Publications

? Egghe, L. (1992), Generalized transfer principles in econometrics and informetrics. *Scientometrics*, **25** (1), 167-191.

Full Text: [1992\Scientometrics25, 167.pdf](1992/Scientometrics25,%20167.pdf)

Abstract: the generalized (also called extended) transfer principles as introduced in two earlier papers by Egghe and Rousseau are known to be stronger properties than the classical transfer principle of Dalton. Hence, functions satisfying one of these generalized principles are very good concentration measures. This paper studies the following non-trivial problem: how many different generalized transfer principles can a function satisfy? We show that a function can, at most, satisfy one generalized transfer principle. This also shows that a further generalization of transfer principles, comprising the generalized ones, is not possible. The proof of this result involves the solution of a norm problem in mathematical analysis and analytical geometry.

Keywords: Analysis, Function, Functions, Inequality, Papers, Principles, Solution

? Philips, R. (1992), Pseudometrics on bibliographic entities. *Scientometrics*, **25** (1), 193-199.

Full Text: [1992\Scientometrics25, 193.pdf](1992/Scientometrics25,%20193.pdf)

Abstract: the purpose of this paper is to define a pseudo-metric on bibliographic entities to measure the distance in content between them. An example of this pseudo-metric is given in the case that the content of the bibliographic material is characterised by means of UDC-numbers.

? Provost, F. and Nieuwenhuysen, P. (1992), Measuring overlap of data-bases in water-supply and sanitation using sampling and the binomial probability-distribution. *Scientometrics*, **25** (1), 201-209.

Full Text: [1992\Scientometrics25, 201.pdf](1992/Scientometrics25,%20201.pdf)

Abstract: A quick and easy method is presented to estimate the overlap of data bases, which can be used to assist the data base producers and managers in their policy towards coverage of their subject area. The method has been applied to bibliographic data bases on low-cost water supply and sanitation, yielding information for users and for the data base producers.

Keywords: Data Base, Information, Policy, Sanitation, Water

Notes: TTopic

Braun, T., Maczelka, H. and Schubert, A. (1992), Scientometric indicators datafiles: Summary statistics and trendlines of major geopolitical regions, 1980-1989. *Scientometrics*, **25** (2), 211-217.

Full Text: [1992\Scientometrics25, 211.pdf](1992/Scientometrics25,%20211.pdf)

Keywords: Facts, Figures, Life Sciences, Newest Version, Physics, Publication Output, Relative Citation Impact

? Glänzel, W. and Winterhager, M. (1992), International Collaboration of 3 East European Countries with Germany in the Sciences, 1980-1989. *Scientometrics*, **25** (2), 219-227.

Full Text: [1992\Scientometrics25, 219.pdf](1992/Scientometrics25,%20219.pdf)

Keywords: Germany

? Chu, H. (1992), Communication between Chinese and non-Chinese scientists in the discovery of high-TC superconductor. 1. The formal perspective. *Scientometrics*, **25** (2), 229-252.

Full Text: [1992\Scientometrics25, 229.pdf](1992/Scientometrics25,%20229.pdf)

Abstract: As the first part of a two-phase study, 240 documents highly cited in a self-created Chinese database and in Science Citation Index for the period of 1987-89 were examined to delineate the formal structure of communication in superconductivity research. Noteworthy similarities, e.g., analogous cited cores, identical publication sources, and comparable intellectual structures of cocitation data, were found in formal communication between Chinese and non-Chinese scientists. However, differences were also located in citedness, timeliness, and direction of communication.

Keywords: Chinese, Citation Patterns, Cocitation, Communication, Country, Database, First, High Metabolism Area, Physics, Publication, Research, Science, Science Citation Index, Structure

? Chu, H. (1992), Communication between Chinese and non-Chinese scientists in the discovery of high-TC superconductors. 2. The informal perspective. *Scientometrics*, **25** (2), 253-277.

Full Text: [1992\Scientometrics25, 253.pdf](1992/Scientometrics25,%20253.pdf)

Abstract: Data obtained through letter poll over 143 researchers who authored the 240 highly cited documents (See the first phase of the study) were used to describe the informal aspects of communication between Chinese and non-Chinese superconductivity researchers. While non-Chinese researchers played both roles equally, Chinese scientists were the destination more often than they were the source in informal communication. Chinese scientists were less visible than their counterparts in the informal domain. The mapping of the informal communication activities among the superconductivity researchers shows that all Chinese scientists except Zhao ZX, a special liaison between the two groups of researchers, clustered away from their non-Chinese colleagues.

Keywords: Chinese, Communication, First

? Huot, C., Quoniam, L. and Dou, H. (1992), A new method for analyzing downloaded data for strategic decision. *Scientometrics*, **25** (2), 279-294.

Full Text: [1992\Scientometrics25, 279.pdf](1992/Scientometrics25,%20279.pdf)

Abstract: Technology assessment survey is nowadays a specific and scientific subject that any manufacture needs for increasing productivity. This function was initially reserved to experts of the studied field. But the increase of information volume has called for a change. Now, we need specialists of technology assessment survey which know about sophisticated methods to extract strategic information from downloaded data. We will explain how to build strategic information. We present here a new and original method of data analysis. This Factorial Relational Analysis is born after 15 years of IBM France mathematics research center works on qualitative data analysis. The method is based on Relational Analysis. The particularity of this method is to work with sparse matrices and to obtain the best classification without any a priori fixation of number of classes. Relational Analysis is used in other sectors than the analysis of matrices issued from downloaded data. for example it is also used in computational lexicography or in credit scoring or in any domain where classification is concerned. Here we choose to present an example of an application in patent analysis.

Keywords: Analysis, Assessment, Classification, Data Analysis, France, Function, Information, Methods, Needs, Patent, Patent Analysis, Qualitative, Research, Survey, Technology, Technology Assessment, Work

? Leydesdorff, L. (1992), A validation-study of leximappe. *Scientometrics*, **25** (2), 295-312.

Full Text: [1992\Scientometrics25, 295.pdf](1992/Scientometrics25,%20295.pdf)

Abstract: Clusters of normalized title-words in two sets of patent data in the food-sector (from 1985 and 1989, respectively) are analyzed in terms of their underlying document and word structures. The clusters were generated by using the system LEXIMAPPE of the Paris School of Mines. Both input and output data were kindly made available for validation purposes. Analysis of the data shows that the “centrality” and the “density” of the clusters produced by LEXIMAPPE are primarily dependent on the number of word occurrences in the corresponding parts of the input matrix. While the clusters are kept approximately equal in terms of the number of words (with a maximum of 10), They vary widely in terms of the number of word occurrences in the underlying document sets. “Centrality” and “density” vary correspondingly. The contribution of the smallest cluster to the reduction of uncertainty in the prediction of the document structure is even smaller than that of 77 (other) single words. In the dynamic analysis, I found significant stability where LEXIMAPPE indicated major changes. However, like every clustering algorithm LEXIMAPPE is based on specific assumptions which may lead to specific results that cannot be simulated by using other methods. Researchers who base their results on LEXIMAPPE should be aware of the peculiarities specific to this system.

Keywords: Algorithm, Analysis, Assumptions, Changes, Clustering, Co-Word Analysis, Count, Lead, Leximappe, Methods, Model, Networks, One Might Wish, Patent, Prediction, Reduction, Science Indicators, Stability, Structure, Texts, Uncertainty, Validation

? Courtial, J.P. (1992), A validation-study of leximappe - Comment. *Scientometrics*, **25** (2), 313-316.

Full Text: [1992\Scientometrics25, 313.pdf](1992/Scientometrics25,%20313.pdf)

? Leydesdorff, L. (1992), A validation-study of leximappe - Reply. *Scientometrics*, **25** (2), 317-319.

Full Text: [1992\Scientometrics25, 317.pdf](1992/Scientometrics25,%20317.pdf)

? Okubo, Y., Miquel, J.F., Frigoletto, L. and Dore, J.C. (1992), Structure of international collaboration in science - Typology of countries through multivariate techniques using a link indicator. *Scientometrics*, **25** (2), 321-351.

Full Text: [1992\Scientometrics25, 321.pdf](1992/Scientometrics25,%20321.pdf)

Abstract: In this article patterns of international collaboration in science are investigated using a specific procedure to analyse data collected from the Science Citation Index. We develop an indicator based on the scientific linkages between countries established through internationally co-authored articles (COPs). The credibility, advantages and uses of this indicator are discussed. We apply the Correspondence Factorial Analysis method and the Minimum Spanning Tree classification to this indicator in order to observe the level of resemblance and the main characteristics of the collaboration structured by 98 countries in eight principal fields of science. The results shown summarize the diverse aspects of countries participating in collaborative works and bring into view the cognitive structure of international research. The use of these methods in the investigation of international collaboration contributes to the analysis of the complex structure of the scientific communities of different countries.

Keywords: Analysis, Classification, Collaboration, Credibility, Indicator, International, Investigation, Methods, Research, Science, Science Citation Index, Structure

Johnes, G. and Johnes, J. (1992), Apples and oranges: the aggregation problem in publications analysis. *Scientometrics*, **25** (2), 353-365.

Full Text: [1992\Scientometrics25, 353.pdf](1992/Scientometrics25,%20353.pdf)

Abstract: A major difficulty with bibliometric measures of departmental research contributions based upon publications counts has concerned the summing of publications of different types. An attempt is made in this paper to bypass this aggregation problem by appeal to the methods of Data Envelopment Analysis (DEA). In this way we investigate the technical efficiency of UK university departments of economics as producers of research. The data set used is an extended version of the one which informed the recent Universities Funding Council peer review, and the results obtained here are compared with those obtained by the Council. We conclude that, although due caution is needed in the interpretation of results, DEA has a positive contribution to make in the development of meaningful indicators of university performance.

Keywords: Aggregation, Assessments, Bibliometric, Data Envelopment Analysis, Development, Economics, Efficiency, Indicators, Methods, Peer Review, Peer-Review, Publications, Research, Review, UK, University, University Departments

Maczelka, H. and Zsindely, S. (1992), All well if starts well? Citation infancy of recently launched chemistry journals. *Scientometrics*, **25** (2), 367-372.

Full Text: [1992\Scientometrics25, 367.pdf](1992/Scientometrics25,%20367.pdf)

Abstract: the impact factor and the journal self-citation rate of 22 newly launched chemistry journals has been investigated. The dependence of these indicators on the journal’s age was found to be rather characteristic to the initial period of a journal’s ‘life cycle’.

Keywords: Chemistry, Impact Factor, Indicators, Journal, Journals, Self-Citation

? Glänzel, W. and Schubert, A. (1992), Some facts and figures on highly cited papers in the sciences, 1981-1985. *Scientometrics*, **25** (3), 373-380.

Full Text: [1992\Scientometrics25, 373.pdf](1992/Scientometrics25,%20373.pdf)

Keywords: Citation Impact, Publication Output, Relative Indicators

? Czapski, G., Frenkel, A., Kohn, D. and Shoham, A. (1992), Cooperation between Israeli and foreign researchers. *Scientometrics*, **25** (3), 381-400.

Full Text: [1992\Scientometrics25, 381.pdf](1992/Scientometrics25,%20381.pdf)

Abstract: This paper analyses the reasons, framework and trends of scientific cooperation between Israeli and foreign researchers for the period 1974-1983. The study used the ISI database purchased by the S. Neaman Institute, containing all Israeli publications for the above mentioned years. A complementary survey was carried out including a sample of two academic institutions. The survey database established on the basis of replies of 249 researchers who replied to the survey questionnaires includes data regarding 5,893 papers, 1550 of which had not been included in the ISI database. The findings show that about one third of the papers missing from the ISI database is due to the fact that authors did not note their permanent Israeli address under the paper’s title. Other reasons for the partial coverage of the ISI database is that the ISI database does not cover all the professional journals and all types of scientific publications. The survey points to an absolute increase of the actual bulk of the research performed by Israeli scientists abroad. Major differences were found between researchers among different departments as regards framework for research performed abroad, reasons and sources of funding. The main reason listed for foreign cooperation was that of true cooperation (50%) and this is a very positive phenomenon.

Keywords: Complementary, Cooperation, Database, Framework, Institutions, ISI, Journals, Papers, Publications, Questionnaires, Research, Scientific Publications, Survey, Trends

? Formann, A.K. (1992), Academic personnel-selection - Description and prognosis of the decisions made by the committee for the selection of candidates for a full professorship. *Scientometrics*, **25** (3), 401-414.

Full Text: [1992\Scientometrics25, 401.pdf](1992/Scientometrics25,%20401.pdf)

Abstract: On the example of filling the vacancy of a full professorship for general psychology, the usefulness of the least-squares variant of Guttman’s scalogram analysis (method of principal components for multicategory items) is demonstrated for giving assistance the process of personnel selection. Using some criteria being available per applicant such as adequacy of field of work, age, and number of publications, this scaling procedure results in weights for each of the categories of the criteria indicating the relative importance of each criterion, and scores for all applicants pointing at their aptness. Since the recommendations deduced from the applicants’ scores matched the decisions of the selection committee to a high degree, some aspects of the selection committee’s decision process could be reconstructed as well as the predictive power of the method of principal components is exemplified. From the observation that this method worked well in case of 46 applicants and up to 7 criteria altogether having 18 categories, but did fail if applied to 9 candidates only, its suitability for moderate sample sizes can be infered which can be seen to be typical of the first screening steps within a multi-stage selection process.

Keywords: Analysis, Contingency-Tables, Criteria, First, Personnel, Personnel Selection, Psychology, Publications, Recommendations, Scaling, Screening, Work

? Pouris, A. (1992), Economic sanctions and research-and-development. *Scientometrics*, **25** (3), 415-424.

Full Text: [1992\Scientometrics25, 415.pdf](1992/Scientometrics25,%20415.pdf)

Abstract: This article identifies the effects of disinvestment on the R & D activities in South Africa. The importance of the article lies in its relevance for science and trade policy and in the examination of this angle of sanctions against South Africa. The results indicate that foreign owned companies increase their R & D activities as the threat of disinvestment intensifies. The same phenomenon applies to the new management of companies which disinvest. A side finding of importance is the fact that only a small proportion (3%) of the R & D activity in the country is undertaken by foreign owned companies. A number of explanations am offered for the observed behaviours.

Keywords: Examination, Investment, Management, Policy, Relevance, Science, Small, South Africa, South-Africa

Notes: TTopic

Bordons, M. and Barrigón, S. (1992), Bibliometric analysis of publications of Spanish pharmacologists in the SCI (1984-89). 2. Contribution to subfields other than pharmacology and pharmacy (ISI). *Scientometrics*, **25** (3), 425-446.

Full Text: [1992\Scientometrics25, 425.pdf](1992/Scientometrics25,%20425.pdf)

Abstract: During the period 1984-89 Spanish pharmacologists published 344 papers (44.3% of their total scientific production) (Science Citation Index, CD-Edition) in journals classified by the SCI in subfields different from Pharmacology & Pharmacy. Distribution by institutions, geographical regions, journals, subfields and research levels am presented. The Normalized Journal Position (NJP) is introduced as indicator of the expected impact in each subfield. Results are compared with those of the analysis of the production of Spanish pharmacologists in the Pharmacology & Pharmacy subfield, presented in a previous paper. Some of the features detected am common to both areas, such as: increasing trend in the productivity over years irregular geographical distribution with three regions as major producers, or university as main producer institution. Special features of the extra-Pharmacology area are also pointed out: irregular growth of publication number over years, high dispersion of publications in journals and subfields high collaboration rate, and low percentage of authors with at least 1 paper/year, among others. Attending to journal of publication, cross-disciplinarity research of Spanish pharmacologists is analysed, being Neurosciences, Biochemistry & Molecular Biology and Physiology, the main border fields involved.

Keywords: Analysis, Basic Science, Collaboration, Growth, Indicator, Institutions, Journal, Journals, Papers, Publication, Publications, Research, SCI, Science Citation Index, Scientific Production, University

? Anderson, F. and Dalpe, R. (1992), A profile of Canadian coal and petroleum research communities. *Scientometrics*, **25** (3), 447-463.

Full Text: [1992\Scientometrics25, 447.pdf](1992/Scientometrics25,%20447.pdf)

Abstract: the objective of this paper is to show that various bibliometric indicators are a good departure point to describe a national research community, as well as the linkages between research institutions, the users of the research and the funders of the research community. We profile the Canadian coal and petroleum research communities. The role of CANMET, a government research laboratory, is examined as example of how our analysis can be useful to policy-makers and decision-makers.

Keywords: Analysis, Bibliometric, Bibliometric Indicators, Coal, Community, Indicators, Innovators, Institutions, Networks, Research

? Small, H. (1993), Macrolevel changes in the structure of cocitation clusters - 1983-1989. *Scientometrics*, **26** (1), 5-20.

Full Text: [1993\Scientometrics26, 5.pdf](1993/Scientometrics26,%205.pdf)

Abstract: At ISI we haw used a consistent method for clustering the combined Science Citation Index and Social Sciences Citation Index for the last seven years (1983 to 1989). This method involves clustering highly cited documents by single-link clustering and then clustering the resultant clusters, a total of four times. This gives a hierarchical or nested structure of clusters four levels deep. Relationships among clusters at a given level can be depicted by multidimensional scaling, and by comparing successive year maps we can see how the relationships of major disciplines have changed from year to year. We focus mainly on the two highest levels of aggregation, C4 and C5, to make observations about structural changes in science involving the major disciplines. Distinction is made between changes which appear to be cyclic or oscillatory in nature, and those which appear to be more permanent or unidirectional.

Keywords: Aggregation, Changes, Clustering, ISI, Multidimensional, Multidimensional Scaling, Nested, Permanent, Scaling, Science, Science Citation Index, Structure

Schubert, A. and Braun, T. (1993), Reference standards for citation based assessments so scientometrics. *Scientometrics*, **26** (1), 21-35.

Full Text: [1993\Scientometrics26, 21.pdf](1993/Scientometrics26,%2021.pdf)

Abstract: One of the most crucial points of citation-based assessments is to find proper reference standards to which the otherwise meaningless plain citation counts can be compared. Using such standards, mere absolute numbers can be turned into relative indicators, suitable for cross-national and cross-field comparisons. In the present study, three possible choice of reference standards for citation assessments are discussed. Citation rates of publications under study can be compared to the average citation rates of the papers of the publishing journals to result in Relative Citation Rate (RCR), an indicator successfully used in several comparative scientometric analyses (see, e.g. Refs 1-5). A more ‘customized’ reference set is defined by the related records in the new CD Edition of the Science Citation Index database. Using the so-called ‘bibliographic coupling’ technique, a set of papers with a high measure of similarity in their list of references is assigned to every single paper of the database. Beside of being an excellent retrieval tool, related records provide a suitable reference set to assess the relative standing of a given set of papers as measured by citation indicators. The third choice introduced in this study is specifically designed for assessing journals. for this purpose, the sa of journals cited by the journal in question seems to be a useful basis to compare with. The pros and cons of the three choices are discussed and several examples are given.

Keywords: CD, Citation, Citation Counts, Countries, Database, Facts, Figures, Impact, Indicator, Indicators, Journal, Journals, Life Sciences, Newest Version, Papers, Physics, Publication Output, Publications, Publishing, Records, Science Citation Index, Scientometric, Similarity, Standards

? Bonitz, M., Bruckner, E. and Scharnhorst, A. (1993), The Science Strategy Index. *Scientometrics*, **26** (1), 37-50.

Full Text: [1993\Scientometrics26, 37.pdf](1993/Scientometrics26,%2037.pdf)

Abstract: A new indicator, Science Strategy Index, is proposed, which is based on the scattering of a country’s science activity over all science fields and related to the world distribution of the science fields. The indicator allows to compare the structure of the publication output of countries as reflected by the used database, irrespective of the size of the countries. If the science structure of each country is related for comparison to that one of each other country, the indicator converts into a structural measure which enables to cluster countries according to their structural similarity. The cluster map of countries achieved in this way deserved intense discussion upon the different science strategies of countries and their geographic, political, communicative, and socio-cultural background.

Keywords: Comparison, Countries, Database, Indicator, Publication, Scattering, Science, Similarity, Size, Structure

? Czerwon, H.J. and Havemann, F. (1993), Influence of publication languages on the citation rate of scientific articles - A case-study of East German journals. *Scientometrics*, **26** (1), 51-63.

Full Text: [1993\Scientometrics26, 51.pdf](1993/Scientometrics26,%2051.pdf)

Abstract: In order to quantify the influence of publication languages on the rate of citation of scientific articles, such East German journals from the Science Citation Index database were selected which publish relevant shares of contributions in several languages, especially in English and German. for a fixed period of time (1988) the selective citation impact of both English- and German-language articles was calculated. The results of our investigation reveal a non-uniform picture: In some cases English-language papers exhibit a significantly higher citations-per-paper average than German-language articles, but in a few cases German-language publications achieve a higher mean citation rate. for the half of selected journals there does not exist a statistically significant difference of citation frequencies of publications in both languages. Possible causes of these phenomena (editorial practice of journals, native countries of authors) are considered.

Keywords: Citation, Database, Investigation, Journals, Languages, Papers, Practice, Publication, Publications, Science Citation Index

? De Bruin, R. and Moed, J. (1993), Delimitation of scientific subfields using cognitive words from corporate addresses in scientific publications. *Scientometrics*, **26** (1), 65-80.

Full Text: [1993\Scientometrics26, 65.pdf](1993/Scientometrics26,%2065.pdf)

Abstract: An appropriate delimitation of scientific subfields constitutes one of the key problems in bibliometrics. Several methods have been explored for this task. The main ones are co-citation analysis, co-word analysis, the use of indexing systems based on controlled or uncontrolled keywords, and finally the use of a classification of scientific journals into subfields or categories. In our contribution we will explore a new method, which is based on cognitive words from addresses (corporate sources) in scientific publications. Cognitive address words are words referring to scientific (sub)fields, methods or objects of research, that appear in the institutional affiliations of the publishing authors (e.g., ‘Department of Pharmacology,’ AIDS Research Center’). We will focus on the *Science Citation Index (SCI),* published by the Institute for Scientific Information. Our methods will be applied to a multidisciplinary set of articles extracted from the journals *Science and Nature.*

Keywords: AID, AIDS, Analysis, Bibliometrics, Classification, Co-Citation, Co-Citation Analysis, Cocitation, Institute for Scientific Information, Journals, Methods, Multidisciplinary, Publications, Publishing, Research, SCI, Science Citation Index, Scientific Journals, Scientific Publications

? Glänzel, W. and Schubert, A. (1993), A characterization of scientometric distributions based on harmonic means. *Scientometrics*, **26** (1), 81-96.

Full Text: [1993\Scientometrics26, 81.pdf](1993/Scientometrics26,%2081.pdf)

Abstract: the traditional stochastic approach to scientometric and bibliometric phenomena is based on measuring the absolute number of objects (e.g., publications, topics, citations). These measures reflect underlying rules such as the cumulative advantage principle and lead to classical statistical functions such as arithmetic mean and standard deviation. An alternative measure based on the contribution share of an individual object in the entirety of related objects reveals more about the coherence in the analyzed structure. This approach is connected with (conditional) harmonic means. The analysis of the properties of these statistical functions leads to a special urn-model distribution which has an analogous behaviour to that of the Waring distribution in connection with conditional arithmetic means. The new distribution combines specific properties (long tail, flexibility of the distribution shape) of the two scientometric favourites, the Waring and the negative binomial distribution. Five methods of parameter estimation are presented. The fit and the properties of this special urn-model distribution are illustrated by three scientometric examples, particularly, by two citation rate distributions with different shapes and one publication activity distribution with lacking zero frequencies.

Keywords: Alternative, Analysis, Behaviour, Bibliometric, Citation, Citations, Flexibility, Functions, Lead, Methods, Publication, Publication Activity, Publications, Scientometric, Standard, Structure

? Kretschmer, H. (1993), Measurement of social stratification: A contribution to the dispute on the Ortega hypothesis. *Scientometrics*, **26** (1), 97-113.

Full Text: [1993\Scientometrics26, 97.pdf](1993/Scientometrics26,%2097.pdf)

Abstract: Some discussion papers about the ORTEGA hypothesis were published in *Scientometrics.* One aspect of these discussions was the necessity for the future extension of empirical research to gain a better foundation for the acceptance or refutation of the Ortega hypothesis which states that the research done by average scientists substantially contributes to the advance of science. In this direction an empirical study about the stratification in coauthorship networks is represented in this paper. It was tested whether the extent of stratification decreases with the increasing number of coauthors per paper.

Keywords: Acceptance, Citation, Coauthorship, Papers, Research, Science, Scientists, Scientometrics

? Van Leeuwen, T. and Tijssen, T. (1993), Assessing multidisciplinary areas of science and technology: A synthetic bibliometric study of Dutch nuclear energy research. *Scientometrics*, **26** (1), 115-133.

Full Text: [1993\Scientometrics26, 115.pdf](1993/Scientometrics26,%20115.pdf)

Abstract: This paper presents a selection of results of a comprehensive quantitative, research literature-based study of Dutch energy research. The primary goal of this paper is to provide an overview of what bibliometfic data from ISI and non-lSI databases may offer to describe the state of affairs in a scientific field. It illustrates the added value of combining bibliometric indicators of publication output, international visibility, international co-operation, and interdisciplinarity in a study of nuclear energy research in the 1980’s when its budget decreased dramatically.

Keywords: Bibliometric, Bibliometric Indicators, Budget, Cooperation, Indicators, Interdisciplinarity, International, International Co-Operation, International Cooperation, ISI, Primary, Publication, Research

Leydesdorff, L. and Cozzens, S.E. (1993), The delineation of specialities in terms of journals using the dynamic journal set of the SCI. *Scientometrics*, **26** (1), 135-156.

Full Text: [1993\Scientometrics26, 135.pdf](1993/Scientometrics26,%20135.pdf)

Abstract: In order to attribute journals to specialties in a dynamic journal set by using aggregated journal-journal citations derived from the Science Citation Index, it is necessary to complement the multi-variate analysis of this data with a time- series perspective. This calls for a more analytical approach to the problem of choice among the many possible parameters for clustering. Changes in the disciplinary structure of science are tracked by using the differences among the multi-variate analyses for the various years. It is impossible to attribute change systematically to structure, noise, or deviance if these uncertainties are not clearly defined ex ante. The study discusses the various choices which have to be made, in both conceptual and methodological terms In addition to hierarchies among journals, one has to assume heterarchy among journal groups (and their centroids). for comprehensive mapping, a concept of ‘macro-journals’ as representations of a density of points in the multi-dimensional space is defined. Empirical results indicate the feasibility of dynamic journal-journal mapping by using these methods

Keywords: Analysis, Bibliometric Assessment, British Science, Citations, Clustering, Decline, Disciplinary Structure, Journal, Journals, Matrices, Methods, Science, Science Citation Index, Structure, UK Scientific Performance

Mendez, A., Gomez, I. and Bordons, M. (1993), Some indicators for assessing research performance without citations. *Scientometrics*, **26** (1), 157-167.

Full Text: [1993\Scientometrics26, 157.pdf](1993/Scientometrics26,%20157.pdf)

Abstract: the study aims at designing a set of indicators which, integrated altogether, should be able to inform on the kind of research published in journal articles and its proximity to their specific forefronts. The set of indicators is composed of two subsets, one including information of the authors, ‘research performers indicators’, and other embodying information of the references used, ‘source indicators’. The source indicators are compared with the references pattern of specific paradigmatic journals used as standard framework of the research field. Three case studies dealing with the Spanish research on Immunology, Neurosciences and Pharmacognosy will be presented. The application of the indicators gave the following results: Spanish Immunology published in foreign journals was basic in its scope while the one published in domestic journals dealt with applied and clinical Medicine. Neuroscience published in foreign journals by financed Hospitals appertained to the forefront and presented a broad scope, Neuroscience published in foreign journals by non-financed Hospitals was applied research and Neuroscience published by Universities, also in foreign journals, represented basic research done in a closed system. The case of Spanish Pharmacognosy is more difficult to interpret as three subject fields are involved (Pharmacology, Chemistry and Botany). The indicators did not clearly differentiate between the research published in domestic and foreign journals, although it seems that Spanish scientists are more interested in the pharmacological and botanical aspect of the natural products than in their chemical structure.

Keywords: Case Studies, Clinical, Framework, Indicators, Information, Journal, Journal Articles, Journals, Research, Standard, Structure

? Van Raan, A. and Tussen, R. (1993), The neural net of neural network research: An exercise in bibliometric mapping. *Scientometrics*, **26** (1), 169-192.

Full Text: [1993\Scientometrics26, 169.pdf](1993/Scientometrics26,%20169.pdf)

Abstract: In this paper we discuss the limits and potentials of bibliometric mapping based on a specific co-word analysis. The subject area is neural network research. Our approach is a ‘simulation’ of expert assessment by offering the reader a narrative of the field which can be used as background information when ‘reading’ the bibliometric maps. The central issue in the applicability of bibliometric maps is whether these maps may supply ‘additional intelligence’ to users. In other words, whether such a bibliometric tool has an epistemological value, in the sense that it ecriches existing knowledge by supplying ‘unexpected’ relations between specific ‘pieces’ of knowledge (‘synthetic value’) or by supplying ‘unexpected’ problems (‘creative value’). We argue that sophisticated bibliometric mapping techniques are indeed valuable for further exploration of these ‘epistemological’ potentials. In particular, these techniques may open new avenues to study science as a self-organizing system in the form of a ‘neural network like’ structure of which the bibliometric map is a first-order approximation. In that sense, this paper deals with the ‘neural net of neural network research’ as our bibliometric techniques in fact mimic a connectionistic approach.

Keywords: Analysis, Assessment, Bibliometric, Bibliometric Mapping, Bibliometric Techniques, Citation, Combined Cocitation, Information, Knowledge, Network, Neural Network, Reading, Relations, Research, Science, Simulation, Structure, Techniques, Word Analysis

? Schmoch, U. (1993), Tracing the knowledge transfer from science to technology as reflected in patent indicators. *Scientometrics*, **26** (1), 193-211.

Full Text: [1993\Scientometrics26, 193.pdf](1993/Scientometrics26,%20193.pdf)

Abstract: the use of references of patent search reports as transfer indications needs a good theoretical understanding of the underlying examination procedures. On this background, different patent indicators based on sample patents and on respective references can be established and combined to a network which gives an interesting insight into the complex process of knowledge transfer from science to technology.

Keywords: Examination, Indications, Indicators, Knowledge, Needs, Network, Patent, Patents, Procedures, Science, Technology, Understanding

? Vinkler, P. (1993), Research contribution, authorship and team cooperativeness. *Scientometrics*, **26** (1), 213-230.

Full Text: [1993\Scientometrics26, 213.pdf](1993/Scientometrics26,%20213.pdf)

Abstract: Activity shares in different types of research work for coauthors of scientific papers were detected by questionnaire methods. It was found e.g. that first authors perform about 70% of the total work needed for two authored papers, which decreases to 34% for papers with five authors. From Total Activity Shares determined for coauthors Total Team Contribution Factors could be calculated for cooperating teams. Total as well as Intramural and Extramural Team Cooperativeness for research teams were obtained by relating shares of impact factor scores for the investigated teams to the total.

Keywords: First, Impact Factor, Impact Factor Scores, Indicators, Methods, Papers, Questionnaire, Research, Research Collaboration, Research Work, Scientists, Work

? Courtial, J.P., Callon, M. and Sigogneau, A. (1993), The use of patent titles for identifying the topics of invention and forecasting trends. *Scientometrics*, **26** (2), 231-242.

Full Text: [1993\Scientometrics26, 231.pdf](1993/Scientometrics26,%20231.pdf)

Abstract: Co-word analysis applied to patents through WPIL normalized title words appears to give a useful picture of a given field: we obtain both qualitative (themes) and quantitative information (weight of themes). It also gives information about the strategic aspects of the themes. Furthermore, in some cases, it is an indication of the future of certain themes that may help forecasting and management studies. Finally, it provides information about what could be a real technology growth process, in relation to the so-called translation model used in co-word analysis.

Keywords: Analysis, Co-Word Analysis, Forecasting, Growth, Information, Management, Model, Network, Patents, Polymer Chemistry, Qualitative, Technological Research, Technology, Tool, Translation

? Bonheim, H. (1993), The reception of Polish philology abroad. *Scientometrics*, **26** (2), 243-253.

Full Text: [1993\Scientometrics26, 243.pdf](1993/Scientometrics26,%20243.pdf)

Abstract: A bibliometric survey of 28 scholars named in Poland as being the leading scholars in the fields of Linguistics and of English and American Studies shows that only five of them had done work which was cited more than once a year during the eleven years 1980 to 1990. The reasons are apparently not only the poverty of the libraries currently available in Poland but also the restricted selection of Polish journals represented in the citation indices. Suggestions are made as to how good scholarly work done in Poland could be made better known in the rest of the world.

Keywords: Bibliometric, Bibliometric Survey, Citation, Journals, Poverty, Survey, Work

? Hussain, S.S.M. and Nunez, D.A. (1993), British otorhinolaryngological research - An analysis of publication trends. *Scientometrics*, **26** (2), 255-262.

Full Text: [1993\Scientometrics26, 255.pdf](1993/Scientometrics26,%20255.pdf)

Abstract: 1081 otorhinolaryngological articles originating from departments in the British Isles, published in 8 leading English language speciality journals from 1985-1989 were analysed to determine author and content trends. Articles were classified as clinical investigative, laboratory based, case report or review/editorial. The institution of origin, total number of authors and identity of the first three were recorded. There is evidence of an increase in published British otolaryngological research and in the extent of researcher collaboration.

Keywords: Clinical, Collaboration, Evidence, First, Journals, Medical Journals, Origin, Research, Trends

? Liming, L. and Lihua, L. (1993), Scientific publication activities of 32 countries - Zipf-Pareto distribution. *Scientometrics*, **26** (2), 263-273.

Full Text: [1993\Scientometrics26, 263.pdf](1993/Scientometrics26,%20263.pdf)

Abstract: the paper examines the qualitative as well as quantitative indicators for the assessment of the scientific publication activities of 32 countries, with special attention to the Zipf-Pareto distribution of those indicators. Also discussed is the linear relationship between the number of first authors of scientific papers in a given country and the number of papers it produced. Based on these discussions, a comprehensive indicator combining the merits of quantitative and qualitative indicators is suggested. The ranking of the 32 countries by this indicator is found to follow also Zipf-Pareto distribution.

Keywords: Assessment, First, Indicator, Indicators, Papers, Publication, Qualitative, Ranking

? Whitney, G. (1993), Patterns of authorship in major bibliographic databases - the European region. *Scientometrics*, **26** (2), 275-292.

Full Text: [1993\Scientometrics26, 275.pdf](1993/Scientometrics26,%20275.pdf)

Abstract: European authorship trends in fifteen major scientific and technical bibliographic databases on the DIALOG information system are examined for works published between 1970 and 1990. There was an increasing number of records with European authors in 21% of the data set. In 6%, an overall decline was found. In 52%, authorship increased into the 1980’s, and then declined. The mort heavily represented countries were the former Soviet Union, the United Kingdom, Germany, and France. Overall, with the exception of MEDLINE, BIOSIS, and INSPEC, coverage of the works of European authors has been declining over the past twenty years and particularly so in the last five.

Keywords: Authorship, France, Germany, Information, MEDLINE, Records, Trends, United Kingdom

? Caraca, J.M.G., Dasilva, C.M. and Massimo, L. (1993), Research-and-development indicators and socioeconomic cohesion. *Scientometrics*, **26** (2), 293-309.

Full Text: [1993\Scientometrics26, 293.pdf](1993/Scientometrics26,%20293.pdf)

Abstract: An indicator was developed to analyze the distribution of EC support to research projects in the less favoured peripheral regions of Europe, compared to support in the economically stronger com regions. for this purpose it was assumed that in theory EC research funds and contracts would tend, on average, to be allocated according to the scientific potential of each country or region. An R & D activity is considered to contribute to socio-economic cohesion if the share obtained by the less favoured regions is larger than their share of the total European scientific potential. This assessment was made both for the total of all R & D activities and for each specific research programme. It emerges that the requirement for high scientific standards is not an obstacle to the participation of less favoured regions in Community research.

Keywords: Assessment, EC, Europe, Indicator, Potential, Requirement, Research, Standards, Theory

? Hemlin, S. (1993), Scientific quality in the eyes of the scientist - A questionnaire study. *Scientometrics*, **27** (1), 3-18.

Full Text: [1993\Scientometrics27, 3.pdf](1993/Scientometrics27,%203.pdf)

Abstract: In a questionnaire study Swedish university scientists in different research areas were asked about their conceptions of scientific quality. The items concerned relationships between quality and the research effort, the researcher, the research environment, research effects, research policy and organization, research financing and research evaluation. 224 persons (56% of the sample) answered. Results showed that researchers shared views on scientific quality, but there were also a number of differences between soft and hard sciences. It is concluded that the differences largely support the distinction between “human” and natural sciences, as well as the one between pre-paradigmatic and paradigmatic sciences. Implications for the evaluation of research are discussed.

Keywords: Environment, Evaluation, Financing, Policy, Quality, Questionnaire, Research, Research Evaluation, Research Policy, Sciences, University

? Qurashi, M.M. (1993), Dependence of publication-rate on size of some university groups and departments in UK and Greece in comparison with NCI, USA. *Scientometrics*, **27** (1), 19-38.

Full Text: [1993\Scientometrics27, 19.pdf](1993/Scientometrics27,%2019.pdf)

Abstract: In a series of studies aimed at investigating the dependence of per-capita research output (R), of an interacting group of research workers, on the size of the group, the author had shown that the per-capita research output of various research groups and institutes in U. S. A., U. K., Pakistan and Bangladesh shows an initial approximately linear rise, followed by one or more mixima, the first one being at group size of 6 to 8 persons. In the present communication, we present a fine analysis of the reported data for (a) physics departments of U. K. universities (in 1985-86) and (b) mathematics departments of two universities in Greece (from 1975 to 1984), using close sampling-intervals of DELTAN = 2 and 3 for group-sizes. The results of this reanalysis show that the data for U. K. physics departments exhibits a series of peaks of per-capita research output (R) at N = 11, 19, 25, 36, 46, etc., which compare well with the corresponding maxima already found in the 1977 per-capita output of National Cancer Institute, U. S. A., at N = 7, 15, 26, 34 and 44. Comparison of these two yields the following mean positions for the five peaks viz N = 9±2, 17±2, 26±0, 35±1 and 45±1. These appear to be close to multiples of 8.5, indicating the possibility that a sub-group of 8 to 9 persons could be forming a basic unit of interaction in these particular research groups. The data from the mathematics departments of two Greek universities, which falls in the range of N = 20 to N = 44, also shows two maxima, of per-capita output at N = 27 and 34.5 (and possibly one at about 18), which fit in well with the pattern described above. It appears likely that the above concept could open up new avenues in management practices. Accordingly, further studies are in hand on the relevant characteristics of the output of various institutes and, if possible, a fuller study of size and nature of the sub-groups noted above.

Keywords: Analysis, Bangladesh, Communication, First, Greece, Interaction, Laboratory Size, Management, Pakistan, Research, Size, Universities

? Nederhof, A.J. and Moed, H.F. (1993), Modeling multinational publication - Development of an online fractionation approach to measure national scientific output. *Scientometrics*, **27** (1), 39-52.

Full Text: [1993\Scientometrics27, 39.pdf](1993/Scientometrics27,%2039.pdf)

Abstract: This study of multinational publication (publications involving authors from more than one country) focuses on a viable method of fractionation, which can be used in on-line bibliometric research. Fractionation occurs when the credit for co-authored papers is added only partially to the total of publications of countries or authors. We attempted to find an empirical relation between the share of a country’s papers in some field that is multinationally co-authored and the degree of fractionation which results. A linear regression analysis yielded a significant correlation of -0.95. The fractionation method is the first that can be applied to publication data collected on-line. A comparison is made with fractionation by first author (i.e., first address) counting. Application of the method to British scientific output for 1984-1989 suggests that British output was stable. The fractionation method can be applied to both natural and life sciences and to social and behavioral sciences. Findings suggest that similar processes of multinational publication are prevalent in both types of science. Implications of the model are discussed.

Keywords: Analysis, Bibliometric, Bibliometric Assessment, Bibliometric Research, Collaboration, Comparison, Cooperation, First, Life, Life Sciences, Model, Modeling, Papers, Performance, Publication, Publications, Regression Analysis, Research, Science, Sciences, Scientific Output

? Milman, B.L. and Gavrilova, Y.A. (1993), Analysis of citation and cocitation in chemical-engineering. *Scientometrics*, **27** (1), 53-74.

Full Text: [1993\Scientometrics27, 53.pdf](1993/Scientometrics27,%2053.pdf)

Abstract: This paper presents the results of the citation study in 24 leading journals on chemical engineering for 1987. The selective methodology or the analysis of co-citation limited only to this discipline is based on relatively low thresholds of citation and co-citation. The established research fronts refer mostly to basic research. The flow of information and knowledge to chemical engineering is determined to the extent of 70-90% by the works in this very field, as is indicated by the analysis of citations. The geography of research fronts was determined. The USSR has a very low fraction of frontal papers. This can be explained by the publication of papers in Russian and by a large number of secondary and applied research. This type of research is revealed by frequent citation of books and a small fraction of highly cited papers.

Keywords: Analysis, Citation, Citations, Clusters, Co-Citation, Cocitation, Collagen Research, Combined Cocitation, Information, Journals, Knowledge, Methodology, Papers, Policy, Publication, Research, Research Fronts, Science, Scientific Literatures, Small, Specialties, Subfields, Thresholds, Word Analysis

Notes: MModel

Coleman, S.R. (1993), Bradford distributions of social-science bibliographies varying in definitional homogeneity. *Scientometrics*, **27** (1), 75-91.

Full Text: [1993\Scientometrics27, 75.pdf](1993/Scientometrics27,%2075.pdf)

Abstract: Six social-science bibliographies were ranked along a complex ordinal dimension of the ‘homogeneity’ of (1) the defining criteria for including items in a bibliography or (2) the disciplinary source(s) of the literature. The most homogeneous bibliography exhibited the classic linearity of the graphic form of Bradford’s Law, but the most heterogeneous bibliographies exhibited concavity in their graphic display. The lower the overall article/journal density in a bibliography, the greater the curvature (concavity) of its Bradford plot. Results were discussed in relation to the generalizability of Bradford’s Law and to differences between scholarly practices in the social and natural sciences.

Keywords: Bibliographies, Criteria, History, Literature, Lotka Law, Psychology, Sciences, Zipf

? Harsanyi, M.A. and Harter, S.P. (1993), Ecclesiastes effects. *Scientometrics*, **27** (1), 93-96.

Full Text: [1993\Scientometrics27, 93.pdf](1993/Scientometrics27,%2093.pdf)

Abstract: the reward system in science involves several psychosocial processes that can be named after books in the Bible: Merton proposed the “Matthew Effect” and Turner and Chubin offered the “Ecclesiastes Hypothesis,” based on relevant biblical passages. This article identifies several other bibliometric phenomena described in Ecclesiastes, including an explanation of why there is a multiplication of specializations in disciplines with growing literatures.

Keywords: bibliometric/explanation/science

? Vinkler, P. (1993), Percentage patent representation (PPR) bilateral patent balance (BPB) and patent dominancy (PD) indicators characterizing international patenting relations. *Scientometrics*, **27** (1), 97-103.

Full Text: [1993\Scientometrics27, 97.pdf](1993/Scientometrics27,%2097.pdf)

Abstract: In order to characterize the integration of countries into the world intellectual property network some indicators are offered. Percentage Patent Representation (PPR) gives the percentage share of patents granted to the inventors of a given country in the total number of patents granted to all foreign patentees. The ratio of PPR indices for two countries yields the Bilateral Patent Balance (BPB) indicator, which is characteristic of a mutual patent representation. Patent Dominancy (PD) index is the number of BPB indices higher than unity for a set of countries. PD indices can be related to GDP and growth of export values.

Keywords: Growth, Indicator, Indicators, Integration, Intellectual Property, Network, Patent, Patents, Representation, United-States

Saavedra, F., Mackenzie, M.R., Pessot, R. and Krauskopf, M. (1993), Size and aging of the scientific community in Chile. *Scientometrics*, **27** (2), 105-117.

Full Text: [1993\Scientometrics27, 105.pdf](1993/Scientometrics27,%20105.pdf)

Abstract: the size and ageing of the Chilean scientific community was studied using as data the individuals actively engaged in research projects funded by the National Fund for Scientific and Technological Development (FONDECYT). Between 1982 and 1991, 4966 individuals participated at least once, either as responsible for the research or as qualified associate in one term of the funding period. From this population, 2765 persons can be considered further committed with scientific research. As for sex, about 30% of the researchers are women. Taking into account all the disciplines, and in addition to the fact that the size of the Chilean scientific community seems to be subcritical, the study reveals that the workforce has been ageing dangerously through the years. The number of young scientists becoming part of the scientific work-force is decreasing. Research in mathematics, physics and chemistry, although qualitatively competitive, relies only on an extremely small group of excellent scientists, situation which is seriously affecting the scientific capacity that the country needs. Biology, although with a higher number of individuals, exhibits a pattern of ageing which will also affects the possibilities to strengthen the scientific demands. The global context in which science develops, leads to a brain drain that Third World countries will have to overcome, implementing public policies to offer the support that young people require to nurture the scientific strength. Indigenous Ph. D. programs demand urgent attention of policy decision makers as well as from research universities which need to offer opportunities to substitute, when existing, their incompetent faculty.

Keywords: Ageing, Brain, Capacity, Chemistry, Chile, Community, Demand, Facts, Faculty, Figures, Needs, Newest Version, Policy, Policy Decision, Population, Productivity, Publication Output, Relative Citation Impact, Research, Science, Scientific Research, Scientometric Indicators, Sex, Size, Small, United-States, Universities, Women

? Cambrosio, A., Limoges, C., Courtial, J. and Laville, F. (1993), Historical scientometrics? Mapping over 70 years of biological safety research with co-word analysis. *Scientometrics*, **27** (2), 119-143.

Full Text: [1993\Scientometrics27, 119.pdf](1993/Scientometrics27,%20119.pdf)

Abstract: This paper relates the results of a co-word analysis of over 70 years of biological safety literature. The database used in this project is the Songer Safety Bibliography (SSB) which lists around 17,000 references. The results show biological safety to be a very fragmented field, characterized by the existence of several relatively independent foci of interest, none of which has been able to structure the field into a tight network. Early periods of activity were marked by the construction of the basic tools of biological safety practices. Those tools became a ‘robust package’ which, in more recent periods, was used routinely. While the safety problems related to recombinant DNA research have received much attention in the general press, they do not seem to occupy a prominent place within the biological safety literature, at least the one compiled in SSB.

Keywords: Analysis, Database, DNA, Literature, Network, Research, Safety, Scientometrics, Structure

Garg, K.C., Sharma, P. and Sharma, L. (1993), Bradford’s law in relation to the evolution of a field: A case study of solar power research. *Scientometrics*, **27** (2), 145-156.

Full Text: [1993\Scientometrics27, 145.pdf](1993/Scientometrics27,%20145.pdf)

Abstract: Based on the data of growth of literature in the field of solar power, the present paper investigates the stage of evolution at which the scattering of articles over journals is similar to Bradford’s curve, i.e. The stage at which Bradford’s law is valid. Traces the related changes that take place in the size and elements of the core during the evolution and growth of literature. The study reveals that a curve similar to Bradford’s curve is obtained when the field matures. The finding has been supported with the help of a simple mathematical model.

Keywords: Changes, Evolution, Growth, Journals, Law, Literature, Mathematical Model, Model, Scattering, Size

Nots: UUniversity

Nederhof, A.J., Meijer, R.F., Moed, H.F. and Vanraan, A.F.J. (1993), Research performance indicators for university departments: A study of an agricultural university. *Scientometrics*, **27** (2), 157-178.

Full Text: [1993\Scientometrics27, 157.pdf](1993/Scientometrics27,%20157.pdf)

Abstract: the present bibliometric study extends previous work by focusing on the research performance of departments in the natural and life sciences, the social and behavioral sciences, and the humanities. The present study covers all 70 departments from one agricultural university, and several veterinary departments of a second university. The impact analysis was extended by including other types of documents than journal articles. for about a third of the departments, publications not covered in citation indexes accounted for at least 30% of the citations to their total oeuvre. To deal with different citation and publication habits in the various fields, both short-term and medium-term impact assessments were made. The commonly used three year window is not universally applicable, as our results show. The inclusion of self-citations forms an important source of error in the ratio of actual, expected impact. To cope with this, the trend and level of self- citations was compared at university level with that in a matched sample of publications. Moreover, at a departmental level, self-citation rates were used to detect departments with divergent levels of self-citation. The expected impact of journals accounted for only 18% of the variance in actual impact. Comparison of bibliometric indicators with two peer evaluations showed that the bibliometric impact analyses provided important additional information

Keywords: Analysis, Bibliometric, Bibliometric Indicators, Bibliometric Study, Citation, Citation Indexes, Citations, Economics, Error, Humanities, Impact Analysis, Indicators, Information, Journal, Journal Articles, Journals, Life, Life Sciences, Publication, Publications, Research, Research Performance, Sciences, Self-Citation, University, Veterinary, Work

? Pichappan, P. (1993), Identification of mainstream journals of science speciality - A method using the discipline-contribution score. *Scientometrics*, **27** (2), 179-193.

Full Text: [1993\Scientometrics27, 179.pdf](1993/Scientometrics27,%20179.pdf)

Abstract: He and Pao’s method of identifying specific discipline journals is improved by adding the citing impact factor and self-citing rate. The proposed indicator strikes a balance by discounting the size of a discipline. and also this indicator paves the way to identify the constituent journals of a discipline. This method was tested in Physics, Applied Physics and Astronomy and Astrophysics. The findings lead to the rethinking about the inclusion of many journals in these fields.

Keywords: Bibliometric Indicators, Citation Measures, Impact, Impact Factor, Indicator, Journals, Lead, Model, Physics, Reliability, Scientific Journals, Selection, Size, Subfields

? Egghe, L. (1993), On the influence of growth on obsolescence. *Scientometrics*, **27** (2), 195-214.

Full Text: [1993\Scientometrics27, 195.pdf](1993/Scientometrics27,%20195.pdf)

Abstract: In many papers, the influence of growth on obsolescence is studied but a formal model for such an influence has not been constructed. In this paper, we develop such a model and find different results for the synchronous and for the diachronous study. We prove that, in the synchronous case, an increase of growth implies an increase of the obsolescence, while, in the diachronous case, exactly the opposite mechanism is found. Exact proofs are given, based on the exponential models for growth as well as obsolescence. We leave open a more general theory.

Keywords: Growth, Mechanism, Model, Models, Obsolescence, Papers, Theory

Nagpaul, P.S. and Pant, N. (1993), Cross-national assessment of specialization patterns in chemistry. *Scientometrics*, **27** (2), 215-235.

Full Text: [1993\Scientometrics27, 215.pdf](1993/Scientometrics27,%20215.pdf)

Abstract: In this study, the specialization profiles of eleven countries are compared along two interconnected but distinct dimensions of research, viz. publication output and citation impact in nine subfields of chemistry. The data for comparative analysis were taken from Scientometric Datafiles. 1 Since raw counts of publications and citations are confounded by the size of the countries and the size of subject fields, cross-national comparison is made, using relative indicators - activity index and attractivity index. The subfields of relative strength and weakness for these countries are identified from the values of these indicators. The similarity structure of specialization profiles of the eleven countries is mapped, using hierarchical cluster analysis and multidimensional scaling. This mapping leads to the representation of chemistry as it is structured by the dynamics of national science policies of these countries.

Keywords: Analysis, Chemistry, Citation, Citations, Cluster Analysis, Comparison, Dynamics, Fields, Indicators, Output, Publication, Publications, Representation, Research, Scaling, Science, Similarity, Size, Structure

? Martens, B. and Saretzki, T. (1993), Conferences and courses on biotechnology - Describing scientific communication by exploratory methods. *Scientometrics*, **27** (3), 237-260.

Full Text: [1993\Scientometrics27, 237.pdf](1993/Scientometrics27,%20237.pdf)

Abstract: the importance of conferences, courses, workshops, and other kinds of scientific meetings is still growing, especially in highly dynamic or multidisciplinary fields of knowledge. Since these meetings are usually the first occasion of communicating scientific findings, it seems worthwhile to use data on conferences in order to depict trends in science and technology, at an early point of time. Nevertheless, only a few studies on these types of scientific and technological communication were undertaken until now. One prominent example for the relevance of conferences and for the necessity of some monitoring is the field of the “new” biotechnology. We followed a “conference approach” by using data on 4.674 meetings that took place in the time span 1984-90. Content analytic methods (a coding scheme of 70 categories) seemed to be appropriate, according to the textual type of data (information about the meetings, mostly programs). Distributions of categories show specific features and multiple correspondence analyses of concatenated Burt matrices of the categories. differentiated to the years provide a broad overview of biotechnological conferences and other types of meetings in the eighties. Connections between fields of knowledge and applications or certain characteristics of the meetings can be summarized in five clusters of features which are relatively stable within the time frame of investigation.

Keywords: Biotechnology, Coding, Communication, Conferences, First, Information, Investigation, Knowledge, Methods, Multidisciplinary, Relevance, Science, Science and Technology, Technology, Trends, Workshops

? Mulford, C.L., Waldnerhaugrud, L. and Gajbhiye, H. (1993), Variables associated with agricultural scientists work alienation and publication productivity. *Scientometrics*, **27** (3), 261-282.

Full Text: [1993\Scientometrics27, 261.pdf](1993/Scientometrics27,%20261.pdf)

Abstract: This study focuses on work alienation and publication productivity of agricultural scientists in two international research centers. Previous research has been criticized because the variables emphasized have typically been poorly correlated with publication productivity. Additionally, although work alienation of professionals has received considerable attention in the literature, seldom has it been included in empirical studies of publication productivity. Results indicate two perceptions of structure, centralization and formalization, are significantly correlated with work alienation, but less so with publication productivity. Work alienation is significantly, but modestly, correlated with publication productivity. In a multiple regression analysis, work alienation proved to be less important than perceived centralization. Implications for supervisors of scientific staffs include inducing the layers of hierarchy and empowering staff by giving them a voice in research goals and organizational operations.

Keywords: Analysis, Formalization, International, Literature, Publication, Regression Analysis, Research, Structure, Work

? Steinberg, J.J. (1993), The state of biomedical radiation research as demonstrated by publications, funding and manpower activity - An analytical example of utilizing online medical informatics. *Scientometrics*, **27** (3), 283-294.

Full Text: [1993\Scientometrics27, 283.pdf](1993/Scientometrics27,%20283.pdf)

Abstract: the biomedical radiation research community has important goals. Research, risk assessment, preventative health and safety are some of its responsibilities. It is surprising that radiation research is growing only at 70% of the yearly MEDLINE database. Funding is predictably underfunded (89% of expected) given its high percentage of research with animals and cells (127% (MEDLINE = 100%)) vs. radiation’s lower percentage of human studies (60%). Manpower studies demonstrate 4500 Ph.D.’s since 1960. 50% are in physics, 17% chemistry, and 11% biology. Biochemistry, pharmacology, microbiology, genetics, pathology and psychology contribute less than 3%. These indicators show activity in radiation research, yet deficits.

Keywords: Assessment, Biology, Biomedical, Chemistry, Community, Database, Genetics, Health, Human, Indicators, Journals, Microbiology, Oncology, Pathology, Psychology, Radiation, Research, Responsibilities, Risk, Risk Assessment, Safety

? Sylvain, C. (1993), Canadian research activity in aquaculture: A bibliometric analysis. *Scientometrics*, **27** (3), 295-316.

Full Text: [1993\Scientometrics27, 295.pdf](1993/Scientometrics27,%20295.pdf)

Abstract: Analysis of the Canadian publications in the field of aquaculture reveals that Canada is one of the word’s major contributors in this area. This confirms that Canada’s experties in science and technology often finds its stimulus in its resource-based industries. Several bibliometric indicators were used to enlighten the peculiar features of the Canadian research system. These include the channels of communication used by scientists, the authorship pattern, the level of collaboration, the identification of the institutions in which the research is performed and the uneven research effort distribution inside the country. The relevance of such quantitative measures for science policy-making is emphasized. The present study shows how bibliometric analysis, by describing the actual strengths and weaknesses of Canadian research and identifying the agents of this research activity, might foster a better understanding of the Canadian research enterprise as a whole.

Keywords: Analysis, Authorship, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Canada, Collaboration, Communication, Countries, Identification, Indicators, Institutions, Journals, Publications, Quality, Relevance, Research, Science, Science and Technology, Technology, Understanding

? Lewison, G., Fawcettjones, A. and Kessler, C. (1993), Latin-American scientific output 1986-91 and international co- authorship patterns. *Scientometrics*, **27** (3), 317-336.

Full Text: [1993\Scientometrics27, 317.pdf](1993/Scientometrics27,%20317.pdf)

Abstract: Results are presented of a study covering 1986-91 of the scientific output of Latin American nations. The distribution of the output within the countries is shown: in most countries there is a high concentration in the national capital. The papers co-authored with scientists from other countries are also examined. There has been a notable rise in both the number and proportion of papers co-authored within the region, with the USA and Canada, and, especially, with the countries of the European Community, where a programme of International Scientific Co-operation, to promote just such links, has been active since the mid-1980s in many Latin American countries.

Keywords: Canada, Countries, Nations, Papers, Sciences, Scientific Output, Universities, USA

? Rousseau, R. (1993), Measuring concentration - Sampling design issues, as illustrated by the case of perfectly stratified samples. *Scientometrics*, **28** (1), 3-14.

Full Text: [1993\Scientometrics28, 3.pdf](1993/Scientometrics28,%203.pdf)

Abstract: Using the artificial example of perfectly stratified samples, we have shown the effect different sampling designs have on the determination of concentration values. More concretely, we have studied the following four cases: sampling of items in the case the number of sources is known (we have further considered the cases when there are ‘many’ items in every source and when this is not so); sampling of items in the case the number of sources is unknown, and finally, sampling of sources.

? Luukkonen, T., Tijssen, R.J.W., Persson, O. and Sivertsen, G. (1993), The measurement of international scientific collaboration. *Scientometrics*, **28** (1), 15-36.

Full Text: [1993\Scientometrics28, 15.pdf](1993/Scientometrics28,%2015.pdf)

Abstract: A growing science policy interest in international scientific collaboration has brought about a multitude of studies which attempt to measure the extent of international scientific collaboration between countries and to explore intercountry collaborative networks. This paper attempts to clarify the methodology that is being used or can be used for this purpose and discusses the adequacy of the methods. The paper concludes that, in an analysis of collaborative links, it is essential to use both absolute and relative measures. The latter normalize differences in country size. Each yields a different type of information. Absolute measures yield an answer to questions such as which countries are central in the international network of science, whether collaborative links reveal a centre - periphery relationship, and which countries are the most important collaborative partners of another country. Relative measures provide answers to questions of the intensity of collaborative links.

Keywords: Analysis, Collaboration, Cooperation, Information, International, Methodology, Methods, Network, Policy, Science, Science Policy, Scientific Collaboration, Size

? Okubo, Y. (1993), Comments on some of the statements in the article - the measurement of international scientific collaboration by Luukkonen, T., Tijssen, R.J.W., Persson, O., Sivertsen, G. *Scientometrics*, **28** (1), 37-39.

Full Text: [1993\Scientometrics28, 37.pdf](1993/Scientometrics28,%2037.pdf)

? Yuthavong, Y., Phornsadja, K., Chungcharoen, A., Eisemon, T. and Davis, C. (1993), Communication strategies in tissue culture and seed research in Thailand. *Scientometrics*, **28** (1), 41-60.

Full Text: [1993\Scientometrics28, 41.pdf](1993/Scientometrics28,%2041.pdf)

Abstract: Thailand has a growing demand for improved science-based technologies in the agricultural sector. Traditionally strong in agricultural research, Thailand is encouraging agricultural applications of biotechnology through focused research funding. This article provides a brief account of the status of scientific research in the Thai orchid and seed industries, and examines communication behavior of researchers and innovators in Thai universities, research institutions and firms. Researchers produce relatively few written communications in tissue culture and seed technologies, and technology diffusion relies mainly on personal interactions between the researchers, intermediaries, and users of innovations.

Keywords: Behavior, Biotechnology, Communication, Communications, Culture, Demand, Diffusion, Institutions, Research, Research Funding, Scientific Research, Sector, Technologies, Technology, Thailand, Universities

Rogers, L.A. and Anderson, J. (1993), A new approach to defining a multidisciplinary field of science: the case of cardiovascular biology. *Scientometrics*, **28** (1), 61-77.

Full Text: [1993\Scientometrics28, 61.pdf](1993/Scientometrics28,%2061.pdf)

Abstract: This paper describes a new and objective method for tackling the problem of defining a multidisciplinary research area for bibliometric analysis. The test field was cardiovascular biology. A three stage process was adopted in setting a boundary around this research field: 1. Appropriate sections of a hierarchical subject classification scheme, Medical Subject Headings (MeSH), were developed into a ‘MeSH filter’ through which papers indexed in MEDLINE were screened. 2. A panel of cardiovascular experts reviewed the core set of classification terms, identifying irrelevant and missing areas, facilitating the development of a more sophisticated ‘filter. 3. The definition was validated using publication lists from research departments with a known interest in cardiovascular research. This iterative process resulted in a definition of the field which captured basic and clinical research papers from the international biomedical research community and which was recognisable to experts in the field of cardiovascular research. Importantly, the field boundary also excluded publications which were not relevant to cardiovascular research. The process of involving experts in shaping the field definition also yielded two intangible, but key benefits: (a) it lent credibility to subsequent analyses, the results of which were to be presented to policy-makers in cardiovascular biology, and (b) it served to shape consensus among the cardiovascular experts on the full range of scientific disciplines that are relevant to their field. Analysis of international publishing in cardiovascular research revealed that whilst the UK and US dominate in total numbers of papers, the relative emphasis on cardiovascular research in these countries (as a proportion of all biomedical publishing) is actually quite low, and declining. Japan and Germany in contrast appear to give greater emphasis to cardiovascular research in their national portfolios of biome-dical science, and between 1988-1991 Japan established a marked increase in activity.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Biology, Biomedical, Biomedical Publishing, Biomedical Research, Cardiovascular, Classification, Clinical, Clinical Research, Community, Consensus, Credibility, Development, Germany, International, Japan, MEDLINE, Multidisciplinary, Papers, Publication, Publications, Publishing, Research, Science, UK, US

? Uzun, A., Menard, A. and Ozel, M.E. (1993), Citation status of Turkish physics publications in foreign-journals - A global analysis. *Scientometrics*, **28** (1), 79-87.

Full Text: [1993\Scientometrics28, 79.pdf](1993/Scientometrics28,%2079.pdf)

Abstract: We have studied the citation rates and characteristics of 572 Turkish physics publications that appeared in the source journals listed in the Science Citation Index (SCI) for the period 1982-1990 to drive the following results: the papers appeared in a set of 94 journals, and 68% of the total output went to 21 of these; half of which are journals of high impact. On the average, papers from Turkey that appeared in the American and European journals are cited at rates higher than the corresponding “average” papers. There has been a substantial shift of Turkish papers from European journals to American journals over the last few years. These changes are an example of the process by which science in a less developed country becomes integrated into the word scientific community.

Keywords: Changes, Citation, Community, Drive, European Physics, Journals, Output, Papers, Publications, SCI, Science, Science Citation Index, Turkey

Notes: CCountry

Rinia, E.J., Delange, C. and Moed, H.F. (1993), Measuring national output in physics: Delimitation problems. *Scientometrics*, **28** (1), 89-110.

Full Text: [1993\Scientometrics28, 89.pdf](1993/Scientometrics28,%2089.pdf)

Abstract: In a study of the Dutch publication output in physics we tested methods of delimitating fields by journal categories in the Science Citation Index (SCI) compared to the classification of individual publications into subfields in the subject specific database Physics Briefs (PHYS). Different methods of measuring national scientific output were compared as well. In this paper we report the main findings on these issues, based on a study of six selected subfields in physics. The main conclusion with respect to the use of different classification methods is that in most of the selected fields in physics the method which delimitates fields by journal categories yields an incomplete picture of the output of a country. Particularly because this method neglects a considerable number of articles published in general journals. With respect to different methods of counting publications it was corroborated by the Dutch data in Physics briefs that: 1. so-called ‘integer counted’ world shares are very much influenced by the degree of ‘internationalisation’ and 2. ‘first author counting’ gives a satisfactory approximation of ‘fractional counting’. Citation indicators based on ‘first author counting’, however, may be distorted in fields with a large fraction of international co-authored publications

Keywords: Bibliometric Assessment, Classification, Cooperation, Database, First, Indicators, International, Journal, Journals, Methods, Publication, Publications, SCI, Science, Science Citation Index, Scientific Output, UK Scientific Performance

? Tijssen, R. (1993), A scientometric cognitive study of neural network research: Expert mental maps versus bibliometric maps. *Scientometrics*, **28** (1), 111-136.

Full Text: [1993\Scientometrics28, 111.pdf](1993/Scientometrics28,%20111.pdf)

Abstract: This paper reports on a quantitative analytical methodology which deals with perceptions of scientific experts regarding the intellectual shape and contents (‘cognitive structure’) of their scientific domain. This study examines the method’s utility for studying expert views in general, and, more specifically, its strengths and weaknesses as a tool for improving validation studies of bibliometric maps involving subject experts. The main premise is that expert views are based on their internal knowledge structures (‘mental schemes’) of which relevant features can be captured in quantitative data. This approach allows a rigorous and systematic way of studying mental schemes across subject experts. Spatial representations of their data (‘mental maps’) provide insight in properties underlying those knowledge structures. Data from different experts are reconciled to construct a ‘common’ mental map which displays a group view. This study includes a test to establish the validity of individual mental maps and common mental maps. The methodology is applied to the views of 14 researchers in the field of neural network research and related areas. Key-findings are: (i) mental maps can provide valid representations of expert mental schemes, (ii) experts sharing the same subject field are more likely to share views, (iii) expert judgements of bibliometric maps are affected by the structure of their own mental schemes, as well as (iv) by their views regarding the utility of those maps, and (v) common mental maps and a bibliometric co-word map based on the same set of items differ significantly, showing a resemblance on main features only.

Keywords: Bibliometric, Foundations, Information-Science, Knowledge, Methodology, Network, Neural Network, Research, Structure, Utility, Validation, Validity

Braun, T., Glänzel, W. and Schubert, A. (1993), Scientometric indicators datafiles. *Scientometrics*, **28** (2), 137-150.

Full Text: [1993\Scientometrics28, 137.pdf](1993/Scientometrics28,%20137.pdf)

Abstract: the structure of a comprehensive set of publication output and citation impact indicators is reviewed. Hints to the application of the indicators are given in one, two and more dimensions.

Keywords: Basic Research, Citation, Countries, Facts, Figures, Indicators, Life Sciences, Newest Version, Physics, Publication, Publication Output, Relative Citation Impact, Structure, World Flash

? Norris, R.P. (1993), Authorship patterns in CJNR - 1970-1991. *Scientometrics*, **28** (2), 151-158.

Full Text: [1993\Scientometrics28, 151.pdf](1993/Scientometrics28,%20151.pdf)

Abstract: This article looks at authorship patterns in CJNR from 1970 to 1991. A tally was taken of the number of single, double and multiple authorships for each year which, in turn, were combined into one seven year and three five year intervals. Frequency counts were converted into percentages, chi-squares were computed, and author/article ratios were calculated for each year. Results revealed a decrease in the number of single authored articles and an increase in the number of co- and multiple authored articles from 1982 on. The author/article ratios fluctuated somewhat, but, overall showed marked increases. It was tentatively concluded that nursing is not unlike other disciplines, that it too is experiencing changes in authorship patterns. Reasons for the changes are tendered along with suggestions for further research.

Keywords: Authorship, Changes, Clinical Research, Intervals, Journals, Multiple Authorship, Nursing, Research, Trend

? Souza, G.S., Cruz, E.R. and Quirino, T.R. (1993), The measurement and assessment of quality in agricultural-research institutions. *Scientometrics*, **28** (2), 159-182.

Full Text: [1993\Scientometrics28, 159.pdf](1993/Scientometrics28,%20159.pdf)

Abstract: We present the measure of quality introduced by the review team of Embrapa to evaluate its research projects. The quality measurement scheme comprises four different dimensions (External Validity, Internal Validity, Institutional Adequacy, and Formal Adequacy). The quality measurements are used as dependent variables in a multivariate effort to identify important factors necessary to improve overall as well as specific quality aspects.

Keywords: Measurement, Quality, Research, Review

? Chen, Y.S., Chong, P.P. and Tong, Y.G. (1993), Theoretical foundation of the 80/20 rule. *Scientometrics*, **28** (2), 183-204.

Full Text: [1993\Scientometrics28, 183.pdf](1993/Scientometrics28,%20183.pdf)

Abstract: A rigorous analysis of the 80/20 rule is made using an index for the observed values of the variables. Three important findings are identified. First, a sufficient condition is provided for Burrell’s inverse relationship between minimum holdings and average circulation rate. Second, an indexed version of Lotka’s law is used to derive a sufficient condition for Egghe’s finding on the 80/20 rule. Third, through the computer simulations of the Simon-Yule model of Lotka’s law, we identify the entry rate of new holdings as well as the number of circulations when the entry rate is a decreasing function to be crucial factors for the pattern of the 80/20-type curve.

Keywords: Analysis, Bradford Law, Function, Index Approach, Law, Model, Zipf Law

? Willems, J. and Woudstra, E. (1993), The use by biologists and engineers of nonspecialist information-sources and its relation to their social involvement. *Scientometrics*, **28** (2), 205-216.

Full Text: [1993\Scientometrics28, 205.pdf](1993/Scientometrics28,%20205.pdf)

Abstract: Earlier investigations showed that many academics obtain information pertaining their own field of science from the general massmedia, such as newspapers. Who are those scientists? Is there a relation between the social engagement and the use of non-specialist information sources? We investigated the social engagement of biologists and engineers in correlation to their use of general massmedia in the Netherlands. Biologists find their work social significant, most of engineers do not. Many biologists are members of non-specialist organizations, subscribe to non-specialist journals about science and participate in non-scientific activities related to their work. Most engineers do not. Many members of both groups (biologists and engineers) use non-specialist informations sources like general science magazines and national newspapers to obtain information about their own field of science. and most biologists and engineers did so to obtain information about new developments in their own field and in related fields. We did not find any correlation between the social engagement of scientists and their use of non-specialist information sources. Most scientists use them.

Keywords: Information, Journals, Science, the Netherlands, Work

? Lewison, G. (1993), The contribution of European-Community less favored region research outputs to economic and social cohesion. *Scientometrics*, **28** (2), 217-229.

Full Text: [1993\Scientometrics28, 217.pdf](1993/Scientometrics28,%20217.pdf)

Abstract: Data are presented on the scientific output from 1985-92 of the Less Favoured Regions (LFRs) of the European Community as recorded in the Science Citation Index. The use of postcodes makes it easier to identify papers from LFRs and they are now nearly universal (over 95%). LFR output has grown since 1985 from 5% to nearly 8% of the EC total, and there is much more trans-national co-authorship between ones in different countries though it is still at a low level. There is also increasing co-publication between scientists from LFRs and the rest of the EC (More Favoured Regions, MFRs), both within the same countries and trans-nationally. Selective retrieval of papers by their address keywords shows that the LFRs are relatively strong in the physical, rather than the life, sciences and that the major areas of growth in recent years have been engineering, earth/space sciences and physics.

Keywords: Co-Authorship, Coauthorship, EC, Growth, Indicators, Life, Papers, Science Citation Index, Sciences, Scientific Output

? Bonitz, M. (1993), Schubert, Andras Wins the 1993 Derek-John-Desollaprice-Award. *Scientometrics*, **28** (3), 233-235.

Full Text: [1993\Scientometrics28, 233.pdf](1993/Scientometrics28,%20233.pdf)

? Hall, D.H. (1993), The science-industry interface in the petroleum-industry - Correlation of time-series of indicators and their spectra, and growth modeling. *Scientometrics*, **28** (3), 237-286.

Full Text: [1993\Scientometrics28, 237.pdf](1993/Scientometrics28,%20237.pdf)

Abstract: Petroleum production and exploration, used as petroleum industry indicators, and accumulation of petroleum-related geoscience literature, used as a science indicator, were compared by several means to gauge the degree of interaction between science and the industry in the period 1934-1990. Methods of comparison employed were: time domain correlations and crosscorrelation; correlations of spectra using coherence and crosspower spectra, and growth-modelling of the indicators. A fifty-year exploration cycle was found, beginning about 1945. Principal features of this cycle seem to coincide with prominent features in the time series for geoscience literature, and both of these variables are correlated with petroleum production. All three variables appear to have been determined ultimately by economic and political events which affected the petroleum industry. All of them show long-period cycles which coincide with the fourth Kondratiev cycle and the beginning of the fifth Kondratiev. The longest time series used (petroleum production in the United States, 1860-1990) shows long-period cycles matching the third, fourth and fifth Kondratiev cycles.

Keywords: Comparison, Correlations, Geoscience, Indicator, Indicators, Interaction, Literature, Modeling, Science, United States

? Gupta, D.K. (1993), Collaborative research trend in exploration geophysics. *Scientometrics*, **28** (3), 287-296.

Full Text: [1993\Scientometrics28, 287.pdf](1993/Scientometrics28,%20287.pdf)

Abstract: A comprehensive database, the Cumulative Index of Geophysics for the period 1936-1985 was analysed to study collaborative and authorship trends in exploration geophysics. A total of 3,417 publications in Geophysics and 1,318 publications in Geophysical Prospecting comprise the database. About 56.2% of all the publications were found to be single-authored items. The number of single-authored items has been gradually declining from 1936 to 1985. Authorship per item for the period was found to be 1.6 which has increased from 1.17 per item during 1936-1950 to 1.9 per item during 1981-1985. The results of this study reveal that like in any other discipline in sciences, collaboration in exploration geophysics research has also been increasing during the period 1936-1985.

Keywords: Authorship, Collaboration, Database, Publications, Research, Sciences, Scientific Co-Authorship, Trends

? Sancho, R., Bernal, G. and Galvez, L. (1993), Approach to the Cuban scientific activity by using publication based quantitative indicators (1985-1989). *Scientometrics*, **28** (3), 297-312.

Full Text: [1993\Scientometrics28, 297.pdf](1993/Scientometrics28,%20297.pdf)

Abstract: An estimation about Cuban scientific productivity based on output indicators during the period 1985-1989 is provided. Nine international bibliographic databases and three Cuban repertories have been used. Except for journal articles, no other type of Cuban document gets worldwide recognition as they are not generally included in the international databases. The greater effort in research is made in Agriculture, Biomedicine, Chemistry and Engineering, but this last topic does not reach international visibility, since the majority of its results are published in local journals. The Cuban contribution to the “mainstream” of world science is increasing annually. Collaboration in high level research projects existed mainly between Cuba and either USSR, German Democratic Republic and Italy. The most productive Cuban institutions in collaborative programs are the Havana University and the Academy of Sciences.

Keywords: Countries, Indicators, Institutions, International, Italy, Journal, Journal Articles, Journals, Research, Science

? Senter, R. (1993), Factors in American State government spending on research-and-development. *Scientometrics*, **28** (3), 313-327.

Full Text: [1993\Scientometrics28, 313.pdf](1993/Scientometrics28,%20313.pdf)

Abstract: This paper investigates factors that lead state governments in the United States to spend on research and development and research and development plant. Data come from a national survey of such spending. Regression analysis is used. Findings include the following: the relative wealth of a state, as measured by its tax capacity, predicts some of such spending; the level of a state’s taxation, as measured by its tax effort, predicts some of such spending; and the political party composition of a state predicts some of such spending. By contrast, a state’s economic difficulty, as measured by its unemployment rate, has almost no relationship to such spending.

Keywords: Analysis, Capacity, Development, Economic-Development, Lead, Plant, Policy, Research, Research and Development, Science, Survey, Taxation, Technology Programs, United States, United-States

? Maclean, J. and Janagap, C. (1993), The publication productivity of International Agricultural Research Centers. *Scientometrics*, **28** (3), 329-348.

Full Text: [1993\Scientometrics28, 329.pdf](1993/Scientometrics28,%20329.pdf)

Abstract: the literature output over one year, 1990, of 22 International Agricultural Research Centers (IARCs), including 16 Consultative Group on International Agricultural Research (CGIAR) centers, was examined. Total output of the IARCs was 1,694 items, of which on average 42% were primary (refereed) literature; 24% were reports and monographs; 18% proceedings papers; 8% book chapters; and 8% semitechnical/popular literature. Total literature production from the IARCs is similar in magnitude to that of FAG, There were 1,230 internationally recruited scientists in the IARCs, with an average annual productivity of 1.38 items per scientist, including 0.58 primary literature articles. There was no correlation between scientific productivity and numbers of scientists in a center. However, there was a significant positive correlation between scientific productivity and center budget, indicating higher efficiency in the larger centers. In view of the nature of IARCs’ literature output, we argue that IARCs should reject the trend for scientists to be assessed only by citations in “core” primary literature; and that IARCs should set up an international standard, perhaps based on the present proportionality of types of their literature output in order to assess IARC individual scientists and the “health” of their institutional output.

Keywords: Budget, Citations, Efficiency, International, Literature, Papers, Primary, Standard

? Herbstein, F.H. (1993), Measuring “publications output” and “publications impact” of faculty members of a university chemistry department. *Scientometrics*, **28** (3), 349-373.

Full Text: [1993\Scientometrics28, 349.pdf](1993/Scientometrics28,%20349.pdf)

Abstract: the publication and citation records of a group of 34 senior members of the faculty of the Department of Chemistry at Technion-Israel Institute of Technology over the period 1980-90 have been analyzed under the contention that dealing with a small group makes it possible for one to pay adequate attention to the methodology of the measurement and analysis processes. Choosing the most suitable index for measuring “Publications Output” has been considered in detail; it is suggested that it is essential to make allowances for both the number of co-authors and for the lengths of publications in order to obtain a more valid measure than is provided by a simple count of equally-weighted publications. Analogously it is argued that simple citation counts provide an inadequate measure of the impact that publications make on the group outside the authors’ immediate circle and thus that it is necessary to subtract self citations and divide the credit for a citation among the co-authors of the publication. Results of the analysis show that in agreement with all previous findings a few members (perhaps less than 20%) produce more than half the publications and receive more than half the citations of the Group as a whole.

Keywords: Analysis, Authorship, Citation, Citation Counts, Citations, Co-Authors, Faculty, Frequency, Measurement, Methodology, Publication, Publications, Records, Science, Self, Small

? Giorgi, E.P. (1993), Long-term analysis of citation counts at the microlevel. *Scientometrics*, **28** (3), 375-386.

Full Text: [1993\Scientometrics28, 375.pdf](1993/Scientometrics28,%20375.pdf)

Abstract: Analysis over a 13 year period of citation counts to research papers in pursuit of a new scientific hypothesis on the mechanism of action of oestrogen hormones, which therefore could be defined at the micro-level, revealed that during a period of expansion of the field there was an overall fall in mean citation counts, even to papers by with hindsight still successful groups. This fall appeared to be related to a relatively greater increase in the number of papers to be cited than in the number of citing papers.

Keywords: Citation, Citation Counts, Mechanism, Mechanism of Action, Papers, Research

? Stephan, P.E. and Levin, S.G. (1993), Age and the Nobel-Prize revisited. *Scientometrics*, **28** (3), 387-399.

Full Text: [1993\Scientometrics28, 387.pdf](1993/Scientometrics28,%20387.pdf)

Abstract: This paper analyzes the relationship between age and productivity for Nobel prize winners in science during the period 1901-1992. The relationship found is field dependent as well as dependent upon the definition used to measure the age at which the ward-winning work was done. The results suggest that although it does not require extraordinary youth to do prize-winning work, the odds decrease markedly in mid-life and fall off precipitously after age 50, particularly in chemistry and physics. The discussion underscores the problem of drawing conclusions about the age structure of research by examining medians instead of the entire distribution.

Keywords: Chemistry, Life-Cycle, Research, Research Productivity, Science, Scientists, Structure, Work, Youth

? Pouris, A. (1993), Economies of Scale in Science and Technology Agencies. *Scientometrics*, **28** (3), 401-406.

Full Text: [1993\Scientometrics28, 401.pdf](1993/Scientometrics28,%20401.pdf)

Abstract: This study is the first to provide estimates of the economies of scale in science and technology agencies. As such, it sheds new light on issues of interest to policy-makers. The study identifies that there are strong economies of scale to be captured in organisations with budgets less than $200 million. The least efficient agency in the study requires 136 times more input per unit of output than the most efficient one. The study was unable to identify diseconomies of scale up to the range of $3 billion. The policy implications for countries which are small in science in particular, are discussed.

Keywords: Estimates, First, Policy, Science, Science and Technology, Small, Technology

? Bonitz, M. (1994), The multidimensional space of scientometrics: Price, Derek, John, Desolla Awards 1984-1993. *Scientometrics*, **29** (1), 3-14.

Full Text: [1994\Scientometrics29, 3.pdf](1994/Scientometrics29,%203.pdf)

Abstract: Nine scientists have been so far awarded the Derek de Solla Price medal which was founded by the journal Scientometrics after the premature death of Derek John de Solla Price in 1983. The study of their most cited papers and other aspects of their scientific work provides good insight into the various dimensions of the developing field of scientometrics.

Keywords: 1989 Price, Derek, Desolla, Citation Impact, Death, Documents, Foundations, Information-Science, Journal, Journals, Papers, Quantitative Aspects, Recipient, Relative Indicators, Scientific Publications, Scientometrics, Work

? Wagnerdobler, R. (1994), The frequency-distribution of legal decision citations in the German Jurisdiction. *Scientometrics*, **29** (1), 15-26.

Full Text: [1994\Scientometrics29, 15.pdf](1994/Scientometrics29,%2015.pdf)

Abstract: This investigation has three aims: 1. To direct the attention of scientometrics to the widespread use of citation indexes by practising lawyers. The analysis of this practice is of special value for comparative studies in scientometrics and informetrics. 2. To examine the frequency distribution of legal decision citations in the German jurisdiction. 3. To test whether these frequency distributions depend exclusively on the density of citations between documents of a database, as stated by D. Price.

Keywords: Analysis, Citation, Citation Indexes, Citations, Database, Informetrics, Investigation, Jurisdiction, Legal, Practice, Scientometrics

Martin, B.R. (1994), British science in the 1980s - Has the relative decline continued? *Scientometrics*, **29** (1), 27-56.

Full Text: [1994\Scientometrics29, 27.pdf](1994/Scientometrics29,%2027.pdf)

Abstract: In previous articles, the author and his colleagues have shown that British science declined relative to other countries during the 1970 and more slowly during the early 1980s. More recently, the author examined figures for 1981-85 produced by the Information Science and Scientometrics Research Unit (ISSRU) and showed that they were consistent with other evidence on Britain’s relative decline. However, those latter findings and the methodology used to derive them have been criticised by Braun and his colleagues at ISSRU, and by Leydesdorff and Kealey. This paper begins by examining these criticisms to establish whether there are any grounds for revising the previous conclusion that British science has been slipping in relation to other countries. It then analyses the latest publication and citation statistics. It also presents new data on highly cited papers and on the national distribution of Nobel Prizes. The paper concludes that, although a few isolated indicators might be taken to suggest that British science has been growing in some absolute sense, the great weight of evidence points to a continuing relative decline.

Keywords: Articles, Bibliometric Assessment, Citation, Evidence, Growth, Indicators, Methodology, Papers, Publication, Science, Scientometrics, Statistics, UK Scientific Performance

Abt, H.A. (1994), Report on the manuscript entitled British science in the 1980s: Has the relative decline continued. *Scientometrics*, **29** (1), 57-58.

Full Text: [1994\Scientometrics29, 57.pdf](1994/Scientometrics29,%2057.pdf)

Coleman, S.R. (1994), Disciplinary variables that affect the shape of Bradford’s bibliography. *Scientometrics*, **29** (1), 59-81.

Full Text: [1994\Scientometrics29, 59.pdf](1994/Scientometrics29,%2059.pdf)

Abstract: the influence of various factors upon the shape of Bradford’s bibliograph was assessed through an examination of 16 bibliographies, of which ten were comprehensive. We obtained a curvature score for each bibliograph plotted in a standard landscape format so as to permit comparison; we found that the amount of concave-up curvature (‘convexity’): (a) is negatively correlated with a bibliography’s overall publication density, (b) depends on the status (‘technical’ vs. ‘nontechnical’) of the disciplinary source of a bibliography, with technical disciplines showing less convexity, and (c) is complexly affected by the historical changes in the discipline. Findings are discussed in the context of questions about the graphical formulation of Bradford’s Law.

Keywords: Bibliographies, Changes, Comparison, Examination, Law, Publication, Standard

Notes: CCountry

? Grupp, H. and Hinze, S. (1994), International orientation, efficiency of and regard for research in east and West-Germany: A bibliometric investigation of aspects of technology genesis in the United Germany. *Scientometrics*, **29** (1), 83-113.

Full Text: [1994\Scientometrics29, 83.pdf](1994/Scientometrics29,%2083.pdf)

Abstract: the efficiency of areas of science was evaluated using the DEA method. Areas achieving a maximum orientation or regard of international publication are rated as efficient. The areas of reproductive medicine, organic and inorganic chemistry in the former Federal Republic can thus be regarded as efficient areas of science. No area of scientific research in the former East Germany was able to achieve the optimum. The determinant in this connection is the adverse situation with respect to international orientation whilst no substantial difference in regard for further research could be detected between East and West German research.

Keywords: Chemistry, Efficiency, Germany, Indicators, International, Medicine, Publication, Research, Science, Scientific Research

Peters, H.P.F. and van Raan, A.F.J. (1994), A bibliometric profile of top-scientists: A case study in chemical engineering. *Scientometrics*, **29** (1), 115-136.

Full Text: [1994\Scientometrics29, 115.pdf](1994/Scientometrics29,%20115.pdf)

Abstract: We carefully selected a group of chemical engineering scientists internationally recognized as ‘top-scientists’ in their field. A method has been developed to systematically compare bibliometric characteristics of these top-scientists with an ‘average scientist’ in chemical engineering. This method also includes citation-analysis of books and proceedings. ne results show a very clear ‘bibliometric profile’. First, top-scientists reach the maximum of their received citations about a year earlier. Second, they are cited significantly more than the average scientist. Third, top- scientists’ references are more numerous and, fourth, they concern more recent literature. Our fifth findings is that the journals used by top-scientists for their publications are representative for the field of chemical engineering as a whole. But they differ in specific aspects significantly from the ‘average’ journal structure in chemical engineering: the published work of top-scientists is both ‘general’ as well as more specialistic than the average work in chemical engineering

Keywords: Bibliometric, Citation Analysis, Citations, Impact, Indicators, Journal, Journals, Literature, Physics, Publications, Research Performance, Structure, Tool, Work

? Teitel, S. (1994), Patents, research-and-development expenditures, country size, and per-capita income: An international comparison. *Scientometrics*, **29** (1), 137-159.

Full Text: [1994\Scientometrics29, 137.pdf](1994/Scientometrics29,%20137.pdf)

Abstract: Conceptual and data problems make the selection of science and technology indicators difficult. It has also proven hard to link measures of scientific and technological activity with economic development. In this paper, statistically significant results are obtained by regressing one science and technology output indicator: patents granted to residents, with R & D expenditures and the stock of potential scientists and engineers. Statistically significant results are also obtained by regressing the same dependent variable onto population size and income per capita. The econometrically established patterns tend to corroborate previously formulated hypotheses and could be used, it is suggested, for policy analysis and projections.

Keywords: Analysis, Development, Economic Development, Economic-Development, Indicator, Indicators, Patents, Policy, Policy Analysis, Population, Potential, Science, Science and Technology, Size, Technological Activity, Technology, Technology Indicators

? Kyvik, S. and Larsen, I.M. (1994), International Contact and Research Performance. *Scientometrics*, **29** (1), 161-172.

Full Text: [1994\Scientometrics29, 161.pdf](1994/Scientometrics29,%20161.pdf)

Abstract: the scope of this article is to illuminate the relationship between degree of international contact and research performance among researchers in small countries. Comparisons are done between the natural, medical and social sciences, technology and the humanities. Three indicators on international contact are used: a) an index on contact frequency, b) type of conference attendance, and c) long-term research stays abroad. There is a relatively strong correlation between contact frequency and international publishing activity in all fields of learning. Researchers who were invited to present a paper by conference organizers were considerably more productive than those who gave a paper on their own initiative, and this latter group was in turn much more productive than those researchers who attended without papers. Contrary to other forms of contact, long-term research stays abroad have a very small independent effect on international publishing.

Keywords: Humanities, Indicators, International, Learning, Medical, Papers, Publishing, Research, Research Performance, Sciences, Small, Social Sciences, Technology

? Schubert, A. (1994), A dictionary of scientific quotations: Mackay, AL. *Scientometrics*, **29** (1), 173-177.

Full Text: [1994\Scientometrics29, 173.pdf](1994/Scientometrics29,%20173.pdf)

? Yamazaki, S. (1994), Research activities in life sciences in Japan. *Scientometrics*, **29** (2), 181-190.

Full Text: [1994\Scientometrics29, 181.pdf](1994/Scientometrics29,%20181.pdf)

Abstract: the purpose of this survey is to study the present state and an evaluation of research activities in the field of life sciences in Japan. Based on the 5,107 papers from Japan in 1989 CD-ROM of Excerpta Medica, a quantitative analysis to determine the present state of research activities in life sciences was conducted. There were 7 journals in which more than 50 papers by Japanese authors were published. Brain Research stood first. The ranking list of contributed papers demonstrates a preference of Japanese researchers’ interest in international journals from commercial publishers rather than in society journals for the publication of their papers overseas. In view of the number of papers and the paper output per head, research activities of organizations were evaluated. The three national medical schools in Kyushu, Osaka, and Kyoto hold ranked high. A comparison between national medical schools and private medical schools shows that the former have higher productivities. Private medical schools were generally inactive, and they emphasized clinical activities more than research activites.

Keywords: Analysis, Clinical, Comparison, Evaluation, First, International, Japan, Journals, Life, Life Sciences, Medical, Medical Schools, Papers, Publication, Quantitative Analysis, Ranking, Research, Sciences, Society, Survey

Notes: TTopic, CCountry

Nasir, A.M., Hassan, H., Hamid, K.A. and Agha, S.S. (1994), Bibliometric evaluation of agricultural literature published in Malaysia. *Scientometrics*, **29** (2), 191-217.

Full Text: [1994\Scientometrics29, 191.pdf](1994/Scientometrics29,%20191.pdf)

Abstract: A bibliometric analysis of agricultural literature published in Malaysia between 1981-1990 was undertaken. The analysis shed light on the key journals that published agricultural literature; on the forms of publications which are resorted to in the communication of research results; on the subject areas which are well written on and those that have been neglected; on the nature of contributions made by Malaysian authors; on the publishing practice of corporate bodies and on the number of publications produced each year.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bodies, Communication, Countries, Journals, Literature, Practice, Publications, Publishing, Research

? Qin, J. (1994), An investigation of research collaboration in the sciences through the philosophical-transactions 1901-1991. *Scientometrics*, **29** (2), 219-238.

Full Text: [1994\Scientometrics29, 219.pdf](1994/Scientometrics29,%20219.pdf)

Abstract: A sample was selected from the Philosophical Transactions of Royal Society of London to examine the development of collaboration in scientific research from 1901-1991. The variables under study were: changes with time, as reflected in the 19 years sampled; the number of collaborative papers, which were subdivided by number of authors, type of collaboration, and the number of unique departmental subject titles; and the number of authors involved in producing collaborative papers, in which the proportion and the mean number of authors per paper were computed according to type of collaboration. It was found that, while the proportion of collaborative papers fluctuated over the years, the number corresponded to an exponential increase over time. The collaboration in the first half of the century was sporadic but grew rapidly in the second half, especially the collaboration involving many authors from different institutions and countries in the production of a publication. The trend toward interdisciplinarity has become pronounced since the 1960s. The phenomenon was found to be associated with the average number of authors per interdisciplinary paper and the type of collaboration. The limitations of the study are indicated and future studies are suggested.

Keywords: Changes, Collaboration, Development, First, Institutions, Interdisciplinarity, Interdisciplinary, Multiple Authorship, Papers, Publication, Research, Scientific Co-Authorship, Scientific Research

? Dehaan, J., Leeuw, F.L. and Remery, C. (1994), Accumulation of advantage and disadvantage in research groups. *Scientometrics*, **29** (2), 239-251.

Full Text: [1994\Scientometrics29, 239.pdf](1994/Scientometrics29,%20239.pdf)

Abstract: This articles presents a test of the accumulation of advantage (AOA) hypothesis applied to differences in duration of research groups. Data are presented on the collaboration within groups both before and after the implementation of a policy measure. An extensive discussion of the findings is given as well as an elaboration of the AOA hypothesis.

Keywords: Collaboration, Policy, Research

Notes: MModel

Chung, Y.K. (1994), Bradford distribution and core authors in classification systems literature. *Scientometrics*, **29** (2), 253-269.

Full Text: [1994\Scientometrics29, 253.pdf](1994/Scientometrics29,%20253.pdf)

Abstract: By applying of Bradford’s law to analysis of the source documents and their references by classification systems researchers in the world, this paper presents core authors of the field during the period 1981-1990. The findings show that 1) core authors of the international classification systems literature are the Library of Congress, M. Dewey, S. Ranganathan, J. Comaromi, A. Neelameghan, L. Chan and K. Markey; 2) the highly cited authors are linked either to the developers of the classification systems or to a research center, or else they authored the most frequently cited books; and 3) the data confirms to Bradford’s law and the unusual rising tail of Bradford distribution is appeared and explained.

Keywords: Analysis, Classification, International, Law, Literature, Research

? Miquel, J.F. and Okubo, Y. (1994), Structure of international collaboration in science. 2. Comparisons of profiles in countries using a link indicator. *Scientometrics*, **29** (2), 271-297.

Full Text: [1994\Scientometrics29, 271.pdf](1994/Scientometrics29,%20271.pdf)

Abstract: In this article, the behaviors of countries in scientific production activities are investigated using an asymmetrical matrix system to analyze data collected from the Science Citation Index. Examination of international collaboration, intercountry relationships, and domestic scientific output patterns structured by 98 countries in eight principal fields of science reveal diverse aspects of country behaviors. Three asymmetrical matrixes are established and the multidimentional Minimum Spanning Tree technique is applied to classify, visualize and determine the distinctive characteristics of country profiles. Investigations are conducted at both a macro (country behavior) and a micro (particular city behavior) level in order to demonstrate the applicability of the methodology and to obtain global observations of country behaviors. It is argued that these methods contribute to reveal traditions and policies of countries, universities and research organizations as well as that of the international network of scientific exchange. Further Usage of these methodologies is advocated for policy analysis.

Keywords: Analysis, Behavior, Collaboration, International, Methodology, Methods, Network, Policy, Policy Analysis, Research, Science, Science Citation Index, Scientific Output, Scientific Production, Universities

? Braun, T., Glänzel, W., Maczelka, H. and Schubert, A. (1994), World science in the eighties - national performances in publication output and citation impact, 1985-1989 versus 1980-1984. 1. All science fields combined, physics, and chemistry. *Scientometrics*, **29** (3), 299-334.

Full Text: [1994\Scientometrics29, 299.pdf](1994/Scientometrics29,%20299.pdf)

Keywords: Facts, Figures, Life Sciences, Newest Version

? Reguant, S. and Casadella, J. (1994), English as Lingua-Franca in geological scientific publications: A bibliometric analysis. *Scientometrics*, **29** (3), 335-351.

Full Text: [1994\Scientometrics29, 335.pdf](1994/Scientometrics29,%20335.pdf)

Abstract: the examination of three samples of geological scientific publications: (A) 9 journals from Western Europe and USA; (B) 10 up-to-date review books, and (C) 3 sections of Volume 127 (1990-1991) of the Zoological Record, shows that the statement that English is now the lingua franca in geological sciences is only in part true, but reflects a desire by many people in the scientific community, a desire which may not yet have been fulfilled.

Keywords: Community, Europe, Examination, Journals, Publications, Review, Sciences, Scientific Publications, USA

? Hinze, S. (1994), Bibliographical cartography of an emerging interdisciplinary discipline: the case of bioelectronics. *Scientometrics*, **29** (3), 353-376

Full Text: [1994\Scientometrics29, 353.pdf](1994/Scientometrics29,%20353.pdf)

Abstract: A bibliometric analysis in the emerging field of bioelectronics, characterised by a high degree of interdisciplinarity, is carried out. Two different techniques - co-classification and co-word analysis - have been used and their results have been compared. The limitations and potentials of these techniques, especially concerning their use for analysing interdisciplinary scientific fields, are discussed. It is found that these techniques enable analyses gaining a first insight into the coarse structure of the field. The advantage of the techniques is their relative simplicity, and the possibility to carry out trend analyses based on relatively constant classifications of research activities, so that maps of different time periods become comparable and changes within the structure of the field become visible.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Changes, First, Interdisciplinarity, Interdisciplinary, Research, Structure, Techniques

? Plomp, R. (1994), The highly cited papers of professors as an indicator of a research groups scientific performance. *Scientometrics*, **29** (3), 377-393.

Full Text: [1994\Scientometrics29, 377.pdf](1994/Scientometrics29,%20377.pdf)

Abstract: In the first part of the paper the citations in 1986 and 1987 of 3938 papers published in 1985 by 324 research groups in the faculties of science and of medicine of eight universities in the Netherlands are analyzed. Because of the large statistical spread of (1) the number of short-term citations of papers cited equally frequently over a long period, and (2) the number of citations over a long period of papers by the same author, short-term citation scores appear to be an unreliable indicator of a research group’s contribution to science. In the second part of the paper an alternative approach is presented, based on a subdivision of the 3938 papers in papers authored by professors with 0-2, 3-8, or greater-than-or-equal-to 9 highly cited papers (HCPs, greater-than-or-equal-to 25 citations) to their name. Very large citation score differences were found for the three categories. for example: for papers first-authored by a professor, the average number of citations per person in 1986 and 1987 for 1985 papers was for 161 professors with greater-than-or-equal-to 9 HCPs a factor 14 larger than for 575 professors with only 0-2 HCPs; for papers co-authored by professors, this factor was 6.6. These findings justify the conclusion that the number of HCPs scored by the professors (and other senior scientists) during their entire career is a much more reliable predictor of the performance of a research group than the number of short-term citations of the articles published by the group within a short period. A research group’s contribution to science is primarily determined by the individual scientific talents of its members.

Keywords: Alternative, Citation, Citations, First, Impact, Indicator, Medicine, Papers, Person, Research, Science, the Netherlands, Universities

? Glänzel, W. and Kretschmer, H. (1994), Selected papers presented at the 4th international-conference on bibliometrics, informetrics and scientometrics: In memory of Price, Derek, John, Desolla (1922-1983) September 11-15, 1993, Berlin (Germany) - Preface. *Scientometrics*, **30** (1), 5-6.

Full Text: Scientometrics30, 5.pdf

Keywords: Bibliometrics, Germany, Scientometrics

Arunachalam, S., Srinivasan, R. and Raman, V. (1994), International collaboration in science: Participation by the Asian giants. *Scientometrics*, **30** (1), 7-22.

Full Text: [1994\Scientometrics30, 7.pdf](1994/Scientometrics30,%207.pdf)

Abstract: Science in the last few years has become increasingly global and collaborative. The number of internationally coauthored papers has been increasing steadily. We have counted internationally jointly authored papers involving authors from the advanced countries and the Third World countries, using SCI 1991. We have looked at the number of papers resulting from collaboration among authors residing in the countries of the North (e.g. EC and OECD countries), authors residing in the South (e.g. India and Bangladesh, Mexico and Brazil, China and Pakistan) and papers resulting from collaboration between authors residing in the countries of the South and the North (e.g. India and UK, China and USA). Despite its late start, China has published many more collaborative papers with most Asian countries and the advanced countries of the West except the UK than India - confirming the effectiveness of the open door policy of post-Mao China. Both India and China collaborate with USA much more often in physics than in other areas, followed by clinical medicine. However, India collaborates more with USA in chemistry than China. In Indo-US and Sino-US collaborations, collaborating institutions are mostly universities and institutes of higher learning in India and USA, whereas in China several institutions under the Academies also take part. The percentage of collaborative papers involving authors from India is even smaller than the percentage of journal articles originating from India. In general, papers resulting from international collaboration appear in better journals and are cited more often than papers that are the outcome of local research.

Keywords: Bangladesh, Brazil, Chemistry, China, Clinical, Collaboration, EC, Effectiveness, India, Institutions, International, Journal, Journal Articles, Journals, Learning, Medicine, Mexico, Pakistan, Papers, Policy, Research, SCI, UK, Universities, USA

? Delooze, M.A. (1994), The application of scientometric tools to the analysis of a sector in plant biotechnologies: Nitrogen-fixation. *Scientometrics*, **30** (1), 23-34.

Full Text: [1994\Scientometrics30, 23.pdf](1994/Scientometrics30,%2023.pdf)

Abstract: the application of biliometric methods and tools for analysing data from information sciences and patent data bases allow us to obtain different representations of an area that is particularly fragmented and difficult to interpret: plant biotechnologies in which nitrogen fixation has been particularly highlighted.

Keywords: Citation, Indicators, Information, Methods, Patent, Patents, Plant, Science, Sciences, Technology

? Egghe, L. (1994), Bridging the gaps: Conceptual discussions on informetrics. *Scientometrics*, **30** (1), 35-47.

Full Text: [1994\Scientometrics30, 35.pdf](1994/Scientometrics30,%2035.pdf)

Abstract: In this paper we discuss the possible gaps between several subdisciplines in informetrics and between informetrics and other -metrics disciplines such as econometrics, sociometrics and so on. It is argued that in all these disciplines, common models exist which describe the main points of interest, We also show that many concrete problems in these disciplines can be formulated in the same way and hence have similar solutions. We can conclude with the statement that the possible gaps between these disciplines are smaller than what many researchers in these different areas may feel and hence that many research projects could be set up in a wider framework.

Keywords: Concrete, Econometrics, Framework, Informetrics, Metrics, Models, Obsolescence, Research

Glänzel, W. and Schoepflin, U. (1994), A stochastic model for the aging of scientific literature. *Scientometrics*, **30** (1), 49-64.

Full Text: [1994\Scientometrics30, 49.pdf](1994/Scientometrics30,%2049.pdf)

Abstract: A non-homogeneous birth process is used to describe the statistical properties of bibliometric citation processes. The model is analysed under special assumptions. The life-time distribution, special probabilities and mean value functions are used to characterize differences in the ageing structure of scientific literature, the change of citation impact in time and to analyse predictive aspects of reception processes. The results are applied to selected journals representing one field in science and social science each. The empirical part of the study is based on a 14-year citation history (papers published in 1978 and cited 1978-1991). An intimate connection between impact and ageing cannot be observed. However, the ageing behaviour seems to be clearly influenced by field characteristics and by special document, journal types, such as letters and short communications

Keywords: Ageing, Assumptions, Behaviour, Bibliometric, Citation, Communications, Functions, History, Journals, Literature, Model, Papers, Science, Structure

Van Hooydonk, G., Gevaert, R., Milisproost, G., Vandesompel, H. and Debackere, K. (1994), A bibliotheconomic analysis of the impact factors of scientific disciplines. *Scientometrics*, **30** (1), 65-81.

Full Text: [1994\Scientometrics30, 65.pdf](1994/Scientometrics30,%2065.pdf)

Abstract: An attempt is made to correlate bibliometric data of journals (impact factors, half-life) for scientific disciplines in the exact sciences to bibliotheconomic data (subscription prices, prices per article and holdings). Data are presented for 5399 journals in 131 disciplines, as mentioned in the Journal Citation Reports 1990 (Science Citation Index)

Keywords: Bibliometric, Bibliometrics, Impact Factors, Journal Citation Reports, Journal Costs, Journals, Science Citation Index, Sciences

? Jeannin, P. and Devillard, J. (1994), Towards a demographic approach to scientific journals. *Scientometrics*, **30** (1), 83-95.

Full Text: [1994\Scientometrics30, 83.pdf](1994/Scientometrics30,%2083.pdf)

Abstract: This paper sheds, through the concepts of demography, a different light on the study of scientific journals. Without leaving aside the major role played by scientific journals. such an approach allows for the use of tools which are at the basis of information watch in research. Different key variables are used such as the date of its birth of a journal (resp. its date of death), The migration to other fields of knowledge or to other audiences... A certain number of indicators are exposed such as the rates (gross or net) of new publications or deaths. Some applications are proposed.

Keywords: Death, Indicators, Information, Journal, Journals, Knowledge, Publications, Research, Scientific Journals

? Maciaschapula, C.A. (1994), Non-SCI subject visibility of the Latin-American scientific production in the health field. *Scientometrics*, **30** (1), 97-104.

Full Text: [1994\Scientometrics30, 97.pdf](1994/Scientometrics30,%2097.pdf)

Abstract: the purpose of this work was to analyse the non-Science Citation Index subject visibility of the Latin American production in the health field. The methodology used considered manual and automated retrieval of the Latin American journals, as covered by different conventional secondary sources. The IMLA/LILACS (Index Medicus Latinoamericano/Latin American Literature in the Health Sciences) database was used to obtain a master list of the ‘sustained’ journals for the period 1979-1990. The selected journals were classified by subject content, following the scheme of the U.S. National Library of Medicine. A total of 221 journals were selected and a database was developed. The results corroborated the leadership of Brazil in the field. It was also found that the subject content had a strong trend toward the ‘clinical’, medicine field. The subject ‘Medicine’ was head in the list, with seventy four journals. Several difficulties and barriers to the use of the IMLA/LILACS database were detected. The implications of the overall analysis of this study as affecting researchers, policy makers and data-base producers are stressed by the author.

Keywords: Analysis, Brazil, Data Base, Database, Health, Journals, Leadership, Medicine, Methodology, Policy, Work

? Makovetskaya, O. and Bernadsky, V. (1994), Scientometric indicators for identification of technology system life-cycle phase. *Scientometrics*, **30** (1), 105-116.

Full Text: [1994\Scientometrics30, 105.pdf](1994/Scientometrics30,%20105.pdf)

Abstract: This paper presents a methodology of analysis of scientometric data reflecting dynamics of technology-oriented R & D. The data base contains a range of articles, patents and standards in the field of welding technologies world-wide and covers the period from 1961 to 1989. The methodology allows to identify the current phase of a technology life cycle in a given country or company and to compare it to that of the leading countries. These data allow to make more motivated decisions in science policy and R & D management.

Keywords: Analysis, Data Base, Dynamics, Life, Management, Methodology, Patents, Policy, Science, Science Policy, Scientometric, Standards, Technologies, Technology

? Martens, B. and Saretzki, T. (1994), Quantitative-analysis of thematic structures in the field of biotechnology: A study on the basis of conference data. *Scientometrics*, **30** (1), 117-128.

Full Text: [1994\Scientometrics30, 117.pdf](1994/Scientometrics30,%20117.pdf)

Abstract: Conferences and other kinds of scientific meetings are becoming increasingly important as means of scientific communication, especially in highly dynamic and multidisciplinary fields of knowledge. A ‘conference approach’ has been pursued by collecting and analyzing data about conferences, courses, workshops, and exhibitions in the field of new biotechnology. The data cover the period of 1984-91. The textual conference data were categorized using a content analytic approach and a coding scheme. It encompasses all relevant fields of biotechnology, describing them in five dimensions: fields of knowledge, areas of application, groups of organisms that are of interest at meetings, methods of biotechnological relevance, and contexts of application and further development of biotechnology. In addition, variables describing the social, spatial. and time dimensions of scientific meetings as social gatherings were also taken into consideration. Distributions of and correlations between the categories are used to analyze structures of themes. If one differentiates these thematic structures according to organizing institutions, countries, and time. certain pecularities will be clearly visible.

Keywords: Biotechnology, Coding, Communication, Conferences, Correlations, Development, Institutions, Knowledge, Methods, Multidisciplinary, Relevance, Scientific Communication, Workshops

? Matricciani, E. (1994), Shannons entropy as a measure of the life of the literature of a discipline. *Scientometrics*, **30** (1), 129-145.

Full Text: [1994\Scientometrics30, 129.pdf](1994/Scientometrics30,%20129.pdf)

Abstract: the paper is divided in two parts. Part I deals with the novel use of the concept of entropy h (measured in nepers) of the age T of references cited in the literature of a specialty, and the derived parameter S=exp(H) (measured in years). We have proposed to use S (or H) as a measure of the obsolescence of the literature. The concept of entropy comes from the Theory of Information (Shannon) where its mathematical properties have been widely studied and are thus available. h and S have been calculated for the log-normal probability density functions (which model the empirical distributions of T) of some IEEE journals and for the 58-year collection of an electronics journal, and then they have been compared to the total utility function, this latter defined in the literature. Part II recalls and discusses the mean residual life, M(T), and the expected life E(T), of a reference of age T (concepts borrowed from lifetime data analysis). Besides their intrinsic applications. another possible application of these concepts may be in defining quantitatively the age of ‘historical’ papers. Examples taken from the literatures of the XX and XIX centuries have been reported.

Keywords: Analysis, Data Analysis, Entropy, Function, Functions, Journal, Journals, Life, Literature, Model, Obsolescence, Papers, Specialty, Utility

? Narin, F. (1994), Patent bibliometrics. *Scientometrics*, **30** (1), 147-155.

Full Text: [1994\Scientometrics30, 147.pdf](1994/Scientometrics30,%20147.pdf)

Abstract: In our 1975 monograph ‘Evaluative Bibliometrics’ we discussed the many uses of publication and citation analysis in the evaluation of scientific activities, and some of the basic statistical properties of the scientific literature, particularly the skewnness of the distributions of publications and citations, reference time distributions, and various anomalies in the citation patterns from one country to another. Over the last ten years we have devoted much of our energy to the development of an analogous research base and infrastructure for patent bibliometrics, that is for the use of patents, and patent citations in the evaluation of technological activities. There are remarkable similarities between literature bibliometrics and patent bibliometrics, and they are both applicable to the same wide ranges of problems. This paper will show that there are striking similarities between literature and patent distributions of national productivity, inventor productivity, referencing cycles, citation impact and within country citation preferences.

Keywords: Analysis, Bibliometrics, Citation, Citation Analysis, Citation Patterns, Citations, Development, Evaluation, Literature, Patent, Patent Citations, Patents, Publication, Publications, Referencing, Research

? Noyons, E.C.M. and Vanraan, A.F.J. (1994), Bibliometric cartography of scientific and technological developments of an research-and-development field: the case of optomechatronics. *Scientometrics*, **30** (1), 157-173.

Full Text: [1994\Scientometrics30, 157.pdf](1994/Scientometrics30,%20157.pdf)

Abstract: This paper presents the results of an exploration of bibliometric mapping as an analytic tool to study the important aspects of the relation between science and technology, in particular the ‘science base’ of technology. We discuss a bibliometric (in particular a publication- and patent-based) approach to develop a cartography of science and technology, i.e., the construction of geometrically organized maps in order to visualize the changing internal structure of science and technology. These maps are based on co-occurrences of publication and patent keywords. We focus on a specific R & D field: optomechatronics. This field is characterized by a strong knowledge transfer between science and technology. We constructed maps for both the science as well as the technology ‘side’. Comparison of these two allows the exploration of existing or possible interaction of scientific and technological developments. We identified related subfields (co-word clusters) in the maps of both ‘sides’ in order to illustrate the interaction between science and technology. Subsequently, we extended the information given by the maps with information on the role and position of a number of countries in the different subfields of optomechatronics, both at the science side as well as at the technology side. This is done by identification of actors in the subfields represented by word clusters in the maps. Cartography of science and technology allows the observation of the structure (and its changes) of scientific and technology fields. Moreover, it illustrates both existing as well as possible links between science and technology. It therefore presents a powerful tool for science, technology and R & D policy.

Keywords: Bibliometric, Bibliometric Mapping, Changes, Identification, Information, Interaction, Knowledge, Patent, Policy, Publication, Science, Science and Technology, Structure, Technology

? Peritz, B.C. (1994), On the heuristic value of scientific publications and their design: A Citation Analysis of Some Clinical-Trials. *Scientometrics*, **30** (1), 175-186.

Full Text: [1994\Scientometrics30, 175.pdf](1994/Scientometrics30,%20175.pdf)

Abstract: the assumption underlying citation analysis is that the citing authors select their references in a rational manner. The present study, based on a very homogeneous collection of clinical trials from a meta-analysis, provides a partial verification of this idea: citing authors prefer large studies to smaller ones, they also seem to prefer studies representing the minority view of the research issue, perhaps in order to make their presentation more balanced. On the other hand, in this instance the inclusion of a placebo in the study design does not affect citation frequency. Furthermore, the conjecture that heuristic value is a main determinant of citability is not settled.

Keywords: Analysis, Citation, Citation Analysis, Citation Frequency, Clinical, Clinical Trials, Meta-Analysis, Placebo, Research, Study Design

? Rikken, F. and Vos, R. (1994), Searching for adverse drug-reactions at the margin of scientific fields: the scientometric detection of peripheral but potentially innovative developments in pharmaceutical research. *Scientometrics*, **30** (1), 187-199.

Full Text: [1994\Scientometrics30, 187.pdf](1994/Scientometrics30,%20187.pdf)

Abstract: Results are presented of a scientometric analysis focusing on peripheral dynamics in a scientific field. We evaluate different techniques on their appropriateness for detecting relations between aspects that seem to be not of central interest but are important in innovative research. We do so in order to quantify the role that adverse drug reactions can play as trigger points in innovative drug research.

Keywords: Adverse Drug Reactions, Analysis, Drug, Dynamics, Maps, Relations, Research, Science, Scientometric, Techniques

? Roman, A. and Mendez, A. (1994), The Spanish transition to democracy seen through the Spanish database ISOC. *Scientometrics*, **30** (1), 201-212.

Full Text: [1994\Scientometrics30, 201.pdf](1994/Scientometrics30,%20201.pdf)

Abstract: the study has tried to look at the political transition through the articles publisbed by Spanish scientists in Spanish journals of Social Sciences and Humanities. A sample of 11000 article references from a selected set of 32 journals published from 1976 till 1985, has been the basis of the analysis. This time frame has been divided into two 5 year periods in order to detect any change in the topics published. The result of the analysis has been compared with the ‘events’ as recorded by ‘El Pais’ a very popular newspaper, during the same 10 year period and with a set of specific articles devoted to the Spanish political transition.

Keywords: Analysis, Journals

? Rousseau, R. (1994), Double exponential models for 1st-citation processes. *Scientometrics*, **30** (1), 213-227.

Full Text: [1994\Scientometrics30, 213.pdf](1994/Scientometrics30,%20213.pdf)

Abstract: the purpose of this article is to find a model for the first-citation or response distribution. Starting from plausible assumptions, we derive differential equations, whose solutions yield the requested functions. In fact, we propose two different double exponential distributions as candidates to describe the first-citation process. We found that some real data are best fitted by the first of these models and other by the second. We further note that Gompertz’ curve plays an important role in this second model. These models can be used to predict the total number of articles in a fixed group that will ever be cited. We conclude that further research is needed to find out when one of the two models is more appropriate than the other.

Keywords: Assumptions, Citation, First, Functions, Model, Models, Research

? Small, H. (1994), A SCI-map case-study: Building a map of aids research. *Scientometrics*, **30** (1), 229-241.

Full Text: [1994\Scientometrics30, 229.pdf](1994/Scientometrics30,%20229.pdf)

Abstract: SCI-Map is a new PC based system for mapping the scientific literature. By selecting a seed item, the user can build a network or cluster of nodes interactively, and can view the structure as it is being built. New nodes are selected for addition to the network by the strength of their links to the items already clustered, and the positions of new nodes are determined by a geometric triangulation method. SCI-Map can be used to perform cluster-based retrieval using co-citation or other measures of document association, and enables the user to explore the structure of large document sets. This case study focuses on the AIDS literature and shows how the network is built up topic by topic, the recall of the final cluster, and where AIDS connects to the literature of other fields.

Keywords: Aid, AIDS, Association, Case Study, Co-Citation, Cocitation, Literature, Network, Structure

? Soderqvist, T. and Silverstein, A.M. (1994), Studying leadership and subdisciplinary structure of scientific disciplines: Cluster-analysis of participation in scientific meetings. *Scientometrics*, **30** (1), 243-258.

Full Text: [1994\Scientometrics30, 243.pdf](1994/Scientometrics30,%20243.pdf)

Abstract: A new method for the analysis of leadership and subdisciplinary structure of a scientific discipline is discussed. The database consists of lists of participants in international scientific meetings. Disciplinary leaders are identified by means of their frequency of participation. The subdisciplinary structure is mapped by means of cluster analysis of meetings with respect to degree of similarity. The method possesses strengths not shared by citation analysis: in addition to scientists frequently cited in the literature for their contribution to cognitive research programs, it also identifies administrative discipline builders. The method may also represent better the cognitive interests of scientists.

Keywords: Analysis, Citation, Citation Analysis, Cluster Analysis, Database, International, Leadership, Literature, Research, Similarity, Structure

? Taguesutcliffe, J. (1994), Modeling and forecasting contact time as a measure of item informativeness. *Scientometrics*, **30** (1), 259-267.

Full Text: [1994\Scientometrics30, 259.pdf](1994/Scientometrics30,%20259.pdf)

Abstract: the value or informativeness of an item in a library collection or database has been measured by its frequency of circulation or access. This paper presents a more discriminating measure, user contact time, and develops a model for its distribution over users and over time. The model is applied to the problem of predicting future informativeness of an item.

Keywords: Access, Database, Library, Model, Modeling

? Turner, W.A., Lelu, A. and Georgel, A. (1994), Geode: Optimizing data-flow representation techniques in a network information-system. *Scientometrics*, **30** (1), 269-281.

Full Text: [1994\Scientometrics30, 269.pdf](1994/Scientometrics30,%20269.pdf)

Abstract: the Informetrics Research Group (CERESI/CNRS) was recently created by the Mission for Scientific and Technical Information and Communication of the CNRS. CERESI’s goal is to study the impact of computer supported information exchanges on the social processes underlying the construction of scientific knowledge. A better understanding of this impact should help in designing and building scientific and technical information management systems. In this paper, we will focus on one aspect of our work: mapping science and technology in order to build dynamic representations of science and technology.

Keywords: Information, Knowledge, Management, Science, Science and Technology, Technology, Understanding, Work

? Vinkler, P. (1994), The origin and features of information referenced in pharmaceutical patents. *Scientometrics*, **30** (1), 283-302.

Full Text: [1994\Scientometrics30, 283.pdf](1994/Scientometrics30,%20283.pdf)

Abstract: 50 pharmaceutical patents granted to firms, residing in US, CIB, DE and HU each, were surveyed and the average numbers of scientific as well as patent items referenced by the inventors were calculated. The sum of impact factors of the journals referenced (Total Weighted Impact) was calculated by scientific fields. About 50-60 per cent of scientific information referred to in the patents was found to originate from Life Sciences journals. It was found that 10 per cent of the journals referenced contained 55 per cent of the papers.

Keywords: Impact Factors, Indicators, Information, Journals, Linkage, Papers, Patent, Patents, Science, Scientific Information, Technology, US

? Wagnerdobler, R. and Berg, J. (1994), Regularity and irregularity in the development of scientific disciplines: the case of mathematical logic. *Scientometrics*, **30** (1), 303-319.

Full Text: [1994\Scientometrics30, 303.pdf](1994/Scientometrics30,%20303.pdf)

Abstract: We report on results from an analysis of mathematical logic from 1874 to the present time, covering about 15,000 authors with 50,000 publications. Frequency distributions in terms of contributions or in terms of the number of special areas dealt with exhibited a well-known lognormal form. A dynamic version of Price’s inverse square (or power) law of elitism seems to be corroborated. The idea of a general exponential growth law is not convincing, however. All forms of growth of logic areas occur. In this contribution we apply, in addition, Goffman’s epidemic model, contained in one of the rare theories of scientific dynamics, to the development of logic and formulate ex-post-ante prognoses of some areas of logic. The outcome casts doubts on the applicability in scientometrics of the epidemic theory in the form suggested by Goffman.

Keywords: Analysis, Chaos, Development, Dynamics, Epidemic, Growth, Informetric Distributions, Law, Model, Publications, Scientometrics, Theory

? Yitzhaki, M. (1994), Relation of title length of journal articles to number of authors. *Scientometrics*, **30** (1), 321-332.

Full Text: [1994\Scientometrics30, 321.pdf](1994/Scientometrics30,%20321.pdf)

Abstract: the great importance of titles being highly informative is almost unanimously accepted in literature, assuming that the more informative titles are, the more effectively they serve their functions. The most common measure of title ‘informativeness’ has been the number of ‘substantive’ words included in it, and one of the factors which might be associated with it is the number of authors. The present study attempted to test, in a large group of journals from different areas, and over six decades, the hypothesis that a paper signed by a larger number of authors will have more substantive words in its title. Large samples of original research papers were drawn from each decade year of fourteen leading journals. for each paper, the number of substantive words in the title was correlated with the number of authors. Findings indicate a difference between the scientific journals on the one hand, and the social sciences and humanities journals on the other. A moderate positive correlation was found in most scientific journals (excluding mathematics) for many periods. In the social sciences journals, and to a greater extent, in the humanities journals, a significant positive correlation was limited to only a few periods, while the rest showed a very low correlation, or even a negative correlation. The different findings for the sciences may be somehow associated with their higher rate of multiple authorship.

Keywords: Authorship, Functions, Humanities, Journals, Literature, Papers, Research, Sciences, Scientific Journals, Social Sciences

Zitt, M. and Bassecoulard, E. (1994), Development of a method for detection and trend analysis of research fronts built by lexical or cocitation analysis. *Scientometrics*, **30** (1), 333-351.

Full Text: [1994\Scientometrics30, 333.pdf](1994/Scientometrics30,%20333.pdf)

Abstract: Detecting homogeneous areas in research networks is a very common feature of bibliometric analysis, either for academic or policy purposes. The method presented here combines structural analysis and trend detection, by operating on a ‘thick-slice’ of time, starting from co-citation or co-word analysis (applications of either type have already been carried on). Significance of ‘trend’ of clusters is partially addressed, through an analysis of publication delays. Examples are given on a co-citation analysis in the field of astrophysics (1986-1989).

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Co-Citation, Co-Citation Analysis, Cocitation, Feature, Policy, Publication, Research, Science, Word Analysis

Bookstein, A. (1994), Towards a multi-disciplinary Bradford law. *Scientometrics*, **30** (1), 353-361.

Full Text: [1994\Scientometrics30, 353.pdf](1994/Scientometrics30,%20353.pdf)

Abstract: Bradford’s law, perhaps the most well known of the Informetric regularities, analyzes the scattering of articles in a single discipline over journals. Yet journals are multi-disciplinary entities. This paper discusses the implications for Bradford’s law of the multi-disciplinary character of journals, and defines a simple model that indicates the evolution of journals as a competition among subjects for space.

Keywords: Competition, Evolution, Informetric Distributions, Journals, Law, Model, Multidisciplinary, Scattering

? Kretschmer, H. (1994), Coauthorship networks of invisible-colleges and institutionalized communities. *Scientometrics*, **30** (1), 363-369.

Full Text: [1994\Scientometrics30, 363.pdf](1994/Scientometrics30,%20363.pdf)

Abstract: In invisible colleges the relative frequency of coauthorships is higher between scientists with the same number of publications than between authors of different ones. The opposite is valid in institutionalized communities.

Keywords: Publications

? Braun, T. (1994), Foreword. *Scientometrics*, **30** (2-3), 373.

Full Text: [1994\Scientometrics30, 373.pdf](1994/Scientometrics30,%20373.pdf)

? Glänzel, W. and Schoepflin, U. (1994), Little scientometrics, big scientometrics ... and beyond. *Scientometrics*, **30** (2-3), 375-384.

Full Text: [1994\Scientometrics30, 375.pdf](1994/Scientometrics30,%20375.pdf)

Abstract: Although the field of scientometries/bibliometries is rapidly growing, and the interest in scientometric indicators is constantly rising, the field is in a crisis: subfields are drifting apart, the field is lacking consensus in basic questions and of internal communication, the quality of scientometric research is questioned by other disciplines. Among the causes stated are: the loss of integrating personalities; shift from basic and methodological research to applied bibliometrics; domination of the interests of science policy and business in commissioning and funding research; vendor policies and failing quality-management on the side of database-producers; misuse of bibliometric research results and disregard for scientific standards. To overcome the situation, the authors plead for integrative and interdisciplinary research approaches, for reinforcing fundamental, methodological and experimental research programs in scientometrics, for independent funding of research, and for an enhancement of scientometric databases. The need for acknowledged technical and scientific standards in research and publication is stressed. Finally, the establishment of a Code of Ethics for the field of scientometrics is proposed.

Keywords: Bibliometric, Bibliometric Research, Bibliometrics, Business, Communication, Consensus, Experimental, Indicators, Integrative, Interdisciplinary, Policy, Publication, Quality, Quality Management, Research, Science, Science Policy, Scientometric, Scientometrics, Standards

? Rousseau, R. (1994), Similarities between informetrics and econometrics. *Scientometrics*, **30** (2-3), 385-387.

Full Text: [1994\Scientometrics30, 385.pdf](1994/Scientometrics30,%20385.pdf)

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Full Text: Scientometrics30, 389.pdf

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Full Text: [1994\Scientometrics30, 393.pdf](1994/Scientometrics30,%20393.pdf)

Keywords: Scientometrics

? Pouris, A. (1994), Is scientometrics in a crisis. *Scientometrics*, **30** (2-3), 397-399.

Full Text: [1994\Scientometrics30, 397.pdf](1994/Scientometrics30,%20397.pdf)

Keywords: Scientometrics

? Dou, H. (1994), In which business are we. *Scientometrics*, **30** (2-3), 401-406.

Full Text: [1994\Scientometrics30, 401.pdf](1994/Scientometrics30,%20401.pdf)

Abstract: I read the article of Glänzel and Schoepflin: Little Scientometrics, Big Scientometrics ... and Beyond. This paper presents scientometrics in a very pessimistic way, but, in my opinion it rises the following question: in which business are we? Are we in the analysis of the science production? Do we develop new tools to analyse the textual information? And, above all we use our results and for which purposes. It seems to me that if we answer those questions, a large step will be made in the understanding of the whereabout of our business.

Keywords: Analysis, Business, Information, Science, Scientometrics, Understanding

? Russell, J.M. (1994), Back to the future for informetrics. *Scientometrics*, **30** (2-3), 407-410.

Full Text: [1994\Scientometrics30, 407.pdf](1994/Scientometrics30,%20407.pdf)

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Full Text: [1994\Scientometrics30, 411.pdf](1994/Scientometrics30,%20411.pdf)

Keywords: Scientometrics

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Full Text: [1994\Scientometrics30, 415.pdf](1994/Scientometrics30,%20415.pdf)

Keywords: Scientometrics

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Full Text: [1994\Scientometrics30, 419.pdf](1994/Scientometrics30,%20419.pdf)

Keywords: Bibliometrics

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Full Text: [1994\Scientometrics30, 425.pdf](1994/Scientometrics30,%20425.pdf)

Keywords: Indicators, Scientometrics

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Full Text: [1994\Scientometrics30, 429.pdf](1994/Scientometrics30,%20429.pdf)

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Full Text: [1994\Scientometrics30, 433.pdf](1994/Scientometrics30,%20433.pdf)

Keywords: Indicators, Science

? Mcgrath, W.E. (1994), Little scientometrics, big scientometrics ... and beyond. *Scientometrics*, **30** (2-3), 439-442.

Full Text: [1994\Scientometrics30, 439.pdf](1994/Scientometrics30,%20439.pdf)

Keywords: Scientometrics

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Full Text: [1994\Scientometrics30, 443.pdf](1994/Scientometrics30,%20443.pdf)

Keywords: Scientometrics

Meadows, A.J. (1994), Little scientometrics, big scientometrics ... and beyond. *Scientometrics*, **30** (2-3), 447-449.

Full Text: [1994\Scientometrics30, 447.pdf](1994/Scientometrics30,%20447.pdf)

Keywords: Scientometrics

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Full Text: [1994\Scientometrics30, 451.pdf](1994/Scientometrics30,%20451.pdf)

Keywords: Scientometrics

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Full Text: [1994\Scientometrics30, 455.pdf](1994/Scientometrics30,%20455.pdf)

Keywords: Scientometrics

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Full Text: [1994\Scientometrics30, 461.pdf](1994/Scientometrics30,%20461.pdf)

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Full Text: [1994\Scientometrics30, 465.pdf](1994/Scientometrics30,%20465.pdf)

Keywords: Scientometrics

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Full Text: [1994\Scientometrics30, 471.pdf](1994/Scientometrics30,%20471.pdf)

? Luukkonen, T. (1994), Are we longing for the golden era lost or for the one to come. *Scientometrics*, **30** (2-3), 481-485.

Full Text: [1994\Scientometrics30, 481.pdf](1994/Scientometrics30,%20481.pdf)

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Full Text: [1994\Scientometrics30, 487.pdf](1994/Scientometrics30,%20487.pdf)

Keywords: Scientific Literatures, Scientometrics

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Full Text: [1994\Scientometrics30, 495.pdf](1994/Scientometrics30,%20495.pdf)

Keywords: Science, Scientometrics

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Full Text: [1994\Scientometrics30, 505.pdf](1994/Scientometrics30,%20505.pdf)

? Lazarev, V.S. (1994), Notion of a document: A center of gravity attraction for getting metricians together. *Scientometrics*, **30** (2-3), 511-516

Full Text: [1994\Scientometrics30, 511.pdf](1994/Scientometrics30,%20511.pdf)

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Full Text: [1994\Scientometrics30, 517.pdf](1994/Scientometrics30,%20517.pdf)

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Full Text: [1994\Scientometrics30, 521.pdf](1994/Scientometrics30,%20521.pdf)

Keywords: Scientometrics

? Vanraan, A.F.J. (1994), Little scientometrics, big scientometrics ... and beyond. *Scientometrics*, **30** (2-3), 529-531.

Full Text: [1994\Scientometrics30, 529.pdf](1994/Scientometrics30,%20529.pdf)

Keywords: Scientometrics

? Kretschmer, H. (1994), Quantity and quality in science of science. *Scientometrics*, **30** (2-3), 533-537.

Full Text: [1994\Scientometrics30, 533.pdf](1994/Scientometrics30,%20533.pdf)

? Leydesdorff, L. (1994), Scientometrics: French - Callon, M, Courtial, JP, Penan, H. *Scientometrics*, **30** (2-3), 539-541.

Full Text: [1994\Scientometrics30, 539.pdf](1994/Scientometrics30,%20539.pdf)

Keywords: Leximappe, Network, Scientometrics

? Braun, T., Glänzel, W., Maczelka, H. and Schubert, A. (1994), World science in the eighties: National performances in publication output and citation impact, 1985-1989 versus 1980-1984. 2. Life sciences, engineering, and mathematics. *Scientometrics*, **31** (1), 3-30.

Full Text: [1994\Scientometrics31, 3.pdf](1994/Scientometrics31,%203.pdf)

Keywords: Countries, Datafiles, Facts, Figures, Indicators, Newest Version, Physics

? Katz, J.S. (1994), Geographical proximity and scientific collaboration. *Scientometrics*, **31** (1), 31-43.

Full Text: [1994\Scientometrics31, 31.pdf](1994/Scientometrics31,%2031.pdf)

Abstract: Geography, economic, socio-political and language are considered to be factors that effect the level of research collaboration. However, to-date no technique has been developed to isolate the effect of geographical proximity from the other factors. This paper presents a methodology for specifically examining geographical effects on intra-national scientific collaboration. An investigation of intra-national university-university collaboration in Canada, Australia and the United Kingdom using this technique demonstrates that research cooperation decreases exponentially with the distance separating the collaborative partners.

Keywords: Australia, Canada, Collaboration, Cooperation, Investigation, Methodology, Research, Research Collaboration, Scientific Collaboration, United Kingdom

? Milman, B.L. (1994), Individual cocitation clusters as nuclei of complete and dynamic informetric models of scientific and technological areas. *Scientometrics*, **31** (1), 45-57.

Full Text: [1994\Scientometrics31, 45.pdf](1994/Scientometrics31,%2045.pdf)

Abstract: This paper describes the construction of improved informetric models of individual scientific and technological areas on the basis of individual co-citation clusters. The developed methodology of replenishment of research front with accidentally absent papers describes more completely the model. The simple method of cluster ‘dynamisation’ is proposed for the study of evolution of a research area. The transition under consideration from co-citation clusters to lexical maps of papers and patents allows to monitor the relationship between R and D in a given technological area. Pressure-swing adsorption (PSA) as modern chemical engineering, is given as an example.

Keywords: Adsorption, Co-Citation, Cocitation, Collagen Research, Combined Cocitation, Evolution, Methodology, Model, Models, Papers, Patents, Research, Research Front, Science, Tool, Word Analysis

Leydesdorff, L. (1994), The generation of aggregated journal-journal citation maps on the basis of the CD-ROM version of the Science Citation Index. *Scientometrics*, **31** (1), 59-84.

Full Text: [1994\Scientometrics31, 59.pdf](1994/Scientometrics31,%2059.pdf)

Abstract: A method is described for the generation of journal-journal citation maps on the basis of the CD-ROM version of the Science Citation Index. Various sources of potential errors in using this data are discussed, and strategies are suggested to counteract these errors. A number of scientometric journal mappings are analyzed in relation to mappings from previous studies which have used tape data and/or data from ISI’s Journal Citation Reports. The quality of these mappings is compared with the quality of those for previous years in order to demonstrate usefulness of such mappings as indicators for dynamic developments in the sciences.

Keywords: Citation, Generation, Indicators, Journal, Journal Citation Reports, Potential, Quality, Science Citation Index, Sciences, Scientometric

? Saurer, W. and Weinberger, R. (1994), Planetary-nebulae: Some statistics on a continuously growing field and its contributors. *Scientometrics*, **31** (1), 85-95.

Full Text: [1994\Scientometrics31, 85.pdf](1994/Scientometrics31,%2085.pdf)

Abstract: By use of the subject category ‘Planetary Nebulae’ (PNe) in the semiannual volumes of Astronomy and Astrophysics Abstracts for the years 1986 to 1990, we statistically investigated items like the number of individuals with at least one paper concerning PNe (e.g. 331 in 1990), how this number is distributed among the 31 countries involved in PNe research (with the former USSR counted as one country), how the USA, Europe, and the remaining countries share the total number over 5 years (333, 317, and 283, respectively), etc. Furthermore, we give the number of publications, per individual and per year, in each country (The Netherlands is leading). We learned, that on the average there are 2.47 authors per PNe paper, and that the PNe researchers are producing 1.74 papers per year - if they publish at least once per year on PNe. In addition, we do not hesitate to give a list of names (the Top Ten), as far as their total number of papers on PNe are concerned. Last not least - do you have a guess how many individuals published at least one paper on PNe within these five years? There are 933.

Keywords: Astronomers, Europe, Papers, Publications, Research, Trends, USA

? Nagpaul, P.S. and Sharma, L. (1994), Research output and transnational cooperation in physics subfields: A multidimensional-analysis. *Scientometrics*, **31** (1), 97-122.

Full Text: [1994\Scientometrics31, 97.pdf](1994/Scientometrics31,%2097.pdf)

Abstract: This paper compares the profiles of research output and transnational cooperation (as revealed through multicountry publications) of thirty six countries in ten subfields of Physics during the period 1981-1985. The data for comparative analysis were taken from Braun et al.1 Since raw counts of publications are confounded by the size of the countries and the size of the research fields, this comparison is made, using relative indicators - activity index and collaboration index. The structures of research output and transnational cooperation are analyzed through Correspondence Analysis, which leads to the identification of countries with similar profiles (of research output and transnational cooperation) and the spatial representation of countries and Physics subfields. The configurations of research output and transnational cooperation are compared to assess the concordance between the policies of these countries for research and transnational cooperation in Physics.

Keywords: Analysis, Citation, Collaboration, Comparison, Cooperation, Identification, Indicators, Patterns, Publications, Representation, Research, Size

? Bonitz, M. (1994), Untitled. *Scientometrics*, **31** (1), 123.

Full Text: [1994\Scientometrics31, 123.pdf](1994/Scientometrics31,%20123.pdf)

Lewison, G. (1994), Publications from the European Community’s Biotechnology Action Program (BAP): Multinationality, acknowledgment of support, and citations. *Scientometrics*, **31** (2), 125-142.

Full Text: [1994\Scientometrics31, 125.pdf](1994/Scientometrics31,%20125.pdf)

Abstract: Results are presented of an analysis of 1333 papers in the SCI from 1986-1993 supported by the BAP, with their degree of tans- nationality, level of dependence on the programme and propensity to acknowledge this, and their record of citation by authors in different groups of countries. The papers are nearly three times as transnational in their addresses as other EC biotechnology papers, but nearly 25% of single country papers depend on foreign co-authors or acknowledge transnational support. BAP was acknowledged by 80% of the papers that received 20% or more support. Citations by authors from other EC Member States account for many of the extra citations received by BAP papers and show that the results of the programme have been effectively disseminated by the Commission within the EC.

Keywords: Analysis, Biotechnology, Citation, Citations, Co-Authors, EC, International Scientific Collaboration, Papers, Patterns, Record, SCI

Notes: MModel

Kyvik, S. (1994), Popular science publishing. *Scientometrics*, **31** (2), 143-153.

Full Text: [1994\Scientometrics31, 143.pdf](1994/Scientometrics31,%20143.pdf)

Abstract: the article gives an overview of the extent of popular science publishing and contributions to public debate, as compared to scientific publishing among faculty members at Norwegian universities. Faculty publish far fewer articles for the lay public than publications for their specialist colleagues. There are, however, clear field differences in this respect. The most productive researchers in terms of scientific publishing are also the most prolific in non-scientific publishing.

Keywords: Faculty, Lotka Law, Publications, Publishing, Science, Universities

? Vanderkruit, P.C. (1994), A comparison of astronomy in 15 member countries of the organization for economic cooperation and development. *Scientometrics*, **31** (2), 155-172.

Full Text: [1994\Scientometrics31, 155.pdf](1994/Scientometrics31,%20155.pdf)

Abstract: Various data are collected for 15 member countries of the Organisation for Economic Cooperation and Development (OECD) that have to do with the practising of astronomy: (1) using the report of the Astronomy expert meeting of the Megascience Forum of the OECD, the level of astronomy funding, size of the research communities, relative commitment to ground-based versus space-based astronomy, etc.; (2) from other sources the size of the population, Gross National Product and size of the total research community; (3) from the paper of Schubert et al. (1989) data on publication and citation scores of these countries in astronomy and the total research effort (excluding social and economic sciences). Using these data the 15 countries have been ranked on: (1) the relative level of astronomy funding; (2) the relative level of performance in astronomy; (3) the correspondence between funding and performance in astronomy; (4) the relative level of performance of the total science effort; and (5) the performance in astronomy relative to that in all sciences. The results of this study have been summarized in table 10 below. Other interesting results that can be inferred from the data collected in this paper are: (1) one out of every 75,000 inhabitants of these OECD countries is an astronomical researcher; (2) each citizen of these countries spends on average 2.5 $ per year on astronomical research (either from the ground or in space); (3) the average budget per researcher amounts to roughly 200,000 $ per annum; (4) the average budget for astronomy amounts to 0.016% of the Gross National Product and of order 1% of the total budget for civilian R & D; (5) an astronomical researcher from these countries produces on average 1.7 papers each year and these papers receive on average ten citations in the first five years; (6) researchers in science (excluding economic and social sciences) make up 0.08% of the population in these countries and one in about 65 of these researchers works in astronomy or astrophysics; (7) most countries spend about one-third of their astronomy budget on salaries, one-sixth on basic support and half on observing facilities (in a ratio one to two for ground-based versus space).

Keywords: Budget, Citation, Citations, Commitment, Community, Facilities, First, Papers, Population, Publication, Research, Science, Sciences, Size, Social Sciences

? Courtial, J.P., Cahlik, T. and Callon, M. (1994), A model for social-interaction between cognition and action through a key-word simulation of knowledge growth. *Scientometrics*, **31** (2), 173-192.

Full Text: [1994\Scientometrics31, 173.pdf](1994/Scientometrics31,%20173.pdf)

Abstract: the question of knowledge construction can be regarded as a question of cognition in relation to action. Callon and al. have suggested interactive processes mixing both cognitive and social aspects of knowledge or technology. Both actors and interactions can usually be described by texts, and namely, by words. Thus knowledge development can be described through key-words network development. The authors have made simulations for knowledge development according to a local positive feed-back rule within small sets of word associations. In comparison with real data, the simulation results are fairly good. This approach leads to a general and very simple interaction model describing knowledge development. In this model, as opposed to usual cybernetics, actors constantly change, building a common scenario in relation to a mutual definition rule.

Keywords: Cognition, Comparison, Development, Interaction, Knowledge, Model, Network, Simulation, Small, Technology

Notes: MModel

Wouters, P. and Leydesdorff, L. (1994), Has price dream come true: Is scientometrics a hard science? *Scientometrics*, **31** (2), 193-222.

Full Text: [1994\Scientometrics31, 193.pdf](1994/Scientometrics31,%20193.pdf)

Abstract: At the occasion of the completion of the 25th volume of Scientometrices, we present a combined bibliometric and social network analysis of this journal. In more than one respect, Scientometrics displays the characteristics of a social science journal. Its Price Index amounts to 43.0 percent, and is remarkably stable over time. The majority of the published items in Scientometrics has been written by a single author. Moreover, the network of co-authorships is highly fragmented: most authors cooperate with no more than one or two colleagues. Both the citation networks of the authors and the network of title words indicate that the field is nonetheless highly cohesive. In this sense, a specific identity seems to have developed, indeed. Some indications concerning the character of this identity are discussed

Keywords: Analysis, Bibliometric, Citation, Citation Analysis, Indications, Journal, Network, Network Analysis, Patterns, Science, Scientometrics, Social Network Analysis

? Vinkler, P. (1994), Model of manifested communication through publications. *Scientometrics*, **31** (3), 223-239.

Full Text: [1994\Scientometrics31, 223.pdf](1994/Scientometrics31,%20223.pdf)

Abstract: Communication is essential in scientific research. Scientific papers represent the main information sources in natural sciences. A model of the Manifested Communication through Publications is introduced which makes it possible to calculate indicators characteristic of bilateral information processes. Bilateral Coupling is for example the total number of non-zero cross elements in the information matrix containing references to each other’s papers of the two teams.

Keywords: Citation, Indicators, Information, Journals, Model, Papers, Representations, Research, Science Maps, Sciences, Scientific Research

? Haiqi, Z. (1994), A bibliometric study on Medicine Chinese Traditional in MEDLINE database. *Scientometrics*, **31** (3), 241-250.

Full Text: [1994\Scientometrics31, 241.pdf](1994/Scientometrics31,%20241.pdf)

Abstract: This bibliometric analysis was examined by the references of the articles on Medicine Chinese Traditional (MCT) searched by the CD-ROM MEDLINE. The 3006 references of the articles on Mc’r which were published between 1974 and 1992 in 343 periodicals were the samples for present study. The results were illustrated in order to identify reasonably a hierarchical ranking of periodicals and to evaluate objectively a distribution of countries where those articles were published and languages in which those articles were written.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Chinese, Languages, Periodicals, Ranking

? Courtial, J.P. (1994), A coword analysis of scientometrics. *Scientometrics*, **31** (3), 251-260.

Full Text: [1994\Scientometrics31, 251.pdf](1994/Scientometrics31,%20251.pdf)

Abstract: In this paper, we will study the field through the problematic network built by scientific articles, using actor-network theory (and consequently coword analysis) as a model for scientific knowledge (regarded as a social process) growth. Scientometrics is an hybrid field made of invisible college and a lot of users, thus controlled by both scientific research and final uses. Coword analysis gives the same weight to all articles, cited or not, and consequently computes the interaction network within all kind of authors. According to already described network properties of scientific interaction, coword analysis describes the dynamic of the field in accordance with what has been observed, and suggest forecast for the future.

Keywords: Analysis, College, Growth, Interaction, Knowledge, Model, Network, Research, Scientific Research, Scientometrics, Theory

? Leclerc, M. and Gagne, J. (1994), International scientific cooperation: the continentalization of science. *Scientometrics*, **31** (3), 261-292.

Full Text: [1994\Scientometrics31, 261.pdf](1994/Scientometrics31,%20261.pdf)

Abstract: By transforming science into a vast single market for the exchange of research products, the globalization of scientific activity effects the mechanisms by which countries enter into mutual relations. It is no longer sufficient to conduct research jointly; research must also, and perhaps above all, be conducted within the strategic space of the network. In practice, the network takes the form of a cluster of nations and emerges in response to various determining factors or constraints. This does not, however, result in arbitrary criteria of association with the network: the distance from one country or group of countries able to play a regional or continental ‘governance’ role, cultural or linguistic affinities, geographic proximity, the recognition of common interests, the existence of political agreements on cooperation are all grounds for linkage or association. In short, the geography of exchanges is changing before our eyes. This study describes as ‘world-science’ marked by the collectivization of the centre, ‘centrality’ being defined not by a national monopoly, but by the ‘hard core’ of a transnational network, stratified on a continental or subcontinental basis.

Keywords: Association, Collaboration, Community, Cooperation, Criteria, Cultural, Globalization, Linkage, Market, Nations, Network, Practice, Relations, Research, Science

? Prpic, K. (1994), The sociocognitive frameworks of scientific productivity. *Scientometrics*, **31** (3), 293-311.

Full Text: [1994\Scientometrics31, 293.pdf](1994/Scientometrics31,%20293.pdf)

Abstract: Empirical research carried out on a representative sample of 921 scientists from Croatia has shown that scientific fields are important socio-cognitive productivity framework. First, this can be seen in significantly different patterns of the average scientific productivity of researchers in different fields. Second, significant are the differences in the social organization of scientific fields, especially in the fragmentation and organization of the research process, which manifest themselves with a different engagement intensity of the respondents in each stage of the project. Finally, scientific productivity predictors are structured, ranging from significant ones in some fields, to those significant everywhere (qualifications and project roles).

Keywords: Advantage, Croatia, Fields, Framework, Inequality, Performance, Research, Science

Exner, O. and Kunz, M. (1995), Citation histories of related papers in the field of chemical correlation analysis. *Scientometrics*, **32** (1), 3-10.

Full Text: [1995\Scientometrics32, 3.pdf](1995/Scientometrics32,%203.pdf)

Abstract: Four cases of citation histories of highly cited related papers from the field of chemical correlation analysis indicate that authors have been citing preferably fashionable, but less relevant references.

Keywords: Analysis, Citation, Papers

Notes: UUniversity

Nagpaul, P.S. (1995), Contribution of Indian universities to the mainstream scientific literature: A bibliometric assessment. *Scientometrics*, **32** (1), 11-36.

Full Text: [1995\Scientometrics32, 11.pdf](1995/Scientometrics32,%2011.pdf)

Abstract: This paper examines the contribution of Indian universities to the mainstream scientific literature during 1987-1989 along two distinct, but inter-related dimensions of quantity and quality of research output. The quantity of output is assessed through the number of articles published in journals covered by Science Citation Index, while the quality of output is assessed through the impact factors of journals in which the articles are published. The impact factors are normalized to eliminate the confounding effects of their covariates, viz. The subject field and the nature of journal. A number of relative indicators are constructed for inter-field and inter-institution comparisons, viz. publication effectiveness index, 1 relative quality index, 2 activity index3 and citability index.4 Inter-field comparisons are made at the level of eight macrofields: Mathematics, Physics, Chemistry, Biology, Earth & Space Sciences, Agriculture, Medical Sciences and Engineering & Technology. Inter-institution comparisons cover thirty three institutions which had published at least 150 articles in three years. The structure of correlations of these institutions with eight macrofields is analyzed through correspondence analysis of the matrices of activity and citability profiles. Correspondence analysis yields a mapping of institutions which reveals the structure of science as determined by the cumulative effect of resource allocation decisions taken in the past for different fields and institutions i.e. The effect of national science policy

Keywords: Analysis, Correlations, Correspondence Analysis, Effectiveness, Impact, Impact Factors, Indicators, Institutions, Journal, Journals, Literature, Output, Policy, Publication, Quality, Research, Science, Science Citation Index, Science Policy, Structure, Universities

? Nederhof, A.J. and Meijer, R.F. (1995), Development of bibliometric indicators for utility of research to users in society: Measurement of external knowledge transfer via publications in trade journals. *Scientometrics*, **32** (1), 37-48.

Full Text: [1995\Scientometrics32, 37.pdf](1995/Scientometrics32,%2037.pdf)

Abstract: the development of a set of bibliometric tools to contribute to the assessment and monitoring of utility of university and non-university research institutes to society is described. Trade publications were weighted according to the utility of the journals for relevant nonscientific user groups. Furthermore, one indicator addresses the extent to which a general or a specific type of audience is addressed. Results are shown for one university and one university department. In general, validation interviews show that the indicator provide a good first estimation of the potential effectivity of the knowledge transfer efforts by means of publications in trade journals to practice and policy bodies.

Keywords: Assessment, Bibliometric, Bodies, Development, First, Indicator, Interviews, Journals, Knowledge, Policy, Potential, Practice, Publications, Research, Society, University, Utility, Validation

Notes: UUniversity

Colman, A.M., Dhillon, D. and Coulthard, B. (1995), A bibliometric evaluation of the research performance of British university politics departments: Publications in leading journals. *Scientometrics*, **32** (1), 49-66.

Full Text: [1995\Scientometrics32, 49.pdf](1995/Scientometrics32,%2049.pdf)

Abstract: the research performance of 41 British university politics departments was evaluated through an analysis of articles published between 1987 and 1992 in nine European politics journals with the highest citation impact factors. Annual performance scores were obtained by dividing each department’s number of publications in these journals in each year (departmental productivity) by the corresponding departmental size. These scores were summed to obtain a research performance score for each department over the period of assessment. They correlate significantly with research performance scores from two previous studies using different methodologies: Crewe’s per capita simple publication count for the years 1978 to 1984, and the Universities Funding Council’s research selectivity ratings covering the years 1989 to 1992.

Keywords: American-Psychological-Association, Analysis, Assessment, Citation, Counts, Eminence, Impact Factors, Indicators, Journals, Politics, Publication, Publications, Ratings, Research, Research Performance, Research Productivity, Science Departments, Size, University

? Dizon, L.B. and Sadorra, M.S.M. (1995), Patterns of publication by the staff of an international fisheries research-center. *Scientometrics*, **32** (1), 67-75.

Full Text: [1995\Scientometrics32, 67.pdf](1995/Scientometrics32,%2067.pdf)

Abstract: the scientific productivity, measured as number of publication credits per year, of 105 BS, MS and PhD degree holders at the authors’ institution - a nonprofit international fisheries research organization based in Manila - was studied. All authored and edited items produced by these staff, from 1978 to 1993, presently published or in press were considered, and weights assigned depending on document type, number of pages, and rank of the name in cases of multiple authorship or editorship. The staff’s output of conference papers and technical reports outweighted contributions to the primary (journal) literature. Predictors of productivity were position/salary, education, and age. However, a large unexplained variance remained, suggesting that individual factors largely determine productivity.

Keywords: Authorship, Education, International, Journal, Literature, Papers, Primary, Publication, Research

Simonetti, R., Archibugi, D. and Evangelista, R. (1995), Product and process innovations: How are they defined? How are they quantified? *Scientometrics*, **32** (1), 77-89.

Full Text: [1995\Scientometrics32, 77.pdf](1995/Scientometrics32,%2077.pdf)

Abstract: This paper considers the alternative meanings attributed to the terms product and process innovation, and demonstrates, on the basis of the SPRU database on innovations in Great Britain, how the total number of product and process innovations varies according to the definition adopted. Only 3.1% of the innovations monitored can be univocally labelled as either products or processes, whilst as many as 96.9% of them fall into a grey zone. The authors conclude that these terms, although useful tools of analysis, should be defined more precisely in the studies of the economics of technological change.

Keywords: Alternative, Analysis, Britain, Database, Economics, Empirical-Analysis, Innovation, Sectoral Patterns, Technological Change

? Nicolini, C., Vakula, S., Balla, M.I. and Gandini, E. (1995), Can the assignment of university chairs be automated. *Scientometrics*, **32** (2), 93-107.

Full Text: [1995\Scientometrics32, 93.pdf](1995/Scientometrics32,%2093.pdf)

Abstract: In order to explore the possibility that the assignment of University chairs could be automated, we have carried out a comparative analysis of the relative scientific and technological level of candidates competing nationally for given chairs of first (full professor) and second (associate professor) level, using indicators such as the number of publications and citations in international journals, the number of patents and inventions and few others. This study, contrary to some gloomy opinions, has suggested that at least for what concerns hard science, performances can be measured impartially at least to some extent. Bibliometric indicators, when properly weighted, appear to be effective parameters to monitor degree of excellence in scholastic rating and to establish reliable objective standards. Their utilization, however, to automate the assignment of university chairs appears still questionable and should be limited to the needed provision of computer-assisted selection criteria and reference databank.

Keywords: Analysis, Citations, Criteria, First, Indicators, International, Journals, Opinions, Patents, Publications, Science, Standards, University, Utilization

? Vinkler, P. (1995), Some aspects of the evaluation of scientific and related performances of individuals. *Scientometrics*, **32** (2), 109-116

Full Text: [1995\Scientometrics32, 109.pdf](1995/Scientometrics32,%20109.pdf)

Keywords: Indicators

Notes: UUniversity

Snizek, W.E. (1995), Some observations on the use of bibliometric indicators in the assignment of university chairs. *Scientometrics*, **32** (2), 117-120.

Full Text: [1995\Scientometrics32, 117.pdf](1995/Scientometrics32,%20117.pdf)

Abstract: In their article, ‘Can the Assignment of University Chairs Be Automated?’, Nicolini, Vakula, Balla, and Gandini describe the results of their initial attempts at using multiple bibliometric indicators in order to eventually automate the assignment of University chairs at the full and associate professor levels. The indicators utilized consist of each candidate’s age, years of scientific activity, number of published articles, citation rate and the quality and type of publishing and citing journals. Data concerning these indicators are obtained from both SCI databases and the curriculum vitae of 76 test-candidates. Although the ranking of candidates is shown to be affected by both subfield differences in citation patterns and the weighting factor assigned to the bibliometric indicators tested, some predictive validity is found between the use bibliometric indicators and the independent peer-review of candidates. While these results are encouraging, the authors readily acknowledge the limitations of their efforts and the need to further refine the use of bibliometric indicators, before their employment in the automated assignment of University chairs. My observations concerning the work of Nicolini et al. will take the following form. First, I wish to comment briefly on what I view to be the philosophy behind the efforts of Nicolini et al. Second, I want to mention several positive and potentially negative procedural issues associated with the proposed use of bibliometric indicators in assessing individual scientific accomplishments. and finally, I would like to comment on what I see as some broader, latent consequences, potentially associated with the use of bibliometric measures in the automated assignment of University chairs.

Keywords: Bibliometric, Bibliometric Indicators, Citation, Citation Patterns, Curriculum, Employment, Indicators, Journals, Peer Review, Peer-Review, Philosophy, Publishing, Quality, Ranking, SCI, Validity, Work

? Balaban, A.T. (1995), Can the assignment of university chairs be automated? *Scientometrics*, **32** (2), 121-122.

Full Text: [1995\Scientometrics32, 121.pdf](1995/Scientometrics32,%20121.pdf)

Notes: MModel

Wagner-Döbler, R. (1995), Were has the cumulative advantage gone? Some observations about the frequency-distribution of scientific productivity, of duration of scientific participation, and of speed of publication. *Scientometrics*, **32** (2), 123-132.

Full Text: [1995\Scientometrics32, 123.pdf](1995/Scientometrics32,%20123.pdf)

Abstract: Frequency distributions of scientific productivity are usually based on cross section cuts of the investigated population of scientists. Therefore, some of the registered scientists are involved for the whole period of time, but there are many fractional authors, too. If one compares only scientists active in a specialty for the same length of time, the typical bibliometric skewness of the distribution vanishes. But also the duration of participation of a cohort of scientists which began their career in the same year is not distributed in a Lotkean manner. Furthermore, the speed of publication - which might be a better statistical indicator of scientific capacities than publication output as such - has more similarity to a normal distribution than to a lognormal one.

Keywords: Bibliometric, Indicator, Population, Publication, Similarity, Specialty

? Klaic, B. (1995), Analysis of the scientific productivity of researchers from the Republic of Croatia for the period 1990-1992. *Scientometrics*, **32** (2), 133-152.

Full Text: [1995\Scientometrics32, 133.pdf](1995/Scientometrics32,%20133.pdf)

Abstract: the scientific production of researchers from the Republic of Croatia, consisting of the published papers with addresses of the institutions from Croatia only, was analyzed for the period 1990-1992, covering 2047 SCI, SSCI, and A&HCI registered papers. The source index of SCI has registered 1912 (92.50% of total number of published articles) papers, SSCI 118 (5,71%), and A&HCI 37 (1.79%) papers, respectively. The papers were published in more than 700 different journals, covering 122 scientific subfields. The most frequently used journals are the national Periodicum Biologorum, Croatica Chemica Acta and Collegium Antropologicum with 236 published papers or 11.5%. The largest number of papers have been published in scientific subfields: Biology (146 papers), Chemistry (107), and Physics of Condensed Matter (102). The average paper was published by 3.57 researchers, but subfields of Nuclear Physics (7.40 authors per paper), Immunology (5.67), and Hematology (5.60) were with the highest authorship. The partial contributions of institutions were also determined, and the most productive were Ruder Boskovic Institute with 645.0, the Faculty of Medicine with 396.7, and the Faculty of Science and Mathematics with 201.7 published papers, respectively. The average quality of the used journals were estimated; Institute of Physics, Ruder Boskovic Institute, and the Faculty of Science and Mathematics published their papers in journals with bigger impact factor (higher quality) than average institutions. Publications were divided by the type of papers, most frequent being articles (1778 publications, 86.85%), notes (117, 5.71%) and letters (56, 2.74%), respectively. Scientific subfield distribution of papers published by the most productive institutions were also analyzed.

Keywords: Authorship, Croatia, Impact Factor, Indicators, Institutions, Journals, Papers, Performance, Publications, Quality, SCI, Science, Scientific Production, SSCI, University

? Mccain, K.W. (1995), The structure of biotechnology research-and-development. *Scientometrics*, **32** (2), 153-175.

Full Text: [1995\Scientometrics32, 153.pdf](1995/Scientometrics32,%20153.pdf)

Abstract: the structure of R & D in biotechnology is analysed using co-classification analysis of joint subject heading assignments in Derwent BIOTECHNOLOGY ABSTRACTS and subject profile analysis of 44 highly productive biotechnology-intensive organizations whose patents and publications are indexed therein. A Pathfinder Network Analysis reveals two distinct foci in biotechnology R & D - fermentation and genetic engineering - each linked to relevant products and secondary processes. Multidimensional scaling and cluster analysis identified 5 major groupings of companies, research institutes, and patent-holding organizations arranged along two dimensions - industrial fermentation processes vs genetic engineering and biomedical vs non-biomedical R & D.

Keywords: Analysis, Biomedical, Biotechnology, Cluster Analysis, Co-Heading Analysis, Fermentation, Genetic, Genetic Engineering, Indicators, Patents, Publications, Representations, Research, Scaling, Science Maps, Structure, Tools

? Heine, M.H. (1995), The characterization of text corpora using an input-output schema for citations. *Scientometrics*, **32** (2), 177-194.

Full Text: [1995\Scientometrics32, 177.pdf](1995/Scientometrics32,%20177.pdf)

Abstract: Univariate measures of concentration (or dispersion) can be applied to the description of the citation patterns within a text corpus, and also the citation links between that corpus and an alternative (possibly contextual) literature. To assist in this, a simple data-flow schema introduced by Lano to assist with the design of software can be used to provide an appropriate data-definitional tool. The schema, as applied here, comprises: (1) a matrix of cells containing 0 or 1 values (in its non-diagonal cells) representing within-corpus citations, with the diagonal cells representing the corpus documents; and (2) two associated vectors of cells which record the total numbers of citations that link the corpus documents with an external-to-corpus literature. An initial data-exploration based on an application of this schema to a trial document corpus is reported. On this basis, several provisional conjectures are put forward to attract further research on data of this type. These conjectures include: (1) Concentration amongst citations to corpus items from within a young corpus is less than it is amongst citations by corpus items to that corpus; (2) A young literature corpus imports significantly more information from its external world than it exports to it; and (3) Information transfer from and into contextual literature dominates within-corpus information transfer. The author emphasises that these are conjectures at this stage, not hypotheses.

Keywords: Alternative, Citation, Citation Patterns, Citations, Information, Literature, Record, Research, Schema

? Buchholz, K. (1995), Criteria for the analysis of scientific quality. *Scientometrics*, **32** (2), 195-218.

Full Text: [1995\Scientometrics32, 195.pdf](1995/Scientometrics32,%20195.pdf)

Abstract: One of the major questions in science research is addressed in detail, that is the problem of evaluation of research work both by objective characterization, accessible to proof, and by adequate characterization, referring to the content and cognitive level of the work under investigation. A short discussion of established methods by science indicators as well as by peer review compiles merits and shortcomings of these methods. A short review refers to a few approaches towards the development of criteria for an improved assessment and characterization of research work and their shortcomings are discussed. Notably for the evaluation of medium or low range quality no reliable method is available. Therefore a systematic compilation of criteria which covers the full range of excellence to failure with respect to scientific quality is developed and a comprehensive list of criteria is presented which should provide a basis both for objective and adequate characterization of publications.

Keywords: Assessment, Characterization, Criteria, Development, Evaluation, Indicators, Investigation, Methods, Peer Review, Peer-Review, Publications, Quality, Research, Research Work, Review, Science, Science Indicators, Science Research, Technology Indicators, Work

? Sampson, Z.J. (1995), Forty years of the physical review and physical review letters. *Scientometrics*, **32** (2), 219-226.

Full Text: [1995\Scientometrics32, 219.pdf](1995/Scientometrics32,%20219.pdf)

Abstract: This paper measures the increase in the numbers of authors per article in one scientific journal over forty years. The rise in the complexity of science, to which some attribute this growth in multiple authorship, is reflected in the increasing complexity of this simple task over that forty year period. It also discusses the resulting decrease in single authored papers, papers with very large numbers of authors, and predicts future trends.

Keywords: Authorship, Complexity, Growth, Journal, Papers, Science, Trends

? Pudovkin, A.I. and Fuseler, E.A. (1995), Indexes of journal citation relatedness and citation relationships among aquatic biology journals. *Scientometrics*, **32** (3), 227-236.

Full Text: [1995\Scientometrics32, 227.pdf](1995/Scientometrics32,%20227.pdf)

Abstract: Simple quantitative indices of pair-wise journal citation relatedness (based on the numbers of references given to and received from a journal title, which are provided by Science Citation Index database) are translated by an automatic clustering procedure into a meaningful map diagram reflecting topical relatedness of journals within a field of science. Such a map for 60 journals in marine and freshwater biology and related sciences published in 1987 reveals a tight cluster of marine biology journals quite distinct from the freshwater biology journal cluster and from the fisheries cluster. The journals within the marine biology cluster and those with strongest pair-wise links with them can be regarded as the core journals in marine biology. Indices of unilateral citation relatedness are used to obtain diagrams, which we term citograms. The citograms visualize patterns of citation relatedness of a journal (its citing and being cited). Journal self-citation can be meaningfully estimated using the bilateral index of relatedness. Self-citation is high in specialized or regional journal titles. It also appears to be quire substantial in journals of broader scope, which possibly reflect authors’ subjective preferences.

Keywords: Biology, Citation, Clustering, Database, Freshwater, Journal, Journals, Science, Science Citation Index, Sciences, Self-Citation, Topical

Notes: CCountry, Notes: TTopic

Liu, J.M. and Shu, S.Z. (1995), Statistical analysis of astronomical papers of China during 1986-1990. *Scientometrics*, **32** (3), 237-245.

Full Text: [1995\Scientometrics32, 237.pdf](1995/Scientometrics32,%20237.pdf)

Abstract: We present the distribution of astronomical papers published by Chinese authors in 1986 - 1990 across the various subfields of astronomy, the total number of papers produced by each observatory or university during the five years, and the ranking of the observatories by productivity. Our main data base includes 24 journals: 9 foreign ones published in English, 10 Chinese national ones, and 5 Chinese observatory publications. About 70 journals published by Chinese universities have also been consulted. This data base covers up to 90% of all astronomical papers published during this period.

Keywords: China, Chinese, Data Base, Journals, Papers, Publications, Ranking, Universities, University

? Duplenko, Y. and Burchinsky, S. (1995), Computer-aided clustering of citation networks as a tool of mapping of research trends in biomedicine. *Scientometrics*, **32** (3), 247-258

Full Text: [1995\Scientometrics32, 247.pdf](1995/Scientometrics32,%20247.pdf)

Abstract: the use of the cluster analysis in scientometrics is dealt with. The ways of developing citation networks and mapping research field with the help of this method are also presented. The methodology of computer-aided cluster analysis of citation is described which allows to map the structure of a research field and to identify main tendencies of its development.

Keywords: Analysis, Citation, Cluster Analysis, Development, Methodology, Research, Science, Scientometrics, Structure

? Michalos, A.C. (1995), Prices and impact factors of interdisciplinary social-science journals. *Scientometrics*, **32** (3), 259-261.

Full Text: [1995\Scientometrics32, 259.pdf](1995/Scientometrics32,%20259.pdf)

Abstract: An examination of the relationships between journal impact factors and individual subscription prices of interdisciplinary social science journals revealed a very small and statistically nonsignificant negative association.

Keywords: Association, Examination, Impact Factors, Interdisciplinary, Journal, Journal Impact, Journal Impact Factors, Journals, Science, Science Journals, Small

? Schubert, A. (1995), Quantitative Studies of Science in the 80S - Indexes to Current Bibliographies 1-17. *Scientometrics*, **32** (3), 263-367

Full Text: Scientometrics32, 263.pdf

Godin, B., Barker, R.S. and Landry, R. (1995), Besides academic publications: Which sectors compete, or are there competitors. *Scientometrics*, **33** (1), 3-12.

Full Text: [1995\Scientometrics33, 3.pdf](1995/Scientometrics33,%203.pdf)

Abstract: Since its beginning thirty years ago, bibliometrics has mainly studied academic publications. More often, the Science Citation Index (SCI) is treated as a whole, without breakdown of papers by sectors (university, government, industry). However, between 15% and 30% of the SCI publications comes from other sectors than university. We present the first bibliometric analysis of papers broken down by sectors. The data have been used to test the following hypothesis: the share of papers by sectors other than university is increasing, while university’s share is decreasing. The hypothesis is tested for Quebec over the period 1980-1990. It appears that it is true that the share of papers by sectors other than university is increasing. and this is so at a rate greater than that of university’s growth. Quebec’s university sector has decreased its share of papers over the ten-year period from 89.2% to 85.1%. However, university remains the top sector in terms of papers and remains the main partner of each sector in terms of cosignatures.

Keywords: Analysis, Basic Research, Bibliometric, Bibliometric Analysis, Bibliometrics, First, Growth, Innovation, International Scientific Collaboration, Linkage, Papers, Publications, SCI, Science, Science Citation Index, Sector, Technology, University

Pichappan, P. (1995), A dual refinement of journal self-citation measures. *Scientometrics*, **33** (1), 13-21.

Full Text: [1995\Scientometrics33, 13.pdf](1995/Scientometrics33,%2013.pdf)

Abstract: Journal self-citation is one of the crucial bibliometric indicators, which measures the contribution of a journal towards a speciality. Journal self-citation rate is normalised by adapting a two stage refinement. The normalised self-citing rates are compared with external cited rate to know the self and external influence of journals

Keywords: Bibliometric, Bibliometric Indicators, Indicators, Journal, Journals, Self, Self-Citation

? Campanario, J.M. (1995), Using neural networks to study networks of scientific journals. *Scientometrics*, **33** (1), 23-40.

Full Text: [1995\Scientometrics33, 23.pdf](1995/Scientometrics33,%2023.pdf)

Abstract: In this paper a new,approach to study science dynamics is introduced. This approach is based in the use of Kohonen preserving topology maps, a kind of neural network. Four data set consisting in cross-citation matrix are studied using this approach. Relations maps and domains maps are computed for these data sets and interrelationships among journals are studied. This approach allow to stude both, hierarchical journal structure in a given time and evolution of relations among journals in a given time lag.

Keywords: Co-Citations, Dynamics, Evolution, Journal, Journals, Network, Neural Network, Relations, Science, Science-Citation-Index, Structure, Topology-Conserving Maps

? Suraud, M.G., Quoniam, L., Rostaing, H. and Dou, H. (1995), On the significance of data-bases keywords for a large-scale bibliometric investigation in fundamental physics. *Scientometrics*, **33** (1), 41-63.

Full Text: [1995\Scientometrics33, 41.pdf](1995/Scientometrics33,%2041.pdf)

Abstract: We present an automatized bibliometric investigation applied to the field of fundamental research in physics. We briefly describe the scientific context motivating this study and the statistical method used for analyzing the data. We discuss in more detail how we adapted our investigation to the questions motivating this study, namely the identification of relevant groups working in a well defined subfield of physics. We next present the results of our investigation. We particularly focus on an analysis of Index and Free terms, as obtained from the INSPEC data base we used for performing the bibliometric investigation. We discuss the relevance of Index and Free terms by means of a separation between ‘Noise’, ‘Interesting’ and ‘Trivial’ entries. We show that Index and Free terms exhibit somewhat different behaviors when considered as distributions in terms of frequencies of occurrence in the references. We show the particular relevance of Free terms in this analysis. This may be connected to the emerging nature of the subfield of physics under consideration. This shed an interesting light on the respective importance of Index and Free terms, as entries of data bases, in particular in the case of rapidly evolving scientific domains.

Keywords: Analysis, Bibliometric, Bibliometric Investigation, Data Base, Identification, Investigation, Relevance, Research, Separation

Lau, T.Y. (1995), Chinese communication studies: A citation analysis of Chinese communication research in English-language journals. *Scientometrics*, **33** (1), 65-91.

Full Text: [1995\Scientometrics33, 65.pdf](1995/Scientometrics33,%2065.pdf)

Abstract: the study employs citation analysis method to identify the disciplines and active research areas in communication studies on communication systems in China. Moreover, the study seeks to contribute to the methodological issues of citation analysis by including new variables in the analysis. Using Chinese communication research in 11 Chinese/Asian studies journals and 13 journalism/communication journals published in English since 1931, the study found that there were little exchanges between Chinese studies and communication scholars. However, the study showed that by including two variables - theme of articles and academic affiliation of authors, the findings can more accurate demonstrate the relationship between the research activities and disciplines cited.

Keywords: Affiliation, Analysis, China, Chinese, Citation, Citation Analysis, Communication, Journals, Networks, Research, Social-Sciences

Notes: JJournal

Tijssen, R.J.W. and Van Leeuwen, Th.N. (1995), On generalising scientometric journal mapping beyond ISI’s journal and citation databases. *Scientometrics*, **33** (1), 93-116.

Full Text: [1995\Scientometrics33, 93.pdf](1995/Scientometrics33,%2093.pdf)

Abstract: This article presents results of a study on the applicability of journal mapping of knowledge domains beyond the databases produced by the Institute for Scientific Information (ISI). The utility and validity of this generalisation is discussed with an emphasis on its added value in comparison to ‘traditional’ ISI-based journal maps, i.e. those restricted to (predominantly English-language) ISI-covered journals, and journal-to-journal citation data retrieved from ISI’s *Journal Citation Reports*. The mapping methodology was applied to Manufacturing technology and management - a multidisciplinary domain situated on the interface of science and technology. The *International Journal of Production Economics* was singled out as a special case for the validation study of the maps. Results of this study, involving several subject experts, indicate that a journal content-based map was not only far superior to the journal citation map, but also outperformed the map derived from the combination of both types of data. The selection of periodicals from other databases such as COMPENDEX produced a substantial number of additional titles of which only half were also covered by ISI.

Keywords: Citation, Comparison, Institute for Scientific Information, ISI, Journal, Journal Citation Reports, Journals, Knowledge, Knowledge Domains, Management, Methodology, Multidisciplinary, Periodicals, Science, Science and Technology, Technology, Utility, Validation, Validity

Herbertz, H. (1995), Does it pay to cooperate: A bibliometric case-study in molecular-biology. *Scientometrics*, **33** (1), 117-122.

Full Text: [1995\Scientometrics33, 117.pdf](1995/Scientometrics33,%20117.pdf)

Abstract: Various bibliometric studies report that multiinstitutional or multinational authored papers are more frequently cited than papers that come from a single institute. The conclusion, however, that there is a systematic improvement of scientific success by cooperation on every level of scientific research in leading or mediocre research institutes might be misleading: In a citation analysis of 13 well-known research institutes in molecular biology there was no difference in the average citations per paper with regard to cooperations. In a subsample of 7 German institutes that difference found could be explained by selfcitations. In another case, all articles of a two year sample of an excellent journal in molecular biology, the EMBO- Journal, the same phenomenon could be observed: Differences in the average citations per article with regard to cooperations could be explained by selfcitations

Keywords: Analysis, Bibliometric, Bibliometric Studies, Biology, Citation, Citation Analysis, Citations, Cooperation, Journal, Molecular Biology, Papers, Research, Scientific Cooperation, Scientific Research

Notes: TTopic

Yamazaki, S. (1995), Refereeing system of 29 life science journals preferred by Japanese scientists. *Scientometrics*, **33** (1), 123-129.

Full Text: [1995\Scientometrics33, 123.pdf](1995/Scientometrics33,%20123.pdf)

Abstract: the purpose of this paper is to study the referee systems of foreign scientific journals in the field of life sciences preferred by Japanese researchers. This survey has been conducted in response to the need of Japanese authors for current information about the refereeing systems of foreign life science journals. Based on questionnaire data obtained from 29 journal editors, this paper describes the refereeing systems. This survey showed that most Japanese researchers in the field of life sciences tried to submit their papers to prestigious foreign journals with a higher rejection rate. There was a high correlation between the rejection rate and the impact factor in the field of biochemistry and molecular biology.

Keywords: Biochemistry, Biology, Impact Factor, Information, Journal, Journal Editors, Journals, Life, Life Sciences, Molecular Biology, Papers, Questionnaire, Science, Science Journals, Sciences, Scientific Journals, Survey

Braun, T., Brocken, M., Glänzel, W., Rinia, E. and Schubert, A. (1995), Hyphenation of databases in building scientometric indicators: Physics briefs - SCI Based indicators of 13 European countries, 1980-1989. *Scientometrics*, **33** (2), 131-148.

Full Text: [1995\Scientometrics33, 131.pdf](1995/Scientometrics33,%20131.pdf)

Notes: TTopic

Miquel, J.F., Ojasoo, T., Okubo, Y., Paul, A. and Doré, J.C. (1995), World science in 18 disciplinary areas: Comparative evaluation of the publication patterns of 48 countries over the period 1981-1992. *Scientometrics*, **33** (2), 149-167.

Full Text: [1995\Scientometrics33, 149.pdf](1995/Scientometrics33,%20149.pdf)

Abstract: In order to be able to develop indicators that can measure the scientific and technological productivity of a nation, it is helpful to have at one’s command a prior purely descriptive global overview of how various nations stand with respect to each other with regard to world science, i.e., to dispose of a framework for the elaboration of future quantitative studies.

ISI has recently made available a highly comprehensive multidisciplinary database (over 6 million bibliometric entries from 1981 to 1992) that is founded on top-echelon journals and that can form the basis of such a framework. We have in the present study defined a publication pattern per nation that reflects its interest and potential in 18 disciplines and compared the publication patterns of 48 nations by descriptive multivariate analysis, i.e., by measuring the distance between nations in the n-dimensional system. Proximity is a sign of similarity, distance of diversity. Three multivariate methods of distance measurement were used: a hierarchical classification, the distance of each nation from the centre of gravity of the system calculated by χ2-metrics (typicality of behaviour), a bi-plot of the χ2-distances of 46 countries with respect to two reference countries that highlights clusters of nations with similar behaviour.

The resultant plots are open to interpretation by experts. We conclude that three factors, geographical proximity, culture, and economic development are the principal determinants of the publication patterns of nations.

Keywords: Analysis, Behaviour, Bibliometric, Citation, Classification, Culture, Database, Development, Economic Development, Framework, Indicators, ISI, Journals, Measurement, Methods, Multidisciplinary, Nations, Potential, Publication, Science, Similarity, Subfields

? Nagpaul, P.S. (1995), Quasi-quantitative measures of research performance: An assessment of construct-validity and reliability. *Scientometrics*, **33** (2), 169-185.

Full Text: [1995\Scientometrics33, 169.pdf](1995/Scientometrics33,%20169.pdf)

Abstract: This paper argues that research performance is essentially a multidimensional concept which cannot be encapsulated into a single universal criterion. Various indicators used in quantitative studies on research performance at micro or meso-levels can be classified into two broad categories: (i) objective or quantitative indicators (e.g. counts of publications, patents, algorithms or other artifacts of research output) and (ii) subjective or qualitative indicators which represent evaluative judgement of peers, usually measured on Likert or semantic differential scales. Because of their weak measurement properties, subjective indicators can also be designated as quasi-quantitative measures. This paper is concerned with the factorial structure and construct validity of quasi-quantitative measures of research performance used in a large-scale empirical study carried out in India. In this study, a reflective measurement model incorporating four latent variables (R and D effectiveness, Recognition, User-oriented effectiveness and Administrative effectiveness) is assumed. The latent variables are operationalized through thirteen indicators measured on 5-point semantic differential scales. Convergent validity, discriminant validity and reliability of the measurement model are tested through LISREL procedure.

Keywords: Effectiveness, Error, Fit, Goodness, India, Indicators, Measurement, Model, Patents, Publications, Qualitative, Reliability, Research, Research Performance, Structure, Validity

Gupta, B.M., Sharma, L. and Karisiddappa, C. R. (1995), Modelling the growth of papers in a scientific specialty. *Scientometrics*, **33** (2), 187-201.

Full Text: [1995\Scientometrics33, 187.pdf](1995/Scientometrics33,%20187.pdf)

Abstract: A growth model of the journal literature is proposed and applied to the growth of the literature of theoretical population genetics (1850-1980).

Keywords: Modeling

? Thomas, P.R. (1995), Size effects in the assessment of discipline-contribution scores: An example from the social-sciences. *Scientometrics*, **33** (2), 203-220.

Full Text: [1995\Scientometrics33, 203.pdf](1995/Scientometrics33,%20203.pdf)

Abstract: Pichappan’s formulation of the Discipline-Contribution Score (DCS) in the identification of core disciplinary journals is applied to social science literature. Modifications are made to Pichappan’s method to cater for problems associated with low citation counts. Further analysis is undertaken to verify Pichappan’s claims concerning the size-independent nature of the DCS score. The proposed modified formulation of the DCS calculation facilitates research into small research fields, and those characterised by low citation rates. The modified equation is tested on business and management literature.

Keywords: Analysis, Business, Citation, Citation Counts, Identification, Journals, Literature, Management, Research, Science, Small

Romanov, A.K. and Terekhov, A.I. (1995), The mathematical modelling of the scientific personnel movement taking into account the productivity factor. *Scientometrics*, **33** (2), 221-231.

Full Text: [1995\Scientometrics33, 221.pdf](1995/Scientometrics33,%20221.pdf)

Abstract: An approach to the dynamic optimization of the age structure of scientific personnel in an organization is presented. The appropriate mathematical model describing the age rotation of scientific workers is formulated and the criterion for maximizing the integral productivity of available scientific personnel over given time horizon is introduced. The criterion is constructed by using such scientometric instrument as the ‘curves of age productivity’. The practical application of suggested approach is demonstrated by means of real example.

Keywords: Mathematical Model, Model, Optimization, Personnel, Scientometric, Structure

Kalyane, V.L. and Munnolli, S.S. (1995), Scientometric portrait of West, T.S. *Scientometrics*, **33** (2), 233-256.

Full Text: [1995\Scientometrics33, 233.pdf](1995/Scientometrics33,%20233.pdf)

Abstract: T. S. West, the internationally well known analytical chemist has been widely recognised as a very successful scientist. His research productivity and collaboration pattern were analysed by years, papers, authorships, and authorwise productivity. The channels of communications used and distribution of articles among channels were found out. He has 410 papers to his credit. The period 1969-70 when he was 42-43 years age was most productive with 41 papers in 1969 and seven single authorship papers in 1970. Quienquennial collaboration coefficients ranged between 0.57 to 1.00, clearly indicating high collaboration team spirit in his research group. His productivity coefficient was 0.45 indicating rapid publication activity during early period of research career. His most prominent collaborators in number of papers were: R. M. Dagnall (92), G. F. Kirkbright (77), R. Belcher (56), K. C. Thompson (19), J. D. Norris (13), and J. F. Alder (11). Top ranking journals, with papers, to which he had contributed were: Anal. Chim. Acta (106), Talanta (84), The Analyst (49), Anal. Chem. (23), and J. Chem. Sec. (20). Publication density was 8.54, publication concentration was 6.25, and average Bradford multiplier was 3.9. High frequency keywords in the titles of the articles were: Atomic fluorescence spectroscopy (51), Atomic absorption spectroscopy (43), and Atomic absorption spectrometry (31). The results indicate his temporal publication productivity and the nature of the research activities were such that he is eminently qualified to be taken as a ‘role model’ for the younger generation to emulate.

Keywords: Absorption, Analytical-Chemistry, Authorship, Bibliometrics, Collaboration, Communication, Communications, Generation, Journals, Model, Papers, Publication, Publication Activity, Ranking, Research, Research Productivity, Science, Spectroscopy

Burton, M.P. (1995), The use of citations matrices to group journals. *Scientometrics*, **33** (2), 257-262.

Full Text: [1995\Scientometrics33, 257.pdf](1995/Scientometrics33,%20257.pdf)

Abstract: A method of grouping journals within a wide discipline area into clusters is proposed, based on a algorithm that attempts to re-order a citations matrix so that it is block diagonal, or block recursive. The algorithm is based on a penalty function which allows one to account for the level of citation, not just the distribution of citations between journals. A case study involving eight economics journals is presented which illustrates the principles involved, but which also highlights the computational problems associated with extending the analysis to larger numbers of journals.

Keywords: Algorithm, Analysis, Case Study, Citation, Citations, Economics, Function, Journals, Principles

Notes: TTopic

Braun, T., Glänzel, W. and Grupp, H. (1995), The scientometric weight of 50 nations in 27 science areas, 1989-1993. Part I. All fields combined, mathematics, engineering, chemistry and physics. *Scientometrics*, **33** (3), 263-293.

Full Text: [1995\Scientometrics33, 263.pdf](1995/Scientometrics33,%20263.pdf)

Keywords: Citation Impact, Datafiles, Publication Output, Relative Indicators

? Raina, D., Gupta, B.M. and Kandhari, R. (1995), Collaboration in Indian physics: A case-study of the macro and micro parametrization of sub-disciplines (1800-1950). *Scientometrics*, **33** (3), 295-314.

Full Text: [1995\Scientometrics33, 295.pdf](1995/Scientometrics33,%20295.pdf)

Abstract: the decade beginning 1920 is an important watershed in the history of physics in modern India. This is evident from the bibliometric data available on the publications in physics between 1800 and 1950. The paper studies the evolution of collaboration in four subdisciplines of physics during this period. In order to do so, two sets of measures of research collaboration have been employed. The collaboration index and collaboration coefficient have been calculated for the sub-disciplines. As far as the micro-parametrization of the discipline is concerned, collaboration measures developed by Egghe are obtained for the research careers of four leading Indian physicists, who were responsible for the institutionalization of physics research in India. In the present case the role of individuals responsible for the institutionalization of physics research is seen to be germane to the explosion of the number of publications in the 1920s. At the conjucture of the history of science and scientometrics, it is evident how the former can endow the latter with a modality of explanation; further, it is evident how scientometrics can inform the efforts of historians of science.

Keywords: Bibliometric, Careers, Collaboration, Evolution, Explanation, Explosion, History, History of Science, India, Publications, Research, Research Collaboration, Science, Scientometrics

? Karki, M.M.S. and Garg, K.C. (1995), Industrial-research in India as viewed through research and industry. *Scientometrics*, **33** (3), 315-328.

Full Text: [1995\Scientometrics33, 315.pdf](1995/Scientometrics33,%20315.pdf)

Abstract: the paper examines the bibliometric characteristics of industrial research activity of India. The study reveals that public-funded R&D is the major contributor of research papers, in Research & Industry while the contribution of in-house R&D centres is lacking. Among the two industrial sectors (Chemical and Engineering), much of the R&D activity, as reflected by published papers, has been in chemical and allied industries. However, there appears to be a significant change in emphasis during the decade studied, namely a decrease in R&D activity in engineering industries with a corresponding increase in ‘miscellaneous’ industries. There is a significant increase in exploratory research. R&D and industry interface is found inadequate. Multiplicity of authorship is gradually increasing. Indian Industrial research is heavily dependent on foreign and non-patent literature.

Keywords: Authorship, Bibliometric, India, Literature, Papers, Research

Tsay, M.Y. (1995), The impact of the concept of postindustrial society and information-society: A citation analysis study. *Scientometrics*, **33** (3), 329-350.

Full Text: [1995\Scientometrics33, 329.pdf](1995/Scientometrics33,%20329.pdf)

Abstract: A detailed quantitative, citation study is made on the concepts of Bell, Machlup, and Drucker related to the economic and social effects of the growth of information-based industries.

Keywords: Citation, Growth, Model, User

? Persson, O. and Beckmann, M. (1995), Locating the network of interacting authors in scientific specialties. *Scientometrics*, **33** (3), 351-366.

Full Text: [1995\Scientometrics33, 351.pdf](1995/Scientometrics33,%20351.pdf)

Abstract: This paper seeks to describe the social circles, networks, or invisible colleges etc that make up a scientific speciality in terms of (mathematically precise) sets generated by documents citation and accessible through the Social Science Citation Index(TM). The document and author sets that encompass a scientific speciality are the basis for some interdependent citation matrices. We illustrate our method of construction of these sets and matrices through an application to the literature on ‘invisible colleges’.

Keywords: Citation, Literature

? Rikken, F., Kiers, H.A.L. and Vos, R. (1995), Mapping the dynamics of adverse drug-reactions in subsequent time periods using indscal. *Scientometrics*, **33** (3), 367-380.

Full Text: [1995\Scientometrics33, 367.pdf](1995/Scientometrics33,%20367.pdf)

Abstract: In this study we have focused on the problem of mapping the dynamics of co-word-matrices from subsequent time periods. Methods for mapping dynamics are important for following trends in research. We have explored the possibilities of a three way multidimensional scaling method, INDSCAL. We are especially interested to find relations between adverse drug reactions and other words in co-word-matrices from a medical field. Second we want to explore whether the relations between adverse drug reactions and other words have changed in subsequent time periods. The results show that INDSCAL can be a useful tool for mapping dynamics.

Keywords: Adverse Drug Reactions, Co-Word Analysis, Count, Drug, Dynamics, Maps, Medical, Network, One Might Wish, Relations, Representations, Research, Scaling, Science Indicators, Texts, Trends

Notes: highy cited, Topics: CCountry

Moed, H.F., de Bruin, R.E. and Van Leeuwen, Th.N. (1995), New bibliometric tools for the assessment of national research performance: Database description, overview of indicators and first applications. *Scientometrics*, **33** (3), 381-422.

Full Text: [1995\Scientometrics33, 381.pdf](1995/Scientometrics33,%20381.pdf)

Abstract: This paper gives an outline of a new bibliometric database based upon all articles published by authors from the Netherlands, and processed during the time period 1980-1993 by the Institute for Scientific Information (ISI) for the *Science Citation Index* (SCI), *Social Science Citation Index* (SSCI) and *Arts & Humanities Citation Index* (A&HCI). The paper describes various types of information added to the database: data on articles citing the Dutch publications; detailed citation data on ISI journals and subfields; and a classification system of publishing main organizations, appearing in the addresses. Moreover, an overview is given of the types of bibliometric indicators that were constructed. Their relationship to indicators developed by other researchers in the field is discussed. Finally, two applications are given in order to illustrate the potentials of the database and of the bibliometric indicators derived from it. The first represents a synthesis of ‘classical’ macro indicator studies at the one hand, and bibliometric analyses of research groups or institutes at the other. The second application gives for the first time a detailed analysis of a country’s publication output per institutional sector.

Keywords: Analysis, Bibliometric, Bibliometric Indicators, Citation, Classification, Database, First, Indicator, Indicators, Information, ISI, Journals, Publication, Publications, Publishing, Research, SCI, Scientific Publications, Sector, SSCI, Subfields, Synthesis, the Netherlands

? Campanario, J.M. (1995), Using neural networks to study networks of scientific journals (Vol 33, Pg 23, 1995). *Scientometrics*, **33** (3), 423.

Full Text: [1995\Scientometrics33, 423.pdf](1995/Scientometrics33,%20423.pdf)

Notes: CCountry

Krauskopf, M., Vera, M.I., Krauskopf, V. and Welljams-Dorof, A. (1995), A citationist perspective on science in Latin America and the Caribbean, 1981-1993. *Scientometrics*, **34** (1), 3-25.

Full Text: [1995\Scientometrics34, 3.pdf](1995/Scientometrics34,%203.pdf)

Abstract: the publication productivity and citation record of the Latin American countries are analyzed and evaluated by using adequate databases.

Keywords: Citation, Latin America, Publication, Record

Notes: CCountry

Quesada-Allué, L.A. and Gitlin, D.S. (1995), Scientific output in Argentina 1966-1983. *Scientometrics*, **34** (1), 27-35.

Full Text: [1995\Scientometrics34, 27.pdf](1995/Scientometrics34,%2027.pdf)

Abstract: A scientometric analysis of Argentinian science output during two decades focuses on authorship, as a measure of Argentina scientific size. Comparison is made with more competitive countries like Spain and Brasil. A relative decline in the rate of authors increase was found for Argentina and the derived loss of positions in the publishing authors international ranking was demonstrated. The possible influence of political turmoil and unstable scientific policies is discussed.

Keywords: Analysis, Argentina, Authorship, Chile, Facts, Impressions, International, Publications, Publishing, Ranking, Science, Scientometric, Size, Spain, Technology

? Narvaezberthelemot, N. (1995), An index to measure the international collaboration of developing-countries based on the participation of national institutions: the case of latin-america. *Scientometrics*, **34** (1), 37-44.

Full Text: [1995\Scientometrics34, 37.pdf](1995/Scientometrics34,%2037.pdf)

Abstract: International collaboration is an important ingredient of present-day scientific research. Latin America, for instance, is increasing its production of internationally coauthored publications and, the number of national institutions involved in this activity. An index developed to measure international collaboration by taking into account individual institutional participation resulted in a positive average increase in the production of developing countries (DCs) research. Nonetheless, the degree of institutional participation varies between field and with respect to the country in question. Giving weight to individual institutional participation, could motivate DCs scientists to enhance their role in the international science of the region. Likewise, this index could be developed as ‘quality indicator’ of national institutional performance.

Keywords: Collaboration, Institutions, International, Latin America, Publications, Quality, Research, Science, Scientific Collaboration, Scientific Research

? Russell, J.M. (1995), The increasing role of international cooperation in science and technology research in Mexico. *Scientometrics*, **34** (1), 45-61.

Full Text: [1995\Scientometrics34, 45.pdf](1995/Scientometrics34,%2045.pdf)

Abstract: Increasing importance is being given to international scientific activities, especially with regard to developing countries. In the present paper, an analysis is made of the studies published by Mexican institutions in coauthorship with foreign colleagues between 1980 and 1990, as registered in mainstream journals. Different characteristics of the collaboration are described, such as research areas, countries and institutions involved, of interest to Mexican policy makers acid scientists, as well as to foreign governments and international organizations sponsoring cooperative agreements with Mexico.

Keywords: Analysis, Coauthorship, Collaboration, Institutions, International, Journals, Latin-America, Mexico, Policy, Research, Scientific Collaboration, Sponsoring

Notes: TTopic, Notes: CCountry

Macias-Chapula, C.A. (1995), Primary health care in Mexico: A ‘non-ISI’ bibliometric analysis. *Scientometrics*, **34** (1), 63-71.

Full Text: [1995\Scientometrics34, 63.pdf](1995/Scientometrics34,%2063.pdf)

Abstract: This work reports the first results of a research in progress on the production, dissemination and impact of the literature on primary health care (PHC), as produced in Mexico during the period 1980-1992. The methodology used involved computerized searches in the MEDLINE, LILACS, and PERIODICA databases to identify the existing Mexican literature in the field. Results indicated a limited dissemination of the Mexican production through conventional databases. A total of 117 references were found in the field. Most of these references (72.65%) corresponded to journal articles. Over 55% of the documents were published by more than one author. Further research in the field as well as the implications of these results to PHC in Mexico are discussed by the author.

Keywords: Care, First, Health, Health Care, Journal, Journal Articles, Literature, MEDLINE, Methodology, Mexico, Primary, Primary Health, Primary Health Care, Research, Work

Meyer, J. B., Charum, J., Granés, J. and Chatelin, Y. (1995), Is it opened or closed? Colombian science on the move. *Scientometrics*, **34** (1), 73-86.

Full Text: [1995\Scientometrics34, 73.pdf](1995/Scientometrics34,%2073.pdf)

Abstract: Using recent original data from three different sources, the article exhibits some strengths and weaknesses of science in Colombia. It shows that research in this country is in a process of growth although recent results of this positive trend are still to be confirmed. Comparing the evolution of science in Colombia with that of Latin America as a whole, describing and explaining its geographical and institutional concentration as well as its thematic distribution, it also reveals the interdependance between science production dynamics and international cooperation programmes. A basic argument is that the development of science in this country, even though it is fragile and erratic, does not lack sound bases. The indicators used suggest indeed an autonomous scientific motion and inspiration which does not contradict the internationalization process of Colombian science but rectifies the picture of an excessively isolated or dependent community that used to be portrayed.

Keywords: Autonomous, Colombia, Community, Cooperation, Development, Dynamics, Evolution, Growth, Indicators, International, International Cooperation, Internationalization, Latin America, Latin-America, Research, Science

Notes: UUniversity

Krauskopf, M., Vera, M.I. and Albertini, R. (1995), Assessment of a university’s scientific capabilities and profile: the case of the faculty of biological sciences of the Pontificia Universidad Católica de Chile. *Scientometrics*, **34** (1), 87-100.

Full Text: [1995\Scientometrics34, 87.pdf](1995/Scientometrics34,%2087.pdf)

Abstract: the scientific capabilities and performance profiles of the Faculty of Biological Sciences of the Pontificia Universidad Católica de Chile were assessed building performance indicators from the ISI’s Chile-National Citation Report, 1981-1992. Consistent with the educational goals of the Faculty, the scientific activity which nurtures graduate training, especially at the doctoral level, was examined field by field and compared to Chilean and World scores. The approach rendered a portrait of the Faculty which depicts, trends, strengths and weaknesses, and standards for the evaluation of future activity. The study shows a very competitive performance in most of the fields, relative to national and world average achievements. A remarkable finding was the outstanding performance in applied fields, such as medical and agricultural sciences, and also in biotechnology, with shows that when good basic science takes place, high level goal oriented research also occurs.

Keywords: Biotechnology, Chile, Evaluation, Graduate, Indicators, Medical, Performance, Research, Science, Sciences, Standards, Training, Trends

Guimarães, J. A. and Humann, Marta C. (1995), Training of human resources in science and technology in Brazil: the importance of a vigorous post-graduate program and its impact on the development of the country. *Scientometrics*, **34** (1), 101-119.

Full Text: [1995\Scientometrics34, 101.pdf](1995/Scientometrics34,%20101.pdf)

Abstract: A national plan, designed to establish and support training and development of human resources for strengthening science and technology activities in Brazil was initiated almost three decades ago. This plan, named PNPG, can be viewed today as a successful program in terms of the quality of its general output. During this period research activity has been institutionalized and a few thoUSAnd active groups in several universities and research centers have been consolidated. Numerous technological advances in many areas have been achieved and continue throughout the country. A most impressive result of this effort was the acceleration and improvement of a more productive and internationally competitive agriculture, metallurgical engineering including metal-mechanic industry and paper-cellulose complex exploitation. These results also stimulated better performance of related areas such as agribusiness. The existence of an effective system based on a group of multi-funding agencies was an essential additional factor.

Keywords: Brazil, Development, Human, Quality, Research, Science, Science and Technology, Technology, Training, Universities

Cano, V. (1995), Characteristics of the publishing infrastructure of peripheral countries: A comparison of periodical publications from Latin America with periodicals from the US and the UK. *Scientometrics*, **34** (1), 121-138.

Full Text: [1995\Scientometrics34, 121.pdf](1995/Scientometrics34,%20121.pdf)

Abstract: Bibliometric research can provide science policy makers with indicators of the capacity of a country’s national scientific system to produce printed information. The capacity of the local publishing industry to produce scientific and technical periodical publications reflects the availability of outlets for the dissemination of scientific findings. The present research attempts to evaluate the role of the publishing industry in the level of bibliographic control, and the level of peer review of periodical publications from Latin America. A random search was performed on the 1990 CD-ROM version of the *Serials Directory*, a commercially produced international reference source on periodical publications. A sample of 311 periodicals from Latin America was downloaded to a local database. A similar search was performed on publications from the United States and the United Kingdom for comparison purposes. A random search of 235 publications was downloaded into a local database. Publishers were classified for both samples according to three types: academic, governmental, and commercial. Publications were sorted thematically and indicators of bibliographic control, and of peer review were recorded for both samples. Publications from Latin America showed a very low level of bibliographic control, particularly in the case of the assignment of ISSN numbers, where 58% of the sample studied was published without this element of bibliographic control. This contrasted sharply with the periodicals from the US and UK, where 83% (195) journals had an ISSN number assigned. The involvement of editorial boards in the academic quality of Latin American publications amounted only to 21% of the sample studied. Periodicals from the US and UK reported an editor as responsible for the journal in 40% (93) of the cases. This amount constitutes about double the number of editors reported by Latin American publications. Latin American academic publishers are the most numerous publishers in the sample studied accounting for 37% (114) of the journals studied however, 68% (77) of those editors printed periodicals without a named editor. Governmental publishers are the second largest publisher type. They produced 29% (89) of the journals in the sample. Commercial publishers are responsible for 26% (82) of the journals studied. Publications from the US and UK show a clear predominance of commercial publishers, accounting for 47% (111) of the journals. Academic publishers only produced 29% (68) of the 235 journals in the sample. This clear dominance of the commercial publisher sector shows that publishing in at least the two countries studied is clearly practised as a business enterprise. This is in sharp comparison to the publishing patterns exhibited in Latin America where the academic sector is the most prominent one.

Keywords: Availability, Business, Capacity, Comparison, Database, Indicators, Information, International, Journal, Journals, Latin America, Law, Peer Review, Peer-Review, Periodical, Periodicals, Policy, Publications, Publishing, Quality, Research, Review, Science, Science Policy, Sector, UK, United Kingdom, United States, US

? Vessuri, H. (1995), Recent strategies for adding value to scientific journals in Latin-America. *Scientometrics*, **34** (1), 139-161.

Full Text: [1995\Scientometrics34, 139.pdf](1995/Scientometrics34,%20139.pdf)

Abstract: A recent initiative in some Latin American countries, to define the basic core of credited titles of domestic scientific journals in the different knowledge fields, is reviewed. The policy aim is to strengthen the best journals and to minimize the noise produced by the great number of journals that do a disservice to the authors who publish in them either because of their low quality Dr because even if they are reasonably good, have a very low impact. It is argued that if the exercise were carried out in a rigorous and systematic way in the countries of the region that publish scientific journals, one might eventually obtain a depurated list of Latin American periodical publications. Such list might be useful as a supplement to the catalogues of mainstream journals registered by ISI and other international databases, and could provide ‘valid’ alternatives of publication of results for Latin American researchers and for authors of other regions active in subjects in which the countries of the region have significant scientific contributions, It might also help to provide a better indication of the total publishing activity of Latin American countries.

Keywords: Alternatives, Developing-Countries, International, ISI, Journals, Knowledge, Latin America, Periodical, Policy, Publication, Publications, Publishing, Quality, Science, Scientific Journals

? Bonitz, M. (1995), Comments on merton, Robert, K., recipient of the 1995 Derek-Desolla-Price-Award. *Scientometrics*, **34** (2), R3-R6.

Full Text: [1995\Scientometrics34, R3.pdf](1995/Scientometrics34,%20R3.pdf)

Keywords: Science

? Lepair, C. (1995), Speech on the occasion of the presentation of the 1995 Derek-Desolla-Price-Award to Prof Dr Vanraan, A.F.J. at the ISSI Conference Held at River Forest, Illinois, on June 10, 1995. *Scientometrics*, **34** (2), R7-R10.

Full Text: [1995\Scientometrics34, R7.pdf](1995/Scientometrics34,%20R7.pdf)

Keywords: Combined Cocitation, Illinois, Representations, Science Maps, Scientific Literatures, Word Analysis

? Kostoff, R.N. (1995), Federal, research impact assessment: Axioms, approaches, applications. *Scientometrics*, **34** (2), 163-206.

Full Text: [1995\Scientometrics34, 163.pdf](1995/Scientometrics34,%20163.pdf)

Abstract: This paper describes the practice of Federal research impact assessment. Evaluation of research impact is described for three cases: Research selection, where the work has not yet been performed; Research review, where work and results are ongoing; and Ex-post research assessment, where research has been completed and results can be tracked. Retrospective methods (such as projects Hindsight an TRACES), qualitative methods (such as peer review), and quantitative methods (such as cost-benefit analysis and bibliometrics) are described. While peer review in its broadest sense is the most widely used method in research selection, review, and ex-post assessment, it has its deficiencies, and there is no single method which provides a complete impact evaluation.

Keywords: Analysis, Assessment, Bibliometrics, Cost Benefit, Evaluation, Methods, Peer Review, Peer-Review, Practice, Qualitative, Qualitative Methods, Quantitative Methods, Research, Research Assessment, Review, Work

Braun, T., Glänzel, W. and Grupp, H. (1995), The scientometric weight of 50 nations in 27 science areas, 1989-1993. Part II. Life sciences. *Scientometrics*, **34** (2), 207-237.

Full Text: [1995\Scientometrics34, 207.pdf](1995/Scientometrics34,%20207.pdf)

Keywords: Citation Impact, Datafiles, Publication Output, Relative Indicators

? Baldi, S. and Hargens, L.L. (1995), Reassessing the n-rays reference network: the role of self citations and negative citations. *Scientometrics*, **34** (2), 239-253.

Full Text: [1995\Scientometrics34, 239.pdf](1995/Scientometrics34,%20239.pdf)

Abstract: In his article ‘Networks of Scientific Papers’, Price argued that the N-rays reference network exhibits characteristics one would expect for a cumulative and rapidly developing research area. Although subsequent researchers have questioned Price’s characterization of the N-rays network, there have been no replications of Price’s work for either the N-rays literature or for any other literature. We reexamine the N-rays reference network, this time distinguishing negative citations and self citations from other citations. Although previous studies of negative and self citations show they are relatively infrequent in scientific literatures, we find that both are very prominent in the N-rays literature. In addition, we show that self citations comprise most of the ‘recency effect’ observed in the N-rays reference network, and that the high level of self citations in the N-rays literature results primarily from the character of the journal that published the majority of the N-rays papers. Our findings therefore support those who have been skeptical about Price’s claim that the N-rays reference graph exemplifies basic characteristics of the structure of scientific literatures.

Keywords: Characterization, Citations, Journal, Literature, Network, Papers, Price,Derek, Research, Self, Structure, Work

? Cunningham, S.J. and Bocock, D. (1995), Obsolescence of computing literature. *Scientometrics*, **34** (2), 255-262.

Full Text: [1995\Scientometrics34, 255.pdf](1995/Scientometrics34,%20255.pdf)

Abstract: A multisynchronous obsolescence study has been performed on two computing journals that publish on technical aspects of computer system management (networks and operating systems). This area of computer science is found to have a relatively high obsolescence rate (a median citation rate of four years). This rate is similar to that of fields in engineering and the technology-dependent ‘hard’ sciences.

Keywords: Citation, Journals, Management, Obsolescence, Science, Sciences

? Nagpaul, P.S. and Sharma, L. (1995), Science in the eighties: A typology of countries based on interfield priorities. *Scientometrics*, **34** (2), 263-283.

Full Text: [1995\Scientometrics34, 263.pdf](1995/Scientometrics34,%20263.pdf)

Abstract: This paper seeks to compare the research priorities of thirty three countries in five macrofields (Physics, Chemistry Biology, Mathematics and Engineering & Technology) in two time spans: 1980-1984 and 1985-1989. Comparative analysis is based on the distribution of publications in different fields. Since the raw counts of publications are confounded by the size of the countries and the size of the subject fields, a relative index - Research Priority Index (PI) - is computed for cross-national comparisons. Correspondence analysis is applied to the asymmetrical matrices of priority profiles to reveal the structure of multivariate relationships between countries and fields. The configurations for the two time-spans, obtained-through correspondence analysis, are compared to reveal the dynamics of research priorities of these countries.

Keywords: Analysis, Correspondence Analysis, Dynamics, Indicators, Publications, Research, Size, Structure

? Egghe, L., Rao, I.K.R. and Rousseau, R. (1995), On the influence of production on utilization functions: Obsolescence or increased use. *Scientometrics*, **34** (2), 285-315.

Full Text: [1995\Scientometrics34, 285.pdf](1995/Scientometrics34,%20285.pdf)

Abstract: We study the influence of production on utilization functions. A concrete example of this is the influence of the growth of literature on the obsolescence (aging) of this literature. Here, synchronous as well as diachronous obsolescence is studied. Assuming an increasing exponential function for production and a decreasing one for aging, we show that, in the synchronous case, the larger the increase in production, the larger the obsolescence. In the diachronous case the opposite relation holds: the larger the increase in production the smaller the obsolescence rate. This has also been shown previously by Egghe but the present proof is shorter and yields more insight in the derived results. If a decreasing exponential function is used to model production the opposite results are obtained. It is typical for this study that there are two different time periods: the period of production (growth) and - per year appearing in the production period - the period of aging (measured synchronously and diachronously). The interaction of these periods is described via convolutions (discrete as well as continuous).

Keywords: Aging, Citation Age, Concrete, Function, Functions, Growth, Interaction, Literature, Model, Obsolescence, Time, Utilization

Notes: CCountry

Cozzens, S. (1995), U.S. research assessment: Recent developments. *Scientometrics*, **34** (2), 351-362.

Full Text: [1995\Scientometrics34, 351.pdf](1995/Scientometrics34,%20351.pdf)

Abstract: Over the last decade, ex post research assessment at the program level in the United States has seemed much less active than the equivalent activities in Europe, both west and east. This seeming lull was the result of a decline in program evaluation activity across the U.S. government in the 1980s, which slowed the rate of formal evaluations. Program review activities within agencies, however, were common, especially at such mission-oriented research supporting organizations as the Department of Energy and the Office of Naval Research. Review processes at these agencies relied primarily on expert assessment, sometimes at the project level, supplemented by user inputs. Quantitative performance measures were seldom used. That situation is about to change. In 1993, Congress passed the Government Performance and Results Act, which requires all agencies including those support research to set quantitative performance targets and report annually on their progress toward them. Agencies with clear technological goals are rapidly developing sets of indicators for this use, including peer assessments, bibliometric measures including patents, and customer satisfaction ratings. But fundamental research agencies do not find such measures satisfactory, and are just beginning to develop alternative ones.

Cunion, K.M. (1995), UK government departments experience of RT & D programme evaluation and methodology. *Scientometrics*, **34** (2), 363-374.

Full Text: [1995\Scientometrics34, 363.pdf](1995/Scientometrics34,%20363.pdf)

Abstract: the UK Department of the Environment is responsible for a range of policy issues within Government related to many aspects of the environment in its broadest sense. It spends about £ 100 M annually on Science and Technology in support of its policy functions. Over recent years a system of research assessment has been established which consists of the development of ROAME statements for the appraisal of programmes and regular independent evaluation of the success and impact of the research on the basis of a five year cycle. The mechanisms and process of the assessment system are described. Effective evaluation of policy-oriented research programmes has provided valuable information to the Department on the success and impact of the research, and guidance on future direction and balance of the programmes.

Gonda, K. and Kakizaki, F. (1995), Research, technology and development evaluation; developments in Japan. *Scientometrics*, **34** (2), 375-389.

Full Text: [1995\Scientometrics34, 375.pdf](1995/Scientometrics34,%20375.pdf)

Abstract: the research, technology and development (RTD) evaluation in terms of science and technology policy has come to be important in stimulating research activities and in continuously keeping the vitality and the higher quality of research in RTD institutions. There are two criteria on the RTD evaluation, i.e., in-house evaluation from the stand point of RTD management and independent macroscopic evaluation for the decision making of companies and/or policy making for science and technology policy.

The most important point for RTD evaluation in the former criteria is in the mission itself. RTD in universities, public research institutes, and enterprises have different objectives and characteristics. Therefore, the mission and methodology of RTD evaluations should be different, by categorized type and objectives of research institutions, and be developed in-house. Results of RTD evaluations should be fed back to researchers or engineers and disclosed principally if the mission was to stimulate knowledge creation through RTD activities.

The in-house RTD evaluation can be classified in general into three categories: prior evaluation, mid-term review, and ex-post facto review. The methodologies to evaluate RTD in each phase of the RTD process are different, even among those institutes categorized into the same type such as national and regional research institutes. In this paper, two cases of RTD evaluation a) in Riken, which was founded in 1917 as a private research foundation and later reorganized as a semi-public research corporation of the Science and Technology-Agency, b) in regional public research institutes.

RTD evaluation from the view point of policy assessment of governmental science and technology policy is discussed through analysis of data obtained by the survey of research activities in regional public research institutes. It can be concluded that developments and introduction of RTD evaluation as a new management system in these institutes is improving the research environment and advancing the quality of research. The differences of RTD evaluation between a Center of Excellence (COE) such as Riken and local technology centers, will be compared and the policy implication of RTD evaluation will also be discussed in terms of promotion of science and technology.

Notes: CCountry

Helander, E. (1995), Evaluation activities in the Nordic countries. *Scientometrics*, **34** (2), 391-400.

Full Text: [1995\Scientometrics34, 391.pdf](1995/Scientometrics34,%20391.pdf)

Abstract: There has been extensive experience with evaluations in the Nordic countries. The paper gives a brief overview of work related to: evaluations of research fields, bibliometric studies, evaluations of research programmes, performance of research institutes, evaluation of bodies supporting research, evaluation of universities, indicators and databases.

Evaluations of whole areas of research started in the Nordic countries in the early 1980’s. Another Nordic speciality is the evaluation of research-funding bodies. These evaluations comprise the Swedish Council for Planning and Co-ordination of Research, the Norwegian Research Council for Science and Humanities, the Academy of Finland and the Technology Development Centre (TEKES).

Many research programmes, research institutes and more narrow research fields have been evaluated in the Nordic countries. The evaluations have covered the tasks, performance and structure of these organisations. Lately, whole universities have been evaluated. A number of theoretical and methodological studies on evaluation have been published. Indicators of scientific, technological and educational performance and output have been developed in the Nordic countries. The paper deals mainly with ex post and to some extent also mid-term evaluations. However, ex ante evaluation, including peer review, has actively been developed and applied in the Nordic countries, though these developments lie outside the scope of this paper.

Typical for many Nordic evaluations is the use of foreign evaluators. Others have been based on surveys with potential users of research results and the scientists involved. Some of the evaluations have combined these approaches. Bibliometric studies have been performed parallel with some of the evaluations. Other bibliometric studies have compared the performance of the Nordic countries in an international perspective. In most cases the results of the evaluations are actively made public. Many of the evaluations combine an assessment of quality and relevance.

According to Nordic experiences important conditions for useful evaluations are: credibility implying the use of impartial and recognised experts and professionally done surveys; careful timing; active publicising of evaluation results; transparency of evaluation procedure; concrete measures and action following the evaluation.

When possible data required for the evaluation should be collected already in connection with the application or the report of the projects.

? Gabolde, I. (1995), First international conference on the evaluation of research technology and development - 26, 27 & 28 April 1995, Thessaloniki, Greece - Opening address. *Scientometrics*, **34** (3), 317-320

Full Text: [1995\Scientometrics34, 317.pdf](1995/Scientometrics34,%20317.pdf)

Keywords: Development, Evaluation, Greece, International, Research, Technology

? Piquer, C.R. (1995), Invited speech. *Scientometrics*, **34** (3), 321-323.

Full Text: [1995\Scientometrics34, 321.pdf](1995/Scientometrics34,%20321.pdf)

? Bach, L., CondeMolist, N., Ledoux, M.J., Matt, M. and Schaeffer, V. (1995), Evaluation of the economic effects of Brite-Euram programmes on the European industry. *Scientometrics*, **34** (3), 325-349.

Full Text: Scientometrics34, 325.pdf

Abstract: This article deals with an evaluation performed by BETA group about the economic effects of EU R & D programmes (Brite, Euram and Brite-Euram I) on the European industry. The approach used is based on an original methodology designed by BETA, which aims at evaluating those effects at a micro level (i.e. The participants to the programmes) by means of direct interviews of 176 partners involved in 50 projects. The definition of these economic effects is firstly described, as well as the different steps of the evaluation work. Then the overall results of the study are presented, showing the importance of both ‘direct’ and ‘indirect’ observed effects in monetary terms. Finally, some more detailed results highlight the positive impact of some aspects of the organization structure set up for the analyzed R & D projects on the amount of observed effects: i) the participation of a university lab; ii) the participation of at least one partner involved in a fundamental research work; iii) the diversity of research tasks over a scale ranging from fundamental research to industrialization work; iv) the combination of ‘user-type’ and ‘producer-type’ of activity in one given organisation (integration effect) or in one given project (consortia effect), etc.

Keywords: EU, Evaluation, Integration, Interviews, Methodology, Research, Research Work, Structure, University, Work

Cozzens, S. (1995), U.S. research assessment: Recent developments. *Scientometrics*, **34** (3), 351-362.

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Abstract: Over the last decade, ex post research assessment at the program level in the United States has seemed much less active than the equivalent activities in Europe, both west and east. This seeming lull was the result of a decline in program evaluation activity across the U.S. government in the 1980s, which slowed the rate of formal evaluations. Program review activities within agencies, however, were common, especially at such mission-oriented research supporting organizations as the Department of Energy and the Office of Naval Research. Review processes at these agencies relied primarily on expert assessment, sometimes at the project level, supplemented by user inputs. Quantitative performance measures were seldom used. That situation is about to change. In 1993, Congress passed the Government Performance and Results Act, which requires all agencies including those support research to set quantitative performance targets and report annually on their progress toward them. Agencies with clear technological goals are rapidly developing sets of indicators for this use, including peer assessments, bibliometric measures including patents, and customer satisfaction ratings. But fundamental research agencies do not find such measures satisfactory, and are just beginning to develop alternative ones.

Keywords: Alternative, Assessment, Bibliometric, Europe, Evaluation, Indicators, Patents, Program Evaluation, Research, Research Assessment, Review, Satisfaction, United States, US

Cunion, K.M. (1995), UK government departments experience of RT & D programme evaluation and methodology. *Scientometrics*, **34** (3), 363-374.

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Keywords: Assessment, Development, Environment, Evaluation, Functions, Information, Methodology, Policy, Research, Research Assessment, UK

Gonda, K. and Kakizaki, F. (1995), Research, technology and development evaluation; developments in Japan. *Scientometrics*, **34** (3), 375-389.

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Abstract: the research, technology and development (RTD) evaluation in terms of science and technology policy has come to be important in stimulating research activities and in continuously keeping the vitality and the higher quality of research in RTD institutions. There are two criteria on the RTD evaluation, i.e., in-house evaluation from the stand point of RTD management and independent macroscopic evaluation for the decision making of companies and/or policy making for science and technology policy.

The most important point for RTD evaluation in the former criteria is in the mission itself. RTD in universities, public research institutes, and enterprises have different objectives and characteristics. Therefore, the mission and methodology of RTD evaluations should be different, by categorized type and objectives of research institutions, and be developed in-house. Results of RTD evaluations should be fed back to researchers or engineers and disclosed principally if the mission was to stimulate knowledge creation through RTD activities.

The in-house RTD evaluation can be classified in general into three categories: prior evaluation, mid-term review, and ex-post facto review. The methodologies to evaluate RTD in each phase of the RTD process are different, even among those institutes categorized into the same type such as national and regional research institutes. In this paper, two cases of RTD evaluation a) in Riken, which was founded in 1917 as a private research foundation and later reorganized as a semi-public research corporation of the Science and Technology-Agency, b) in regional public research institutes.

RTD evaluation from the view point of policy assessment of governmental science and technology policy is discussed through analysis of data obtained by the survey of research activities in regional public research institutes. It can be concluded that developments and introduction of RTD evaluation as a new management system in these institutes is improving the research environment and advancing the quality of research. The differences of RTD evaluation between a Center of Excellence (COE) such as Riken and local technology centers, will be compared and the policy implication of RTD evaluation will also be discussed in terms of promotion of science and technology.

Keywords: Analysis, Assessment, Criteria, Decision Making, Decision-Making, Development, Enterprises, Environment, Evaluation, Institutions, Japan, Knowledge, Management, Methodology, Policy, Promotion, Quality, Research, Review, Science, Science and Technology, Science and Technology Policy, Survey, Technology, Universities

? Helander, E. (1995), Evaluation activities in the Nordic countries. *Scientometrics*, **34** (3), 391-400.

Full Text: [1995\Scientometrics34, 391.pdf](1995/Scientometrics34,%20391.pdf)

Abstract: There has been extensive experience with evaluations in the Nordic countries. The paper gives a brief overview of work related to: evaluations of research fields, bibliometric studies, evaluations of research programmes, performance of research institutes, evaluation of bodies supporting research, evaluation of universities, indicators and databases. Evaluations of whole areas of research started in the Nordic countries in the early 1980’s. Another Nordic speciality is the evaluation of research-funding bodies. These evaluations comprise the Swedish Council for Planning and Co-ordination of Research: the Norwegian Research Council for Science and Humanities, the Academy of Finland and the Technology Development Centre (TEKES). Many research programmes, research institutes and more narrow research fields have been evaluated in the Nordic countries. The evaluations have covered the tasks, performance and structure of these organisations. Lately, whole universities have been evaluated. A number of theoretical and methodological studies on evaluation have been published. Indicators of scientific, technological and educational performance and output have been developed in the Nordic countries. The paper deals mainly with ex post and to some extent also mid-term evaluations. However, ex ante evaluation, including peer review, has actively been developed and applied in the Nordic countries, though these developments lie outside the scope of this paper. Typical for many Nordic evaluations is the use of foreign evaluators. Others have been based on surveys with potential users of research results and the scientists involved. Some of the evaluations have combined these approaches. Bibliometric studies have been performed parallel with some of the evaluations. Other bibliometric studies have compared the performance of the Nordic countries in an international perspective. In most cases the results of the evaluations are actively made public. Many of the evaluations combine an assessment of quality and relevance. According to Nordic experiences important conditions for useful evaluations are: credibility implying the use of impartial and recognised experts and professionally done surveys; careful timing; active publicising of evaluation results; transparency of evaluation procedure; concrete measures and action following the evaluation. When possible data required for the evaluation should be collected already in connection with the application or the report of the projects.

Keywords: Assessment, Bibliometric, Bibliometric Studies, Bodies, Concrete, Credibility, Evaluation, Finland, Indicators, International, Peer Review, Peer-Review, Potential, Quality, Relevance, Research, Research Funding, Review, Structure, Transparency, Universities, Work

? Hills, P. (1995), PREST’s experience of evaluation. *Scientometrics*, **34** (3), 401-414.

Full Text: [1995\Scientometrics34, 401.pdf](1995/Scientometrics34,%20401.pdf)

Abstract: PREST’s experience of evaluation is not as an isolated activity, but as one that has grown out of, and is still embedded in, a broader programme of work on science policy and management. This reflects a conviction that evaluation should be embedded in a wider management system including verifiable objectives and sound feedback mechanisms. The key to successful evaluation is meticulous planning and evaluation design. PREST’s evaluation work has been based mostly on surveys of opinion supplemented by statistical data. In any evaluation the different actors may all agree overtly on their objectives, but covertly have different and incompatible aims. In this situation PREST apply transparent principles of procedure. Evaluation has had a significant effect on the science and technology management culture. In a few cases it is possible to distinguish a direct link between evaluation findings and subsequent decisions. Usually, however, it is difficult to do so with precision, because evaluation is but one of several influences on policy development. The demand for evaluation will probably intensify, perhaps including simpler, more automatic approaches. There may also be an increased interest in more refined qualitative approaches.

Keywords: Culture, Demand, Development, Evaluation, Management, Planning, Policy, Policy Development, Principles, Qualitative, Science, Science and Technology, Science Policy, Technology, Technology Management, Work

? Johnston, R. (1995), Research impact quantification. *Scientometrics*, **34** (3), 415-426.

Full Text: [1995\Scientometrics34, 415.pdf](1995/Scientometrics34,%20415.pdf)

Abstract: the development of methods for the quantification of research impact has taken a variety of forms: the impact of research outputs on other research, through various forms of citation analysis; the impact of research and technology, through patent-derived data; the economic impact of research projects and programs, through a variety of cost-benefit analyses; the impact of research on company performance, where there is no relationship with profit, but a strong positive correlation with sales growth has been established; and calculations of the rates of social return on the investment in research. However, each of these approaches, which have had varying degrees of success, are being challenged by substantial revision in the understanding of the ways in which research interacts, and contributes to, other human activities. First, advances in the sociology of scientific knowledge have revealed the complex negotiation processes involved in the establishment of research outcomes and their meanings. In this process, citation is little more than a peripheral formalisation. Second, the demonstration of the limitations of neo-classical economics in explaining the role of knowledge in the generation of wealth, and the importance of learning processes, and interaction, in innovation within organisations, has finally overturned the linear model on which so many research impact assessments have been based. A wider examination of the political economy of research evaluation itself reveals the growth of a strong movement towards managerialism, with the application of a variety of mechanisms - foresight, priority setting, research evaluation, research planning - to improve the efficiency of this component of economic activity. However, there are grounds for questioning whether the resulting improved efficiencies have, indeed, improved overall performances. A variety of mechanisms are currently being experimented with in a number of countries which provide both the desired accountability and direction for research, but which rely less on the precision of measures and more on promoting a research environment that is conducive to interaction, invention, and connection.

Keywords: Analysis, Citation, Citation Analysis, Cost Benefit, Development, Economics, Efficiency, Environment, Evaluation, Examination, Foresight, Generation, Growth, Human, Innovation, Interaction, Knowledge, Learning, Methods, Model, Outcomes, Planning, Profit, Research, Research Evaluation, Sociology, Technology, Understanding

? Kameoka, A. (1995), Evaluating research projects at Toshiba. Designing a conceptual framework of evaluating research and technology development (RTD) programs. *Scientometrics*, **34** (3), 427-439.

Full Text: [1995\Scientometrics34, 427.pdf](1995/Scientometrics34,%20427.pdf)

Abstract: Toshiba, a broadly-based electric/electronics manufacturer, operates diversified businesses. A sophisticated research and technology management system supports those businesses based on a research and technology development (RTD) organization consisting of three layers: corporate, business group, and divisional laboratories. Evaluation of RTD projects is varied in accordance with their characteristics. To promote future inter-divisional business, the Corporate Incentive Program (CIP) funds corporate projects which are authorized and evaluated by the Corporate Technology Committee (CTC). In parallel, under the Corporate Strategic Program (CSP), committees monitor and evaluate specific, rapidly-advancing technologies so as to promote early acquisition and diffusion. Additionally, transnational strategic alliances (TSAs) are promoted on the basis of their merits and in accordance with Toshiba’s corporate philosophy of Competition, Cooperation and Complementarity (CC&C). The corporate Research and Development Center (RDC) conducts pre- and intermediate evaluations as part of the Long- and Middle-range Planning every year. When new technologies are transferred to the business divisions, post-evaluation starts and future monetary impacts are estimated; subsequently actual monetary contributions are monitored annually. Another style of pre-evaluation can be observed at the RDC in the Exploratory Programs by the Young (EPY). First, some actual cases at Toshiba are introduced. Next, discussion is extended to the evaluation framework, the corporate technology model and RTD productivity Also noted is the importance of recognizing that the consumer is the ultimate evaluator and that evaluation-quality is improved by feedback from the market. Concept creation and target clarification must come first; only then does the evaluation make sense.

Keywords: Business, Development, Diffusion, Evaluation, First, Framework, Management, Market, Model, Philosophy, Research, Technologies, Technology, Technology Management

? Krull, W. (1995), The Max Planck experience of evaluation. *Scientometrics*, **34** (3), 441-450.

Full Text: [1995\Scientometrics34, 441.pdf](1995/Scientometrics34,%20441.pdf)

Abstract: the Max-Planck-Gesellschaft (MPG) is a nonprofit organization founded in 1948 as a successor to the Kaiser-Wilhelm-Gesellschaft, which was originally established in 1911. Institutes run by the MPG are mainly devoted to basic research, to a large extent in the sciences and, to a smaller extent, in the humanities. In contrast to the university system, which must cover all academic disciplines, the MPG can concentrate its funds and its energy on selected key areas of basic research. In all of the decision making processes concerning structural or institutional changes as well as the reallocation of resourses, evaluation has a crucial role to play. The paper outlines the various ways and levels of quality assessment within the Max Planck system. in particular, it emphasizes the Importance of ex ante-evaluation, and the need for an assessment of ongoing research work at regular intervals. Furthermore, the strengths and weaknesses of quantitative indicators are discussed, and, finally, some principles for policy-relevant evaluations formulated.

Keywords: Assessment, Changes, Concentrate, Decision Making, Decision-Making, Evaluation, Humanities, Indicators, Intervals, Principles, Quality, Research, Research Work, Sciences, University, Work

? Kyriakou, D. (1995), Macroeconomic aspects of S/T programme evaluation. *Scientometrics*, **34** (3), 451-459.

Full Text: [1995\Scientometrics34, 451.pdf](1995/Scientometrics34,%20451.pdf)

Abstract: Understanding the macroeconomic aspects of S/T programme evaluation exercises must be anchored in exploring S/T and its impact in the context of the modern competitive economy, starting at the level of the firm and moving up to the country and EU regional level. Whereas monitoring focuses on the continuous managerial review of project operations, evaluation is concerned with what is being achieved, with maximizing the programme’s impact, and with providing guidelines for new ones. The economic context and the placement of S/T in it, in crucial in both ex-ante evaluation, setting goals and projecting evolution corridors, as well as ex-post evaluation of proximity to targets, and/or assessment/updating of projected technological and economic paths followed. The paper will briefly draw this connection and then proceed to explore the multi-level interface between S/T and the economic context, whose characteristics should inform ex-ante and ex-post evaluation efforts. Particular emphasis will be placed on the role of S/T - and hence in evaluating S/T programmes - visa-vis the effects of S/T on market structure, sustainability and EU cohesion. S/T will be viewed in terms of its projected effects on the viability of monopolistic/oligopolistic arrangements, and on the incontestability of markets, namely the ability of incumbents to deter entry by new challengers. It will be also argued that S/T is, and should be, the bridge linking growth and sustainability, the two towering preoccupations that are often deemed to be at odds. Finally, and most immediately critical for the EU, the vicissitudes of cohesion in the EU will be explored, and the role of S/T in alleviating them will be underscored. Successful and properly evaluated S/T programmes can help steer the EU away from the tensions generated by asymmetric shocks to liberalizing, integrating economies, specializing on the basis of comparative advantage.

Keywords: EU, Evaluation, Evolution, Growth, Guidelines, Market, Markets, Review, Structure, Sustainability

? Kuhlmann, S. (1995), German government department’s experience of RT&D programme evaluation and methodology. *Scientometrics*, **34** (3), 461-471.

Full Text: [1995\Scientometrics34, 461.pdf](1995/Scientometrics34,%20461.pdf)

Abstract: In Germany the interest in the evaluation of RT & D programmes has increased markedly in the recent past; not least because of cut-backs in public budgets, which put-considerable pressure on prioritising and posterioritising of financially effective state intervention. The paper reports on a comprehensive analysis of evaluation practice up till now in the field of RT & D programmes in Germany: within the framework of a ‘Metaevaluation’, the Federal Ministry for Research and Technology (BMFT) had over 50 evaluation studies, which it had commissioned since 1985, documented and critically analysed. On the basis of this analysis and its recommendations, a rough outline for a systematised future evaluation practice has been developed and discussed. Reflections on the basic meaning of evaluation, then which basic functions evaluation studies can fulfil during planning and implementation of RT & D policy measures for government departments, for policy-makers and for the public, were considered. In order to achieve a minimum of compatibility for evaluation activities in the future, a ‘Basic Pack’ of standards for the implementation of evaluation studies was developed (as regards evaluation planning, choice of evaluators, content/scope/range, methods and indicators, editing and utilising the results), and more ambitious possibilities for use were discussed (e.g. combination of technology foresight and ex ante policy analyses).

Keywords: Analysis, Evaluation, Evaluation Studies, Foresight, Framework, Functions, Germany, Indicators, Methodology, Methods, Planning, Policy, Practice, Pressure, Recommendations, Standards, Technology, Technology Foresight

? Laredo, P. (1995), Structural effects of EC RT&D programmes. *Scientometrics*, **34** (3), 473-487.

Full Text: [1995\Scientometrics34, 473.pdf](1995/Scientometrics34,%20473.pdf)

Abstract: Taking advantage of both ‘vertical’ evaluations (of the JOULE and MHR programmes) and of the ‘transversal’ study of the effects of all shared-cost programmes in France, the paper argues that such actions have already built large, heterogeneous, trans-border networks, out of which most are nearly stabilized but still in a learning process about collaborative research practices. It also shows that most networks fall under a limited set of collaborative patterns which focus on different outcomes and, in turn, have different structural effects. It, in turn, questions both the articulation and implementation mechanisms of the present framework programme.

Keywords: Collaborative Research, EC, Framework, France, Learning, Outcomes, Research

? Narin, F. (1995), Patents as indicators for the evaluation of industrial research output. *Scientometrics*, **34** (3), 489-496.

Full Text: [1995\Scientometrics34, 489.pdf](1995/Scientometrics34,%20489.pdf)

Abstract: Patent indicators are used in the evaluation of industrial research at many different levels of aggregation. They are used in policy-level applications to look at industrial research capability from a national or regional viewpoint comparing, for example, EU regional technology with that of Japan and North America. They are used in strategic-level applications to look at industrial research from a company viewpoint. for example, CHI Research, Inc. has used them to compare auto company research output company-by-company and technology-by-technology. They are used in tactical-level applications, typically involving technology tracing - where the performance of research groups is measured against one another within the domain of a specific technology. At the tactical level these indicators can characterize industrial research in three planes or stages: the early Precursor Plane, the current Technology Plane and the future-oriented Successor Plane. Finally, at the most precise level of evaluation, patent indicator techniques are now beginning to be used in the United States in establishing the value of patent portfolios for cross-licensing purposes, and in patent infringement litigation, where citation techniques demonstrate the importance and utility of patented technology.

Keywords: Aggregation, Citation, EU, Evaluation, Indicator, Indicators, Japan, Litigation, Patent, Research, Techniques, Technology, United States, Utility

? Nauwelaers, C. and Reid, A. (1995), Methodologies for the evaluation of regional innovation potential. *Scientometrics*, **34** (3), 497-511.

Full Text: [1995\Scientometrics34, 497.pdf](1995/Scientometrics34,%20497.pdf)

Abstract: This contribution is based on a SPRINT-EIMS project involving a ‘horizontal’ inventory and critical analysis of existing studies on the measurement and evaluation of regional technological innovative potential.(1) After the presentation of a conceptual scheme aiming at reflecting on the functioning of a ‘Regional System of Innovation’, the main trends in methodological approaches to the evaluation of regional innovative potential in the European Union are discussed, pointing to the necessity of moving progressively towards a methodology taking into account interactions, both locally and externally, between the various components and actors of the innovation process. There is no single best-practice methodology in this respect: the use of an ‘eclectic’ assortment of methodological approaches is investigated and the recommendation given to develop data bases on innovation at regional level.

Keywords: Analysis, European Union, Evaluation, Innovation, Measurement, Methodology, Potential, Trends

? OHerlihy, J. (1995), RT&D, regional development and evaluation. *Scientometrics*, **34** (3), 513-518

Full Text: [1995\Scientometrics34, 513.pdf](1995/Scientometrics34,%20513.pdf)

Keywords: Development, Evaluation

? Rinaldini, C. (1995), Experience on research evaluation at the Joint Research Centre of the European Commission. *Scientometrics*, **34** (3), 519-525.

Full Text: [1995\Scientometrics34, 519.pdf](1995/Scientometrics34,%20519.pdf)

Abstract: Since more than 10 years, the obligation to perform a research evaluation about the JRC activities is included in Council decisions on research programmes. From 1984 to 1986 eight Peer Panels reviews were performed, one for each programme, and they were followed by an overall assessment by the JRC Scientific Council. for the research programme 1988-1991, a mid-term and a final evaluations were entrusted to expert Panels for the all JRC. for the last programme, 1992-1994, a new approach was introduced by charging Visiting Groups to perform an evaluation of each JRC Institute. Internal evaluation through questionnaires and bibliometric analyses were also attempted at JRC. The merits of the various approaches are highlighted and specific considerations are shortly discussed concerning the ‘control’ and the ‘support’ function of the evaluations, quantitative and qualitative assessments, distributed or centralised evaluations, single or multi-stage evaluations.

Keywords: Assessment, Bibliometric, Evaluation, Function, Obligation, Qualitative, Questionnaires, Research, Research Evaluation

Smith, W.A. (1995), Evaluating research, technology and development in Canadian industry: Meeting the challenges of industrial innovation. *Scientometrics*, **34** (3), 527-539.

Full Text: [1995\Scientometrics34, 527.pdf](1995/Scientometrics34,%20527.pdf)

Abstract: Canadian firms respond to the challenges and opportunities of global competition by increasing their research productivity and the rate of innovation. The competitive edge for Canadian industry must now be based on a new appreciation of the dynamics of R & D, as well as management practices and strategies which are relevant to the systems which underpin innovation. New R & D and management models are being adopted by firms to cope with the dynamic and complex nature of innovation, the growing importance of transactions and linkages within innovation systems and the range of financial, human, social and environmental factors which now impact on technology assessment and decision-making. Given this new paradigm, evaluation techniques are being created and adopted by Canadian industry which provide them with a greater understanding of the value of their research and enhance the agility of their technology management. But, these developments are not confined to industry. of equal importance is the convergence of evaluation methods used in both industry and governments to assess research and technology. The methods used by industry are now the techniques employed by governments to assess their own R & D and to formulate industrial S & T policies and strategies.

Keywords: Assessment, Competition, Decision Making, Decision-Making, Development, Dynamics, Environmental, Evaluation, Human, Innovation, Management, Methods, Models, Paradigm, Research, Research Productivity, Techniques, Technology, Technology Assessment, Technology Management, Understanding

? Hodges, S., Hodges, B., Meadows, A.J., Beaulieu, M. and Law, D. (1996), The use of an algorithmic approach for the assessment of research quality. *Scientometrics*, **35** (1), 3-13.

Full Text: [1996\Scientometrics35, 3.pdf](1996/Scientometrics35,%203.pdf)

Abstract: Recent years have seen a growing interest in the use of quantitative parameters for assessing the quality of research carried out at universities. In the UK, university departments are now subject to regular investigations of their research standing. As part of these investigations, a considerable amount of quantitative (as well as qualitative) information is collected from each department. This is made available to the panels appointed to assess research quality in each subject area. One question that has been raised is whether the data can be combined in some way to provide an index which can help guide the panels’ deliberations. This question is looked at here via a detailed examination of the returns from four universities for the most recent (1992) research assessment exercise. The results suggest that attempts to derive an algorithm are only likely to be helpful for a limited range of subjects.

Notes: UUniversity

Melin, G. (1996), The networking university: A study of a Swedish university using institutional co-authorships as an indicator. *Scientometrics*, **35** (1), 15-31.

Full Text: [1996\Scientometrics35, 15.pdf](1996/Scientometrics35,%2015.pdf)

Abstract: This article examines the subject of research collaboration, and elaborates on this subject on an institutional rather than an individual level. An empirical case-study is presented; the research collaboration of Umeå University in Sweden, during the period 1991-1993 is investigated. Institutional co-authorships based on the addresses of the departments are used as an indicator of this collaboration. The results are separated into three levels: the local level, the national level, and the international level. It is obvious that the research collaboration is most extensive. Finally the university’s collaboration is discussed and a scheme is proposed with the purpose to understand research collaboration in a social as well as a cognitive context. The guiding terms here are access, visibility and attractiveness.

? Leta, J. and De Meis, L. (1996), A profile of science in Brazil. *Scientometrics*, **35** (1), 33-44.

Full Text: [1996\Scientometrics35, 33.pdf](1996/Scientometrics35,%2033.pdf)

Abstract: the Brazilian contribution to publications in science and humanities increased from 0.29% of the worldwide total in 1981 to 0.46% in 1993. In science, but not in humanities, Brazilian publications tend to follow the world publication trend; thus, during the period 1981-1993, 57.9% of Brazilian publications were in life sciences, 35.4% in exact sciences, 3.9% in earth sciences and 2.9% in humanities. The ten institutions with the largest number of publications are universities, which account for half of the all Brazilian publications. The total number of authors on the Brazilian 1981-1993 publications was 52,808. Among these 57.8% appear in only one publication and 17.5% have their publications cited more than 10 times.

Keywords: Biochemists

Notes: UUniversity

Davis, G. and Royle, P. (1996), A comparison of Australian university output using journal impact factors. *Scientometrics*, **35** (1), 45-58.

Full Text: [1996\Scientometrics35, 45.pdf](1996/Scientometrics35,%2045.pdf)

Abstract: We weighted the output of SCI items from Australian universities using journal impact factors. This provides us with an accessible quality indicator of science journal publishing, and allow us to scale for institutional size in terms of output and research staff. Use of this indicator for the 20 pre-1987 Australian universities demonstrates that although some universities rank highly on output, when scaled for institutional size they are overtaken by some of the smaller, more recently established universities.

Notes: TTopic

Rodríguez, K. and Moreiro, J.A. (1996), The growth and development of research in the field of ecology as measured by dissertation title analysis. *Scientometrics*, **35** (1), 59-70.

Full Text: [1996\Scientometrics35, 59.pdf](1996/Scientometrics35,%2059.pdf)

Abstract: This study assesses the growth, the patterns of development and the complexity of research in the field of ecology from 1976 to 1993 in Spain and the five Spanish speaking countries of the Caribbean. Using as a yardstick of research and development in that field, the dissertation titles were counted for each region. The total length, the key words per title were recorded and analysed statistically. Results show that the growth of research in ecology is greater in Spain and peaked earlier than in the Caribbean countries. However, the titles in the latter region were more complex than those in Spain.

? Urban, D. (1996), Quantitative measurement of public opinions on new technologies - An application of SEM-methodology to the analysis of beliefs and values toward new human applications of genetic engineering. *Scientometrics*, **35** (1), 71-92.

Full Text: [1996\Scientometrics35, 71.pdf](1996/Scientometrics35,%2071.pdf)

Abstract: the article presents the methodology of structural equation modeling (SEM) to study social perceptions of new technologies. It argues that the SEM-methodology offers a better statistical approach for the analysis of technology-related attitudes than the techniques most often applied in the field of public opinion research. SEM eliminates, compensates for, or at least reduces many problems raised by common surveying practices researching attitudes on new technologies. In particular, SEM-methodology reduces difficulties of testing the validity and reliability of measuring instruments when those are applied to vague and weakly established opinions on new technologies. To demonstrate these advantages of SEM the research presented here concentrates on the cognitive formation of public attitudes toward the particular gene technologies of prenatal genetic testing (pGT) and prenatal genetic engineering (pGE). The study explores whether a statistical analysis of various opinions on these technologies can reveal a set of underlying, structured attitudes, and if so, whether these attitudes form an entire syndrome or are differentiated into several distinct, coherent complexes.

Magri, M.H. and Solari, A. (1996), The SCI journal citation reports: A potential tool for studying journals? I. Description of the JCR journal population based on the number of citations received, number of source items, impact factor, immediacy index and cited half-life. *Scientometrics*, **35** (1), 93-117.

Full Text: [1996\Scientometrics35, 93.pdf](1996/Scientometrics35,%2093.pdf)

Abstract: In this paper, we analysed six indicators of the SCI Journal Citation Reports (JCR) over a 19-year period: number of total citations, number of citations to the two previous years, number of source items, impact factor, immediacy index and cited half-life. The JCR seems to have become more or less an authority for evaluating scientific and technical journals, essentially through its impact factor. However it is difficult to find one’s way about in the impressive mass of quantitative data that JCR provides each year. We proposed the box plot method to aggregate the values of each indicator so as to obtain, at a glance, portrayals of the JCR population from 1974 to 1993. These images reflected the distribution of the journals into 4 groups designated low, central, high and extreme. The limits of the groups became a reference system with which, for example, it was rapidly possible to situate visually a given journal within the overall JCR population. Moreover, the box plot method, which gives a zoom effect, made it possible to visualize a large sub-population of the JCR usually overshadowed by the journals at the top of the rankings. These top level journals implicitly play the role of reference in evaluation processes. This often incites categorical judgements when the journals to be evaluated are not part of the top level. Our ‘rereading’ of the JCR, which presented the JCR product differently, made it possible to qualify these judgements and bring a new light on journals.

Schwartz, S. and Hellin, J.L. (1996), Measuring the impact of scientific publications. The case of the biomedical sciences. *Scientometrics*, **35** (1), 119-132.

Full Text: [1996\Scientometrics35, 119.pdf](1996/Scientometrics35,%20119.pdf)

Abstract: the bibliometric indicators currently used to assess scientific production have a serious flaw: a notable bias is produced when different subfields are compared. In this paper we demonstrate the existence of this bias using the impact factor (IF) indicator. The impact factor is related to the quality of a published article, but only when each specific subfield is taken separately: only 15.6% of the subfields we studied were found to have homogeneous means. The bias involved can be very misleading when bibliometric estimators are used as a basis for assigning research funds. To improve this situation, we propose a new estimator, the RPU, based on a normalization of the impact factor that minimizes bias and permits comparison among subfields. The RPU of a journal is calculated with the formula: RPU = 10(1-exp (-IF/x)), where IF is the impact factor of the journal and x the mean IF for the subfield in which the journal belongs. The RPU retains the advantages of the impact factor: simplicity of calculation, immediacy and objectivity, and increases homogeneous subfields from 15.6% to 93.7%.

Notes: CCountry

Katz, J.S. and Hicks, D.M. (1996), A systemic view of British science. *Scientometrics*, **35** (1), 133-154.

Full Text: [1996\Scientometrics35, 133.pdf](1996/Scientometrics35,%20133.pdf)

Abstract: Systemic analyses of national research systems are now within the reach of bibliometricians. By systemic we mean comprehensive, time series, institutionally based, sectoral level analyses of national research output. This paper describes such an analysis for the UK, a system comprising 8% of world scientific output. The paper analyses publishing size and the number of publishing institutions for each sector. Then each sector’s intra-sectoral, inter-sectoral and international collaboration is assessed. The paper then examines the data by field, looking at sector publishing profiles across fields, and at how the collaborative patterns vary between fields. It concludes with a summary profile of each institutional sector.

Keywords: Collaboration, Publishing, Research, Science

Schubert, A. (1996), Acientometrics: A citation based bibliography, 1990. *Scientometrics*, **35** (1), 155-163.

Full Text: [1996\Scientometrics35, 155.pdf](1996/Scientometrics35,%20155.pdf)

? Merton, R.K. (1996), Untitled. *Scientometrics*, **35** (2), U3.

Full Text: Scientometrics35, U3.pdf

? Glänzel, W., Katz, S., Moed, H. and Schoepflin, U. (1996), Proceedings of the Workshop on ‘Bibliometric Standards’ Rosary College, River Forest, Illinois (USA) Sunday, June 11, 1995. *Scientometrics*, **35** (2), 165-166.

Full Text: [1996\Scientometrics35, 165.pdf](1996/Scientometrics35,%20165.pdf)

Keywords: Illinois, USA

Glänzel, W. (1996), The need for standards in bibliometric research and technology. *Scientometrics*, **35** (2), 167-176.

Full Text: [1996\Scientometrics35, 167.pdf](1996/Scientometrics35,%20167.pdf)

Abstract: the need for standardisation in bibliometric research and technology is discussed in the context of failing communication within the scientific community, the unsatisfactory impact of bibliometric research outside the community and the observed incompatibility of bibliometric indicators produced by different institutes. The development of bibliometric standards is necessary to improve the reliability of bibliometric results, to guarantee the validity of bibliometric methods and to make bibliometric data compatible. Both conceptual and technical questions are raised. Consequences of lacking standards are illustrated by typical examples. Finally, particular topics of standardisation are proposed based on experiences made at ISSRU.

Keywords: Bibliometric, Bibliometric Indicators, Bibliometric Methods, Bibliometric Research, Communication, Community, Development, Indicators, Methods, Reliability, Research, Standards, Technology, Validity

Moed, H.F. (1996), Differences in the construction of SCI based bibliometric indicators among various producers: A first overview. *Scientometrics*, **35** (2), 177-191.

Full Text: [1996\Scientometrics35, 177.pdf](1996/Scientometrics35,%20177.pdf)

Abstract: This contribution discusses basic technical-methodological issues with respect to data collection and the construction of bibliometric indicators, particularly at the macro or meso level. It focusses on the use of the Science Citation Index. Its aim is to highlight important decisions that have to be made in the process of data collection and the construction of bibliometric indicators. It illustrates differences in the methodologies applied by several important producers of bibliometric indicators: the Institute for Scientific Information (ISI); CHI Research, Inc. The Information Science and Scientometrics Research Unit (ISSRU) at Budapest; and the Centre for Science and Technology Studies at Leiden University (CWTS). The observations made in this paper illustrate the complexity of the process of ‘standardisation’ of bibliometric indicators. Moreover, they provide possible explanations for divergence of results obtained in different studies. The paper concludes with a few general comments related to the need of ‘standardisation’ in the field of bibliometrics.

Keywords: Basic Research, Bibliometric, Bibliometric Indicators, Bibliometrics, Citation, Complexity, First, Indicators, Institute for Scientific Information, ISI, SCI, Science Citation Index, Scientometrics

Katz, J.S. (1996), Bibliometric standards: Personal experience and lessons learned. *Scientometrics*, **35** (2), 193-197.

Full Text: [1996\Scientometrics35, 193.pdf](1996/Scientometrics35,%20193.pdf)

Abstract: Bibliometric standards are essential for comparative research. However, these standards can not be set by committee but must evolve through an on-going debate. Perhaps, the Scientometric community needs a refereed forum more dedicated to methodological issues than policy matters in which the standards debate can proceed in a focused and professional manner.

Keywords: Community, Needs, Policy, Research, Standards

Notes: CCountry

Bourke, P. and Butler, L. (1996), Standards issues in a national bibliometric database: the Australian case. *Scientometrics*, **35** (2), 199-207.

Full Text: [1996\Scientometrics35, 199.pdf](1996/Scientometrics35,%20199.pdf)

Abstract: In recent years researchers in the Performance Indicators Project at the Australian National University have undertaken a number of projects involving collaboration with colleagues in England or attempts to replicate results obtained by others. All projects have necessitated close scrutiny of the methodologies previously used or to be used and have made clear the urgent need for comparable standards. In this paper we have focused on two projects: one, an analysis of Australia’s shares of publications and citations, where we sought to learn from the debate on methodology that surrounded the question of decline in British science; the second, an analysis of astronomy publications in Australia where we sought to replicate methodology used in a previous European study.

Keywords: Analysis, Australia, Bibliometric, Citations, Collaboration, Database, England, Methodology, Publications, Science, Standards

Zitt, M. and Teixeira, N. (1996), Science macro-indicators: Some aspects of OST experience. *Scientometrics*, **35** (2), 209-222.

Full Text: [1996\Scientometrics35, 209.pdf](1996/Scientometrics35,%20209.pdf)

Abstract: We report OST experience on macro-indicators producing, especially on academic science and ISI sources. This task requires a combination of organizational choices for data handling and processing, and of bibliometric choices for a selection of indicators appropriate to the missions. Both aspects are briefly studied: the OST database, which also contains non-bibliometric datasets, is organized on the relational principle (RDBMS). Bibliometric indicators selected are classical ones, with a stress on overall coherence. In conclusion, standardization issue is briefly discussed. Standardization may not be desirable at the same extent for different targets (data, nomenclatures, indicators, procedures, etc.) and must not hinder further research. Natural process of communication and explicitation may also lead to fruitful convergences, without freezing supposed ‘best ways’.

Keywords: Bibliometric, Bibliometric Assessment, Communication, Database, Indicators, ISI, Journals, Lead, Procedures, Research, Science, Set, Stress, UK Scientific Performance

? Gomez, I., Bordons, M., Fernandez, M.T. and Mendez, A. (1996), Coping with the problem of subject classification diversity. *Scientometrics*, **35** (2), 223-235.

Full Text: [1996\Scientometrics35, 223.pdf](1996/Scientometrics35,%20223.pdf)

Abstract: the delimitation of a research field in bibliometric studies presents the problem of the diversity of subject classifications used in the sources of input and output data. Classification of documents according to thematic codes or keywords is the most accurate method, mainly used in specialised bibliographic or patent databases. Classification of journals in disciplines presents lower specificity, and some shortcomings as the change over time of both journals and disciplines and the increasing interdisciplinarity of research. Differences in the criteria in which input and output data classifications are based obliges to aggregate data in order to match them. Standardization of subject classifications emerges as an important point in bibliometric studies in order to allow international comparisons, although flexibility is needed to meet the needs of local studies.

Keywords: Bibliometric, Bibliometric Analysis, Bibliometric Studies, Classification, Criteria, Flexibility, Interdisciplinarity, International, ISI, Journals, Needs, Patent, Publications, Research, SCI 1984-89, Spanish Pharmacologists

? Vinkler, P. (1996), Some practical aspects of the standardization of scientometric indicators. *Scientometrics*, **35** (2), 237-245.

Full Text: [1996\Scientometrics35, 237.pdf](1996/Scientometrics35,%20237.pdf)

Abstract: In the present stage of Scientometrics indicators published are mostly incomparable, which fact impedes the development of the field and makes the users of scientometric results mistrustful. Consequently, standardization of data, methods, indicators and their presentation is urgently needed. for instance, the time periods applied should be standardized across fields and subfields in calculating citation and publication indicators.

Keywords: Citation, Development, Indicators, Methods, Publication, Scientometric, Scientometrics

Arvanitis, R., Russell, J.M. and Rosas, A.Ma. (1996), Experiences with the national citation reports database for measuring national performance: the case of Mexico. *Scientometrics*, **35** (2), 247-255.

Full Text: [1996\Scientometrics35, 247.pdf](1996/Scientometrics35,%20247.pdf)

Abstract: the National Citation Report (NCR) is an integrated citation file supplied by the Institute for Scientific Information (ISI), of an individual country’s articles in science and social sciences. Our experience with the NCR database for Mexico suggests that this is an important addition to the tools available for carrying out bibliometric analysis of research performance. However, in order to generate reliable and accurate indicators using these datafiles we recommend that these be handled by specialists well acquainted with the ISI information products and with the scientific setup of the country concerned.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Citation, Database, Indicators, Information, Institute for Scientific Information, ISI, Mexico, Research, Research Performance, Science, Sciences, Social Sciences

? McGrath, W.E. (1996), The unit of analysis (objects of study) in bibliometrics and scientometrics. *Scientometrics*, **35** (2), 257-264.

Full Text: [1996\Scientometrics35, 257.pdf](1996/Scientometrics35,%20257.pdf)

Abstract: Slow development of bibliometric theory may be due in part to neglect of the unit of analysis - the objects described by variables and about which inferences are made. Problems include: inferences are often made on units other than those sampled, leading to inappropriate conclusions; units in literature reviews and meta-analysis are often not comparable, thus hindering cumulation of knowledge; confusion when names of sampling units in one study might also be the names of variables in other studies - e.g., no. of citations (variable) to papers (sampling unit) and no. of papers (variable) in journals (sampling unit); loss of information about the unit of analysis, means and variances when data are aggregated. If theory is to advance, scientometrics needs a generic definition of the unit of analysis, a complete list of all known units - classified and structured, meta-analyses, reporting standards - especially when data are aggregated, clear indications of data level (nominal, ordinal, interval, ratio), conventions for including units in titles, abstracts and keyword or subject indexes.

Keywords: Analysis, Bibliometric, Bibliometrics, Citations, Development, Indications, Information, Journals, Knowledge, Literature, Meta-Analysis, Needs, Neglect, Papers, Reporting, Scientometrics, Standards, Theory

Rao, I.K.R. (1996), Methodological and conceptual questions of bibliometric standards. *Scientometrics*, **35** (2), 265-270.

Full Text: [1996\Scientometrics35, 265.pdf](1996/Scientometrics35,%20265.pdf)

Abstract: Bibliometric studies are mostly empirical nature and they are mostly centred arround presentation of facts and data. There are very few studies which are centred arround theoretical foundation. The facts are gathered either through surveys or from published bibliographies, indexes, data bases. Based on these facts, empirical models and principles are being developed. The normative principles and standards have to evolve from the logical analyses of the empirical models. The stage is set to integrate empirical models of bibliometrics into standards. Future, bibliometric studies have to address this issue and reach the stage of normative principles.

Keywords: Bibliographies, Bibliometric, Bibliometric Studies, Bibliometrics, Models, Principles, Standards

Lazarev, V.S. (1996), On Chaos in bibliometric terminology. *Scientometrics*, **35** (2), 271-277.

Full Text: [1996\Scientometrics35, 271.pdf](1996/Scientometrics35,%20271.pdf)

Abstract: On behalf of a case study of articles on bibliometric selection and ranking the variance in terminology of the properties of journals is shown: the same properties are called in various manners, while one and the same terms have different meanings. Similar inconsistencies are found in the terms denoting readers’ activities which are studied in bibliometrics for the assessment of the use of periodicals. The author concludes that there are actually only two properties of periodicals that are quantitatively assessed, viz. ‘productivity’ and ‘value’. Their definitions are suggested for terminology standardization of general properties of journals and of readers’ activities.

Keywords: Assessment, Bibliometric, Bibliometrics, Case Study, Chaos, Journals, Periodicals, Ranking, Terminology

? Aguillo, I.F. (1996), Increasing the between-year stability of the impact factor in the science citation index. *Scientometrics*, **35** (2), 279-282.

Full Text: [1996\Scientometrics35, 279.pdf](1996/Scientometrics35,%20279.pdf)

Abstract: the critical evaluation of scientific productivity during last years has been done with the help of the Journal Citation Reports ranks of journals. The relative performance of each journal was derived from a simple calculation called Impact Factor. Such measure has been widely criticized by scientometricians, but alternative proposals were never adopted due perhaps to their complexity, but also to economic limitations. for the informetric purposes this situation has led to a worrying lack of standardization and, worst of all, makes useless many studies for comparative purposes. In order to enhance the comparative value of the impact factor we develop a new easy method that increases the time period used for its calculation. Such new index has advantages over the old one.

Keywords: Alternative, Citation, Complexity, Evaluation, Impact Factor, Journal, Journal Citation Reports, Journals, Science, Science Citation Index, Stability

? Marshakova Shaikevich, I. (1996), The standard impact factor as an evaluation tool of science fields and scientific journals. *Scientometrics*, **35** (2), 283-290.

Full Text: [1996\Scientometrics35, 283.pdf](1996/Scientometrics35,%20283.pdf)

Abstract: the standard impact factor for particular fields of science (Ig) and the relative impact factor K for scientific journals are introduced. The technique of calculation of standard impact factor (Ig) for a field is an inherent part of a method which allows a cross-field evaluation of scientific journals. This method for evaluating scientific journals elaborated in 1988 was aimed at the analysis of Russian journals covered by the SCI database, it was also used for chemical journals (more that 300) and for journals in the Life sciences (more than 1000). The results are discussed.

Keywords: Analysis, Database, Evaluation, Impact Factor, Journals, SCI, Science, Sciences, Scientific Journals, Standard, the SCI Database

Notes: CCountry

Glänzel, W. (1996), A bibliometric approach to social sciences. National research performances in 6 selected social science areas, 1990-1992. *Scientometrics*, **35** (3), 291-307.

Full Text: [1996\Scientometrics35, 291.pdf](1996/Scientometrics35,%20291.pdf)

Abstract: the Brazilian scientific production and its international impact increased considerably in the last 10 years. This increase occurred in spite of a reduction in the resources for science in the same period. The data show that the explanation for this apparent paradox lies in the active process of international and national collaboration which increased in this same period. Collaborative work was supported by several programs of the Brazilian agencies. Advantages and possible drawbacks of the intensification of scientific collaboration for the Brazilian science are discussed.

? Nieminen, P. (1996), Type of empirical research reports, as an explanatory factor in citation performance of psychiatric research. *Scientometrics*, **35** (3), 309-320.

Full Text: [1996\Scientometrics35, 309.pdf](1996/Scientometrics35,%20309.pdf)

Abstract: In all fields of human sciences there has long been a debate whether research of these fields should closely follow the traditional method with accurate measurements and statistical inference. More qualitative approaches have been proposed, by which is ment that the research aim is to use the data in their qualitative form. The purpose of this study was to describe the differences in citations between qualitative and quantitative empirical reports. A total of 262 published reports of research pertaining to the therapeutic community and psychiatric wards in a variety of treatment settings from 1987 to 1992 were analyzed. The main finding of this study was that quantitative reports were mon frequently cited than qualitative ones - also when some confounding factors were controlled.

Keywords: Citation, Citations, Confounding, Differences, Human, Qualitative, Qualitative Approaches, Quantitative, Research, Sciences, Statistical, Traditional, Treatment

? Berg, J. and Wagner-Döbler, R. (1996), A multidimensional analysis of scientific dynamics. Part I. Case studies of mathematical logic in the 20th century. *Scientometrics*, **35** (3), 321-346.

Full Text: [1996\Scientometrics35, 321.pdf](1996/Scientometrics35,%20321.pdf)

Abstract: Sequences of empirical Lotka-like distributions of the publications of scientific areas are mapped into a multidimensional parameter space. On this basis a new definition of the notion of an epidemic phase of a discipline is introduced. A graphic representation of the parameter space along with results of an exponential regression analysis of the Lotka exponent yield an image of the inner state of a discipline and renders possible a prognosis. Examples, primarily from mathematical logic, are described in detail. The notion of a scientific elite is discussed and the hypotheses of Ortega, Merton, and Price are critically assessed.

Keywords: Analysis, Law, Prognosis, Publications, Regression Analysis

? Breimer, L.H. and Breimer, D.D. (1996), The CED Le DEC: Common European doctorate, or doctorate Europeen commune or dissertations on the Internet. *Scientometrics*, **35** (3), 347-353.

Full Text: [1996\Scientometrics35, 347.pdf](1996/Scientometrics35,%20347.pdf)

Abstract: An international electronic thesis system is proposed to provide ready access to doctoral dissertations and ensure uniform standards. To establish common criteria, the publication-based Dutch doctoral degree system was assessed and compared with studies of other national systems. Current Dutch doctoral theses in biomedical fields were of a high standard. 93% of theses were based on published work. The median number of papers per thesis was four, with five authors per paper. The candidate was the key author on 84%. Representative journals of publication ranked in the top quartile of the Science Citation Index with a median rank of 241.

Keywords: Author, Authors, Biomedical, Citation, Dissertations, Doctoral Theses, Internet, Journals, Papers, Publication, Science, Science Citation Index, Standards, Thesis, Universities

? Seglen, P.O. (1996), Quantification of scientific article contents. *Scientometrics*, **35** (3), 355-366.

Full Text: [1996\Scientometrics35, 355.pdf](1996/Scientometrics35,%20355.pdf)

Abstract: the information contents of 143 biomedical journal articles were quantified by standardized criteria, emphasizing quantitative measurements and estimated labour investments. A hundredfold variability in article information contents was uncovered, producing a Poisson distribution with a median (peak) value at about one-half of the sample mean. Two-thirds of the articles thus had information contents below the average scientific article, testifying to the somewhat excessive fragmentation of the primary scientific literature: the information contents of an article depended on three different factors: (1) the number of pages, which rarely exceeded an upper limit corresponding to the standard article format (7-8 pages); (2) the number of figures plus tables per page, which similarly reached saturation at the standard format value (one per page); (3) the density of information packaging within each figure and table, for which no upper limit was observed. The latter factor could, therefore, account for virtually all information contents in excess of the standard article format. Differences in the information density of figures and tables were apparently not perceived by a peer reviewer, who tended to overestimate low-contents articles and underestimate high-contents articles. Furthermore, a model evaluation of the article authors indicated that evaluation by contents quantification and by straight article counting might give different results. Since neither peer review nor publication counts could satisfactorily detect differences in the information contents of scientific articles, objective contents quantification would seem to be required for an exact and fair evaluation of scientific productivity.

Keywords: Biomedical, Criteria, Evaluation, Information, Journal, Journal Articles, Less, Literature, Model, Packaging, Peer Review, Peer-Review, Primary, Publication, Publication Counts, Quality, Review, Saturation, Standard, Variability

Notes: CCountry

Meneghini, R. (1996), The key role of collaborative work in the growth of Brazilian science in the last ten years. *Scientometrics*, **35** (3), 367-373.

Full Text: [1996\Scientometrics35, 367.pdf](1996/Scientometrics35,%20367.pdf)

Abstract: the Brazilian scientific production and its international impact increased considerably in the last 10 years. This increase occurred in spite of a reduction in the resources for science in the same period. The data show that the explanation for this apparent paradox lies in the active process of international and national collaboration which increased in this same period. Collaborative work was supported by several programs of the Brazilian agencies. Advantages and possible drawbacks of the intensification of scientific collaboration for the Brazilian science are discussed.

Keywords: Collaboration, Explanation, Growth, International, Reduction, Science, Scientific Collaboration, Scientific Production, Work

Vinkler, P. (1996), Relationships between the rate of scientific development and citations. The chance for citedness model. *Scientometrics*, **35** (3), 375-386.

Full Text: [1996\Scientometrics35, 375.pdf](1996/Scientometrics35,%20375.pdf)

Abstract: Chances for information to be cited (CC) depend on disciplines and topics because of different publication and referencing practices. However, the developmental rate of knowledge strongly influences CC as well. By a simple model it has been concluded that CC are the greater the faster the publication rate.

Keywords: Citations, Development, Information, Knowledge, Model, Publication, Referencing, Subfields

Notes: CCountry

Winclawska, B.M. (1996), Polish sociology citation index (principles for creation and the first results). *Scientometrics*, **35** (3), 387-391.

Full Text: [1996\Scientometrics35, 387.pdf](1996/Scientometrics35,%20387.pdf)

Abstract: the author discusses inefficiencies of Garfield’s *Social Sciences Citation Index* to measure quality of a discipline in a national context. She proposes an alternative measurement tool to the Garfield’s index. The example of sociology was selected; an index of Polish sociology was created and data from it was compared with data retrieved from the SSCI. The two sets were compared to show greater ‘sensitivity’ of the locally created index.

Keywords: Alternative, Citation, Context, Data, First, Index, Measure, Measurement, Principles, Quality, Quality of, Sociology, SSCI

? Schubert, A. (1996), Scientometrics: A citation based bibliography, 1991. *Scientometrics*, **35** (3), 393-399

Full Text: [1996\Scientometrics35, 393.pdf](1996/Scientometrics35,%20393.pdf)

Keywords: Citation, Scientometrics

? Liang, L.M., Zhao, H.Z., Wang, Y. and Wu, Y.S. (1996), Distribution of major scientific and technological achievements in terms of age group - Weibull distribution. *Scientometrics*, **36** (1), 3-18.

Full Text: [1996\Scientometrics36, 3.pdf](1996/Scientometrics36,%203.pdf)

Abstract: A statistical analysis is made of two data sets and it is found that the distribution of major scientific and technological achievements in terms of the age of those achievement makers is Weibull distribution. Pearson’s chi(2) test results are satisfactory. This finding holds for different centuries, different nations and different disciplines.

Keywords: Achievement, Analysis, Statistical

? Gupta, B.M. and Karisiddappa, C.R. (1996), Author productivity patterns in theoretical population genetics (1900-1980). *Scientometrics*, **36** (1), 19-41.

Full Text: [1996\Scientometrics36, 19.pdf](1996/Scientometrics36,%2019.pdf)

Abstract: Focuses on the validity of Lotka’s law and the negative binomial distribution model to author productivity data in different time periods in theoretical population genetics speciality. Finds out if there is any relation between applicability of a statistical distribution and the development of speciality. Looks at the linkages between inequality/concentration measures and the development of speciality. Explores the relevance and applicability of the two generalisations, namely Price Square Root Law and 80/20 Rule to the author productivity data and their relation with development of theoretical population genetics. Finally, a study of the growth of practitioners in the field with different productivity levels is conducted, and the emergence of core authors in the speciality is explored.

Keywords: Author, Authors, Development, Distributions, Genetics, Growth, Law, Lotka’s Law, Lotkas Law, Model, Nigeria, Population Genetics, Productivity, Productivity Patterns, Science, Statistical, Statistical Distribution, Validity

Dickenson, R.P. (1996), The level of research in advanced composite materials in the countries of the former Soviet Union. *Scientometrics*, **36** (1), 43-57.

Full Text: [1996\Scientometrics36, 43.pdf](1996/Scientometrics36,%2043.pdf)

Abstract: the advanced materials studied were those composites based on ceramic, boron, carbon and aramid fibres. Research level was quantified by a bibliometric analysis of publications, including a study of citations, an analysis of patents, a professional assessment of Soviet work by reviewing the open literature and by discussing with scientists and engineers in the former Soviet Union. The conclusion drawn was that the level of research in the former USSR did not match that in the West. There were, however, several niche areas were the level of research was comparable or in advance of the West, notably aramid fibres.

Keywords: Bibliometric, Bibliometric Analysis, Citations, Literature, Patents, Research, Science

Notes: CCountry

Godin, B. and Ippersiel, M.P. (1996), Scientific collaboration at the regional level: the case of a small country. *Scientometrics*, **36** (1), 59-68.

Full Text: [1996\Scientometrics36, 59.pdf](1996/Scientometrics36,%2059.pdf)

Abstract: Despite the various studies on international collaboration, we still know very little about other forms of scientific collaboration. The present paper looks at collaboration at a national level, more particularly between regions in a country. It is found that regional collaboration is very limited. In fact, international collaboration is three times more important than regional collaboration. This can be explained by the fact that the competition center in science is international rather than national.

? Kundra, R. (1996), Investigation of collaborative research trends in Indian medical sciences: 1900-1945. *Scientometrics*, **36** (1), 69-80.

Full Text: [1996\Scientometrics36, 69.pdf](1996/Scientometrics36,%2069.pdf)

Abstract: the decade beginning 1925 is important in the history of medical science in modern India. This is evident from the bibliometric study of the publications in the Indian Medical Gazette, from 1900 to 1945. The paper studies the evolution of collaboration in the field of medical sciences during this period. In order to do so the study determines the: (i) pattern of collaboration in basic and applied research in medical science; (ii) trends in the multiplicity of authors; and (iii) the type of collaboration for the period 1900-1945. The collaborative and authorship trends discussed in the paper suggests that medical science was still in the developing stage in India in the period 1900-1945, and there was a possibility of its expansion in the near future.

Keywords: Authors, Authorship, Bibliometric, Bibliometric Study, Collaboration, Evolution, History, India, Medical, Publications, Research, Research Trends, Science, Sciences, Scientific Co-Authorship, Trends

? Jiménez-Contreras, E. and FerreiroAláez, L. (1996), Publishing abroad: Fair trade or short sell for non-English-speaking authors? A Spanish study. *Scientometrics*, **36** (1), 81-95.

Full Text: [1996\Scientometrics36, 81.pdf](1996/Scientometrics36,%2081.pdf)

Abstract: We investigated the integration into the international scientific literature of articles published by researchers at the University of Granada (Spain) between 1976 and 1987, in journals published outside of Spain. The Science Citation Index was used to measure integration, and the articles were classified for comparison into eight fields (clinical medicine, experimental medicine, geology, chemistry, physics, biology, pharmaceutical science and mathematics). The minimum criterion for integration was considered fulfilled when the size of the two communities of citing authors considered (Spanish and non-Spanish) was equal, i.e., when the absolute number of citations in both communities was equal. On the basis of this criterion, articles in clinical medicine and experimental medicine were found to be integrated into the international literature. The regression lines for the number of citations per year in each field in the two communities of citing authors were parallel, indicating that integration of Spanish publications in these two fields was stationary. of the fields found not to be integrated, the lines for pharmaceutical science citations in the two communities indicated little sign of future change in the proportion of Spanish to non-Spanish citations. Citations in the remaining five fields indicated a steady decrease in integration. We introduce the concept of the “drag effect” of national citations on citation indices in the international literature: a sharp increase in the number of Spanish articles published in non-Spanish journals may exceed the capacity of the international community to “absorb”, understand and cite these new publications.

Keywords: Articles, Authors, Biology, Capacity, Citation, Citation Indices, Citations, Clinical Medicine, Experimental, Integration, Journals, Literature, Medicine, Publications, Publishing, Researchers, Science, Science Citation Index, Scientific Literature, Spain, University

? Egghe, L. and Rousseau, R. (1996), Average and global impact of a set of journals. *Scientometrics*, **36** (1), 97-107.

Full Text: [1996\Scientometrics36, 97.pdf](1996/Scientometrics36,%2097.pdf)

Abstract: In this note we clarify some notions concerning citations, publications, and their quotients: impact and indifference (a measure of invisibility, introduced in this article). In particular, we show that the slope of the regression line of the impact as a function of the number of publications is positive if and only if the global impact, i.e. The impact of the set of all journals under consideration, is larger than the average impact of all journals.

Keywords: Citations, Impact, Journals, Publications

? Rajeswari, A.R. (1996), Indian patents statistics - An analysis. *Scientometrics*, **36** (1), 109-130.

Full Text: [1996\Scientometrics36, 109.pdf](1996/Scientometrics36,%20109.pdf)

Keywords: Analysis, Statistics

Schubert, A. (1996), Scientometrics: A citation based bibliography, 1992. *Scientometrics*, **36** (1), 131-140.

Full Text: [1996\Scientometrics36, 131.pdf](1996/Scientometrics36,%20131.pdf)

? Gabolde, I. (1996), First international conference on the evaluation of research technology and development - 26, 27 & 28 April 1995, Thessaloniki, Greece - Opening address (vol 34, pg 317, 1995). *Scientometrics*, **36** (1), 143.

Full Text: [1996\Scientometrics36, 143.pdf](1996/Scientometrics36,%20143.pdf)

Keywords: Development, Evaluation, Greece, Research, Technology

Notes: CCountry

? Braun, T. and Schubert, A. (1996), Indicators of research output in the sciences from 5 central European countries, 1990-1994. *Scientometrics*, **36** (2), 145-165.

Full Text: [1996\Scientometrics36, 145.pdf](1996/Scientometrics36,%20145.pdf)

Keywords: Countries, Datafiles, Indicators, Research, Research Output, Sciences

? deLooze, M.A., Coronini, R., Legentil, M., Jeannin, P. and Magri, M.H. (1996), Determining the core of journals of a research centre: the example of researchers from the department of rural economy and sociology of the Institut National de la Recherche Agronomique, France. *Scientometrics*, **36** (2), 167-183.

Full Text: [1996\Scientometrics36, 167.pdf](1996/Scientometrics36,%20167.pdf)

Abstract: This paper analyses the determination of visibility of journals in which researchers of INRA (National Institute for Agricultural Research) publish. The corpus is comprised of 671 articles published over a period of four years in 258 journals. The advantage of the method applied for determining the visibility of journals is that it combines two approaches: a) bibliometric indicators (coverage by the ISI-publications and by two specific French databases) and b) experts’ opinions (10 economists and sociologists). The main results are: a) There is a convergence between the opinion of the experts and visibility, in the databases, b) the impact factor confirms the main opinions of the experts. The first journals ranked by the experts and JCR Social Sciences are the same but represent only 40 per cent of the total journals analysed. The other journals were revealed by the experts and French databases. “Whoever seeks to pass a balanced but lucid judgement on the general trends of the activity carried out by the profession to which he belongs, is liable to say either banalities or to hurt his colleagues”.

Keywords: Articles, Bibliometric, Bibliometric Indicators, Coverage, Databases, France, French, Humanities, Impact, Impact Factor, Indicators, JCR, Journals, Performance, Research, Researchers, Sciences, Social Sciences, Sociologists, Sociology, Trends, Visibility

? Prpic, K. (1996), Characteristics and determinants of eminent scientists’ productivity. *Scientometrics*, **36** (2), 185-206.

Full Text: [1996\Scientometrics36, 185.pdf](1996/Scientometrics36,%20185.pdf)

Abstract: the empirical research on the sample of 385 eminent Croatian scientists was carried out in order to explore the patterns and factors of their scientific productivity. The study design made it possible to compare the results with those obtained in the 1990 survey on a sample of the research population. The average scientific productivity of eminent researchers is not only several times larger but also shows a more intensive scientific collaboration and orientation towards the international scientific arena, the most important predictors of the elite’s productivity are also qualificational and organizational variables but of a more selective nature. By including the eminent scientists’ gatekeeping roles, the explanation of their total, co-authored and foreign publications can be improved.

Keywords: Characteristics, Citation, Collaboration, Cumulative Advantage, Design, Determinants, Dispute, Ortega Hypothesis, Predictors, Productivity, Publication Productivity, Publications, Research, Researchers, Rise, Science, Scientific Collaboration, Scientific Productivity, Stratification, Survey

? Galante, E. and Sala, C. (1996), R&D evaluation at the Italian National Research Council: the agricultural sector. *Scientometrics*, **36** (2), 207-222.

Full Text: [1996\Scientometrics36, 207.pdf](1996/Scientometrics36,%20207.pdf)

Abstract: the principles and methodology of intra-mural and extra-mural research assessment developed at the Italian National Research Council are critically described. Information is given about the organisation of agricultural research system.

Keywords: Assessment, Evaluation, Methodology, R&D, Research

? Vinkler, P. (1996), Model for quantitative selection of relative scientometric impact indicators. *Scientometrics*, **36** (2), 223-236.

Full Text: [1996\Scientometrics36, 223.pdf](1996/Scientometrics36,%20223.pdf)

Abstract: A model experiment is presented for the quantitative selection of relative scientometric impact indicators used in evaluating the scientific impact, of papers. The Relative Subfield Citedness (R(W)) indicator proved to be the most appropriate according to the criteria chosen. R(W) increases with the number of citations to the papers and, in contrast to other relative impact indicators, does not decrease if an author chooses to publish most of his papers in journals with large impact factors or if most of the citations to his papers are to the ones in journals with the largest impact factors.

Keywords: Citations, Citedness, Criteria, Impact, Impact Factors, Indicators, Journals, Model, Publications, Quantitative, Scientific Impact, Selection, Subfields

? Trimble, V. (1996), Productivity and impact of large optical telescopes. *Scientometrics*, **36** (2), 237-246.

Full Text: [1996\Scientometrics36, 237.pdf](1996/Scientometrics36,%20237.pdf)

Abstract: An attempt is made to provide quantitative measures of the amount of data gathered at large optical telescopes throughout the world and the impact these data have on astronomical research. The data base comprises 1163 papers reporting data from 39 telescopes, published between January 1990 and June 1991, and 4052 citations to them in 1993. Productivity measured in papers per square meter of telescope mirror varies by a factor of six, and impact measured in citations per paper varies by a factor of more than 10. Predictably, high productivity and high impact are associated with telescopes located at good sites and fully supported for many years by organizations with large budgets. Low productivity and low impact are associated with less favorable locations, short periods of operation, and financial stringency. In addition, the most productive telescopes seem to be ones whose users include astronomers from a wide range of geographical locations.

Keywords: Citations, Impact, Low, Papers, Productivity, Quantitative, Research, Sites

Braun, T. and Glänzel, W. (1996), International collaboration: Will it be keeping alive East European research? *Scientometrics*, **36** (2), 247-254.

Full Text: [1996\Scientometrics36, 247.pdf](1996/Scientometrics36,%20247.pdf)

Abstract: International scientific collaboration is very sensitive to political and economic changes in a country or a geopolitical region. Collaboration in research is reflected by die corresponding co-authorship of the published results which can be analysed with the help of bibliometric methods. Based on data from the Science Citation Index (SCI), The change of annual international co-authorship patterns of Bulgaria, Czechoslovakia, Hungary, Poland and Romania have been analysed for die periods 1981-1985 and 1984-1993, respectively. It is shown that international collaboration was not developing similarly in the countries under study. Whilst scientific communities of Hungary and Poland have already been opening in the early 80s, the international collaboration of the other East-European countries was still dominated by COMECON relations till 1989. As expected, since 1990 an increasing scientific collaboration with highly developed countries can be observed in all five countries. At the same time, scientific collaboration with the former communist countries shows a clear decline. The great share of international co-authorship links in some countries reflect various tendencies part of which are interpreted with the help of a cardiologic model.

Keywords: Scientific Collaboration, Sciences

? Breimer, L.H. (1996), Authorship on and Usage of published papers in current Swedish biomedical theses. *Scientometrics*, **36** (2), 255-258.

Full Text: [1996\Scientometrics36, 255.pdf](1996/Scientometrics36,%20255.pdf)

Abstract: Swedish publication-based biomedical doctoral dissertations examined since 1992 were compared with a sample from 1968-92. Theses in either group had an average of four published papers and one submitted manuscript. The average number of authors per paper was four in the 1992+ sample, an increase of one author on the 1968-92. The candidate was first or sole author on 77% of papers indicating that the same paper is not used for several theses. It is proposed that three papers should form the basis of a common European PhD if this is to be completed, including examined, within three years, and four papers if four years.

Keywords: Author, Authors, Authorship, Biomedical, Dissertations, Papers

Notes: CCountry

Uzun, A. (1996), A bibliometric analysis of physics publications from Middle Eastern countries. *Scientometrics*, **36** (2), 259-269.

Full Text: [1996\Scientometrics36, 259.pdf](1996/Scientometrics36,%20259.pdf)

Abstract: I studied the publication efforts in physics in Egypt, Iran, Iraq, Jordan, Saudi Arabia, Syria, and Turkey in terms of a total number of 2368 papers from these countries in international journals for 1990-1994. I looked for the national contributions, main subjects of activity, journal preferences of authors, and co-authorship patterns. Comparisons show that physicists from Egypt and Turkey combined, produced 75% of the total publication output. Half of the Egyptian papers went only to 16% of a set of 115 journals that publish papers from this country. Such a high concentration of papers in a few journals was not the case for the rest of the countries. Condensed matter physics was found to be among the three most active subjects for the countries except Iran. Iranian authors tended to be more active in astrosciences, and nuclear science and technology. I found a change in the publication patterns of the Middle Eastern physicists in the direction of decreasing isolation and increasing collaboration

Keywords: Bibliometric, Bibliometric Analysis, Citation Impact, Collaboration, English, Journal, Journals, Output, Publication, Science, Scientometrics, Trends, Turkey

Schubert, A. (1996), Scientometrics: A citation based bibliography, 1993. *Scientometrics*, **36** (2), 273-280.

Full Text: [1996\Scientometrics36, 273.pdf](1996/Scientometrics36,%20273.pdf)

Notes: CCountry

Kostoff, R.N. (1996), Performance measures for government-sponsored research: Overview and background. *Scientometrics*, **36** (3), 281-292.

Full Text: [1996\Scientometrics36, 281.pdf](1996/Scientometrics36,%20281.pdf)

Narin, F. and Hamilton, K.S. (1996), Bibliometric performance measures. *Scientometrics*, **36** (3), 293-310.

Full Text: [1996\Scientometrics36, 293.pdf](1996/Scientometrics36,%20293.pdf)

Abstract: Three different types of bibliometrics - literature bibliometrics, patent bibliometrics, and linkage bibliometric can all be used to address various government performance and results questions. Applications of these three bibliometric types will be described within the framework of Weinberg’s internal and external criteria, whether the work being done is good science, efficiently and effectively done, and whether it is important science from a technological viewpoint. Within all bibliometrics the fundamental assumption is that the frequency with which a set of papers or patents is cited is a measure of the impact or influence of the set of papers. The literature bibliometric indicators are counts of publications and citations received in the scientific literature and various derived indicators including such phenomena as cross-sectoral citation, coauthorship and concentration within influential journals. One basic observation of literature bibliometrics, which carries over to patent bibliometrics, is that of highly skewed distributions - with a relatively small number of high-impact patents and papers, and large numbers of patents and papers of minimal impact. The key measure is whether an agency is producing or supporting highly cited papers and patents. The final set of data are in the area of linkage bibliometrics, looking at citations from patents to scientific papers. These are particularly relevant to the external criteria, in that it is quite obvious that institutions and supporting agencies whose papers are highly cited in patents are making measurable contributions to a nation’s technological progress.

Schubert, A. and Braun, T. (1996), Cross-field normalization of scientometric indicators. *Scientometrics*, **36** (3), 311-324.

Full Text: [1996\Scientometrics36, 311.pdf](1996/Scientometrics36,%20311.pdf)

Abstract: Comparative assessment of scientometric indicators is greatly hindered by the different standards valid in different science fields and subfields. Indicators concerning to different fields can be compared only after first gauging them against a properly chosen reference standard, and their relative standing can then be compared. Methods of selecting reference standards and scaling procedures are surveyed in this study, and examples are given to their practical application.

Keywords: Skew Distributions, Countries

? Link, A.N. (1996), Economic performance measures for evaluating government-sponsored research. *Scientometrics*, **36** (3), 325-342.

Full Text: [1996\Scientometrics36, 325.pdf](1996/Scientometrics36,%20325.pdf)

Abstract: the purpose of this paper is to discuss, in general terms, evaluation issues related to government-sponsored research and to describe and critique the usefulness of economic performance measures for evaluating such activity. Herein is presented an overview of the economic justification for government-sponsored research and the rationale for its evaluation. Also, fundamental evaluation methods are described. The paper ends with a recommendation that benefit-cost analysis may be the most appropriate economic performance measure when evaluating government-sponsored research if used cautiously and with an understanding of its inherent subjectivity.

Keywords: Analysis, Basic Research, Evaluation, Overview, Performance Measure, Performance Measures, Productivity Increase, Research

Martin, B.R. (1996), The use of multiple indicators in the assessment of basic research. *Scientometrics*, **36** (3), 343-362.

Full Text: [1996\Scientometrics36, 343.pdf](1996/Scientometrics36,%20343.pdf)

Abstract: This paper argues that evaluations of basic research are best carried out using a range of indicators. After setting out the reasons why assessments of government-funded basic research are increasingly needed, we examine the multi-dimensional nature of basic research. This is followed by a conceptual analysis of what the different indicators of basic research actually measure. Having discussed the limitations of various indicators, we describe the method of converging partial indicators used in several SPRU evaluations. Yet although most of those who now use science indicators would agree that a combination of indicators is desirable, analysis of a sample of Scientometrics articles suggests that in practice many continue to use just one or two indicators. The paper also reports the results of a survey of academic researchers. They, too, are strongly in favour of research evaluations being based on multiple indicators combined with peer review. The paper ends with a discussion as to why multiple indicators are not used more frequently.

Keywords: Accelerators, Cern, Future-Prospects, High-Energy Physics, Past Performance, Research, Science

Melin, G. and Persson, O. (1996), Studying research collaboration using co-authorships. *Scientometrics*, **36** (3), 363-377.

Full Text: [1996\Scientometrics36, 363.pdf](1996/Scientometrics36,%20363.pdf)

Abstract: Scientific collaboration has become a major issue in science policy. The tremendous growth of collaboration among nations and research institutions witnessed during the last twenty years is a function of the internal dynamics of science as well as science policy initiatives. The need to survey and follow up the collaboration issue calls for statistical indicators sensitive enough to reveal the structure and change of collaborative networks. In this context, bibliometric analysis of co-authored scientific articles is one promising approach. This paper discusses the relationship between collaboration and co-authorship, the nature of bibliometric data, and exemplifies how they can be refined and used to analyse various aspects of collaboration.

Keywords: International Scientific Collaboration, Science

? Geisler, E. (1996), Integrated figure of merit of public sector research evaluation. *Scientometrics*, **36** (3), 379-395.

Full Text: [1996\Scientometrics36, 379.pdf](1996/Scientometrics36,%20379.pdf)

Abstract: An approach for evaluation of research is described that integrates output indicators of four stages downstream the innovation process: immediate, intermediate, pre- ultimate and ultimate outputs. Indexes of leading output indicators are constructed. The indexes are integrated cumulatively to form an overall index of key output indicators, which is the integrated figure of merit (IFM). Data for the indicators are obtained from records and key informants, and the indicators are grouped by normalized weights. The paper also discusses the limitations and the methodological, conceptual and political/organizational issues of such an approach to research evaluation.

Keywords: Academic Research, Evaluation, Indexes, Indicators, Industrial-Innovation, Innovation, Process, Research, Research Evaluation, Research-and-Development, Technology

Notes: highly cited

van Raan, A.F.J. (1996), Advanced bibliometric methods as quantitative core of peer review based evaluation and foresight exercises. *Scientometrics*, **36** (3), 397-420.

Full Text: [1996\Scientometrics36, 397.pdf](1996/Scientometrics36,%20397.pdf)

Abstract: This paper gives an overview of the potentials and limitations of bibliometric methods for the assessment of strengths and weaknesses in research performance, and for monitoring scientific developments. We distinguish two different methods. In the first application, research performance assessment, the bibliometric method is based on advanced analysis of publication and citation data. We show that the resulting indicators are very useful, and in fact an indispensable element next to peer review in research evaluation procedures. Indicators based on advanced bibliometric methods offer much more than ‘only numbers’. They provide insight into the position of actors at the research front in terms of influence and specializations, as well as into patterns of scientific communication and processes of knowledge dissemination. After a discussion of technical and methodological problems, we present practical examples of the use of research performance indicators. In the second application, monitoring scientific developments, bibliometric methods based on advanced mapping techniques are essential. We discuss these techniques briefly and indicate their most important potentials, particularly their role in foresight exercises. Finally, we give a first outline of how both bibliometric approaches can be combined to a broader and powerful methodology to observe scientific advancement and the role of actors.

Keywords: Research Performance, Indicators

? Miller, R. and Manseau, A. (1996), Bibliometric indicators and the competitive environment of R&D laboratories. *Scientometrics*, **36** (3), 421-433.

Full Text: [1996\Scientometrics36, 421.pdf](1996/Scientometrics36,%20421.pdf)

Abstract: the R&D laboratory organization attempts to shape and is influenced by complex and changing environments. New contexts affect the types of evaluation required. Traditional approaches to the R&D laboratory evaluation are thus to be questioned. The changing competitive contexts of R&D organization suggest four worlds of innovation: (i) technology races, (ii) efficiency in technological systems, (iii) technical parity and (iv) marker contests. In the emerging competitive arena, the R&D laboratory is evolving toward a network type of organization linked to many different partners and acting as a semi-autonomous business unit. New roles are expected from these kinds of laboratories. They have to develop core strategic competencies, offer competitive outputs, meet clients specifications, create new technology standards and maintain or increase their leadership positions. Bibliometric analysis need to be used in complement with many other methods.

Keywords: Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Complex, Core, Environment, Evaluation, Indicators, Innovation, Leadership, Methods, Productivity, R&D, Standards, Technology

? MacRoberts, M.H. and MacRoberts, B.R. (1996), Problems of citation analysis. *Scientometrics*, **36** (3), 435-444.

Full Text: [1996\Scientometrics36, 435.pdf](1996/Scientometrics36,%20435.pdf)

Keywords: Analysis, Citation, Citation Analysis, Citer Motivations, Ortega Hypothesis, Science, Scientific Knowledge, Sociology

? Brown, E.A. (1996), Conforming the government R&D function with the requirements of the government performance and results act - Planning the unplannable? Measuring the unmeasurable? *Scientometrics*, **36** (3), 445-470.

Full Text: [1996\Scientometrics36, 445.pdf](1996/Scientometrics36,%20445.pdf)

Abstract: the Army Research Laboratory (ARL) was designated a Pilot Project for Performance Planning under the Government Performance and Results Act of 1993. of the more than 80 such pilot projects government-wide, ARL was the only organization to represent the R&D community. As such, it was required to break new ground in both the planning and the evaluation of basic and applied research. This paper discusses the efforts made by ARL in both these areas, the insights drawn from these efforts, and the lessons learned.

Keywords: As, Evaluation, Government, Performance, R&D, Research

Campanario, J.M. (1996), Using *Citation Classics* to study the incidence of serendipity in scientific discovery. *Scientometrics*, **37** (1), 3-24.

Full Text: [1996\Scientometrics37, 3.pdf](1996/Scientometrics37,%203.pdf)

Abstract: the main sociological, philosophical and historical approaches only ascribe a relative importance to the role of chance, error, or accident in scientific progress. The literature on this topic tends to be anecdotal, sometimes hagiographic and rarely systematic. The main goal of this paper is to introduce a new approach to the study of serendipity in scientific discovery. This new approach is based in the study of highly cited papers obtained from the Citation Classics feature of Current Contents. This paper re-examines 205 Citation Classics commentaries from the 400 most-cited papers in the recent history of science. Authors of 17 Citation Classics commentaries (8.3%) mention some kind of serendipity in performing the research reported in the highly cited paper. Commentaries are classified and discussed in detail. In addition, I have examinated the original papers identified above. In 5 from the original highly cited papers authors explained or gave enough hints on the way the serendipitous discovery was done.

Keywords: Most-Cited Papers, SCI 1945-1988, Delayed Recognition, Time, Science, History

Six, J. and Bustamante, M.C. (1996), Bibliometric analysis of publications in experimental particle physics on cosmic rays and with accelerators. *Scientometrics*, **37** (1), 25-37.

Full Text: [1996\Scientometrics37, 25.pdf](1996/Scientometrics37,%2025.pdf)

Abstract: In the first part, the present paper presents a quantitative analysis of physics publications in the domain of experimental particle physics, before the Second World War in the field of cosmic rays physics and for the modem times in the field of accelerator and collision rings experiments. In the second part, a more general study is made on publications in the various fields of physics separating contributions from experiment, theory and techniques. Three aspects of physics are enlightened: physics of exploration, physics of applications, and forefront physics.

? Christensen, F.H. and Ingwersen, P. (1996), Online citation analysis - A methodological approach. *Scientometrics*, **37** (1), 39-62.

Full Text: [1996\Scientometrics37, 39.pdf](1996/Scientometrics37,%2039.pdf)

Abstract: the paper investigates the online citation analysis possibilities and limitations. The following online processing tools: RANK, MAP, and TARGET, provided by Dialog, are incorporated in order to perform analyses of citations to and from isolated sets of documents as well as to carry out diachrone journal analyses. These analyses imply further to determine journal impact factors of ISI journals. Measures of the scope of internationalisation of journals are proposed and demonstrated. By the combined application of the RANK and TARGET commands we demonstrate a hitherto overlooked possibility of working with bibliographic coupling online and mapping of scientific fields.

Keywords: Analysis, Bibliographic, Bibliographic Coupling, Citation, Citation Analysis, Citations, Impact, Impact Factors, Information, Internationalisation, ISI, Journal, Journal Impact, Journal Impact Factors, Journals, Map, Mapping, Rank, Target

? Rivas, A.L., Deshler, D., Colle, R.D., Gonzalez, R.N. and Quimby, F.W. (1996), Indicators of disciplinary differentiation: Interdisciplinary linkages and adoption rate of biological innovations. *Scientometrics*, **37** (1), 63-86.

Full Text: [1996\Scientometrics37, 63.pdf](1996/Scientometrics37,%2063.pdf)

Abstract: Two indicators regarded to reflect the status of disciplinary differentiation were assessed through citation analysis. Adoption of scientific innovations (publications utilizing new scientific information) and interdisciplinary linkages (percentage of total publications of single disciplines which are cross-referenced by other disciplines) were investigated in selected biological professions. Findings indicated: 1) a significant delay in the use of innovations and a significant difference in the emphasis of interdisciplinary linkages in several professions and disciplines; 2) faster adoption of innovations and greater interdisciplinary linkages in areas with broader disciplinary contents; 3) an inter-personal communication pattern; and 4) slower adoption in applied than in basic fields.

Keywords: Analysis, Cell, Citation, Citation Analysis, Communication, Differentiation, Indicators, Information, Interdisciplinary, Publications, Scientific Information

? Raj, C.B.C. (1996), Publications, cost and a proposition. *Scientometrics*, **37** (1), 87-103.

Full Text: [1996\Scientometrics37, 87.pdf](1996/Scientometrics37,%2087.pdf)

Abstract: the cause and effect that led to the enormous growth of research journals during the past few decades are analyzed. These factors seem to have contributed to the financial pressure on the academic library system and the ‘publishing pressure’ on the researchers. Overall, the higher educational system in chemistry, as well as all sciences and humanities, seem to have been affected. Printing practices of a few research journals, mostly in chemistry and chemical engineering, are compared in terms of price per standardized page which indicate that savings of several million dollars should be possible worldwide through a coherent effort of the various members of the research community. Certain simple propositions to cut down the volume of publications have been discussed. More propositions are likely to be put forward by those who start to think about journal proliferation and the underlying issues.

Keywords: Growth, Journal, Journals, Pressure, Publications, Publishing, Research, Researchers, Sciences, Unnecessary Journals

? Moed, H.F., vanLeeuwen, T.N. and Reedijk, J. (1996), A critical analysis of the journal impact factors of Angewandte Chemie and the Journal of the American Chemical Society - Inaccuracies in published impact factors based on overall citations only. *Scientometrics*, **37** (1), 105-116.

Full Text: [1996\Scientometrics37, 105.pdf](1996/Scientometrics37,%20105.pdf)

Abstract: it is shown that the Journal Impact Factor as published by ISI - an indicator increasingly used as an measure for the quality of scientific journals - is misleading when two leading journals in chemistry, Angew. Chem., and J. Am. Chem. Sec., are compared. A detailed analysis of the various kinds publications in both journals over the period 1982-1994 shows that the overall impact factors based on publications and citations in two consecutive years for JACS communications (5.27 for 1993) are significantly higher than those of Angew. Chem. (3.26 for 1993). Even when all types of articles, i.e. including reviews, are included in the impact factors, JACS has a higher score than Angew. Chem. (5.07 vs. 4.03 in 1993). Critical and accurate analyses of citation figures is required when such data are used in science policy decisions, such as library subscriptions. It is proposed that when IF values for several journals are compared, only similar publication types are considered.

Keywords: Analysis, Articles, Citation, Citations, Critical, Impact, Impact Factor, Impact Factors, ISI, Journal, Journal Impact, Journal Impact Factors, Journals, Policy, Publication, Publications, Quality, Science, Science Policy, Scientific Journals

Korevaar, J.C. and Moed, H.F. (1996), Validation of bibliometric indicators in the field of mathematics. *Scientometrics*, **37** (1), 117-130.

Full Text: [1996\Scientometrics37, 117.pdf](1996/Scientometrics37,%20117.pdf)

Abstract: Bibliometric analyses of scientific publications provide quantitative information that enables evaluators to obtain a useful picture of a team’s research visibility. In combination with peer judgements and other qualitative background knowledge, these analyses can serve as a basis for discussions about research performance quality. However, many mathematicians are not convinced that citation counts do in fact provide useful information in the field of mathematics. According to these mathematicians, citation and publication habits differ completely from scholarly fields such as chemistry or physics. Therefore, it is impossible to derive valid information regarding research performance from citation counts. The aim of this study is to obtain more insight into the significance of citation-based indicators in the field of mathematics. To which extent do citation-scores mirror to the opinions of experts concerning the quality of a paper or a journal? A survey was conducted to answer this question. Top journals, as qualified by experts, receive significantly higher citation rates than good journals. These good journals, in rum, have significantly higher scores than journals with the qualification less good. Top publications, recorded in the ISI database. receive on the average 15 times more citations than the mean score within the field of mathematics as a whole. In conclusion, the experts’ views on top publications or top journals correspond very well to bibliometric indicators based on citation counts

Keywords: Bibliometric, Citation, Citations, English, Journal, Journals, Publication, Research, Research Performance, SCI, Science, Scientific Publications, Scientometrics, Visibility

? Plaza, L.M., Martín, M.J. and Rey, J. (1996), Scientific relations between Spain and Central-Eastern European countries for the period 1982-1992. *Scientometrics*, **37** (1), 131-142.

Full Text: [1996\Scientometrics37, 131.pdf](1996/Scientometrics37,%20131.pdf)

Abstract: This paper analyzes the scientific relationships between Spain and the Eastern European countries (EEc), including the former USSR, from 1982 to 1992. The study considers the number of co-authored papers as well as the number of stays which reflect to the exchange of scientists among them. The total number of co-authored papers of Spanish scientists with their colleagues of those countries is 664 as recorded in the Science Citation Index. During the last three years, a significative increase in the number of co-signed papers has been observed. From the sample considered, the percentage of bilateral and multilateral co-authored papers is 43.8 and 56.2 respectively. In absolute figures, USSR and Poland are the countries with highest number of collaborative papers with Spain. However, in relation to their scientific output, Poland and Hungary show a higher percentage of co-authored papers than the rest of EEc. On the other hand, previous data, provided by the Spanish Secretary of State for Research and Universities (SEUI), related to the flow of scientists on sabbatical year to and from Spain,(1) showed that from 1984 to 1994, a total of 213 researchers come from the EEc to Spain, while the number of Spanish scientists going to those countries was extremely scarce.

Keywords: Citation, Countries, Hand, Hungary, Papers, Research, Researchers, Science, Science Citation Index, Scientific Output, Spain, Universities

? Papadopoulos, S. (1996), Evaluation of industrial research. *Scientometrics*, **37** (1), 143-151.

Full Text: [1996\Scientometrics37, 143.pdf](1996/Scientometrics37,%20143.pdf)

Keywords: Evaluation, Research

? Persson, O. and Melin, G. (1996), Equalization, growth and integration of science. *Scientometrics*, **37** (1), 153-157.

Full Text: [1996\Scientometrics37, 153.pdf](1996/Scientometrics37,%20153.pdf)

Abstract: A study of the production of scientific papers, co-authorships, and R&D-expenditures shows that science is becoming more equally distributed among the OECD-countries. Papers in the journal Science are more unequally distributed than papers in Science Citation Index as a whole or the distribution of R&D-investments. Scientific collaboration, is a major factor affecting the distribution of scientific papers.

Keywords: Citation, Co-Authorships, Collaboration, Growth, Integration, Journal, OECD Countries, OECD-Countries, Papers, Science, Science Citation Index, Scientific Collaboration

Notes: TTopic, CCountry

Uzun, A. and Ozel, M.E. (1996), Publication patterns of Turkish astronomers. *Scientometrics*, **37** (1), 159-169.

Full Text: [1996\Scientometrics37, 159.pdf](1996/Scientometrics37,%20159.pdf)

Abstract: We studied 187 papers published in the journals on astronomy and astrophysics indexed in the Science Citation Index (SCI) for the decade period 1985-1994. These have been the papers that included at least one author listing an address from an institution in Turkey. We found that a great majority of the papers, whether theoretical or observational, went to only very small number (three) of a total set of 34 journals in the area. The distribution of papers by institutions revealed that about three fourths of the papers came from two universities: the Aegean University, and the Middle East Technical University (METU). We also found that the fraction of multiple authored papers has increased appreciably and the number of citations an ‘average’ paper received has decreased gradually during the period considered.

Keywords: Turkey

? Breimer, L.H. (1996), Age, sex and standards of current doctoral theses by Swedish medical graduates. *Scientometrics*, **37** (1), 171-176.

Full Text: [1996\Scientometrics37, 171.pdf](1996/Scientometrics37,%20171.pdf)

Abstract: Recent Swedish publication-based doctoral dissertations by medical practitioners contained an average of four published papers and one manuscript per theses. The average number of authors per paper was four. The candidate was the first author on 83% of papers indicating that the same paper was not used to support several theses. 82% of the candidates had completed their specialist training: 24% of these were women; surgeons were the biggest single group. The average age in years was: surgeons 40 (34-48); non-surgeons 41 (34-49); and 35 (32-36) for those who had just completed their basic post-qualification registration. These findings are in keeping with the Swedish tradition of scientific and evidence based medicine.

Keywords: Age, Author, Authors, Dissertations, Doctoral Theses, Medical, Medicine, Papers, Registration, Sex, Standards, Training, Women

? Zhang, H.Q. (1996), Research performance in key medical universities in China observed from the scientific productivity. *Scientometrics*, **37** (1), 177-190.

Full Text: [1996\Scientometrics37, 177.pdf](1996/Scientometrics37,%20177.pdf)

Abstract: Research activities in the lift: sciences during the past few years, have increased appreciably in China, both in regard to relative output of publications and in their impact on the international research community. The purpose of this study is to analyze and evaluate quantitatively the scientific productivity of key medical universities in China by using CBMdisc, MEDLINE and SCI databases. The results showed that Tongji Medical University ranks first in terms of paper output in Chinese and in English languages, while Beijing Medical University is placed second in output but is first in citation impact. Shanghai Medical University had the top annual paper output per scientist, with 2.53 papers in Chinese and 0.13 papers in English. The results also showed that the coverage of Chinese biomedical publications by western indexing services is very poor.

Keywords: Life Sciences, Publication, Japan

? van Raan, A.F.J. (1996), Introduction to the proceedings of the Fourth International Conference on Science and Technology Indicators. *Scientometrics*, **37** (2), 191-193.

Full Text: [1996\Scientometrics37, 191.pdf](1996/Scientometrics37,%20191.pdf)

Keywords: Conference, Indicators, International, Science, Technology

? Glänzel, W. and Czerwon, H.J. (1996), A new methodological approach to bibliographic coupling and its application to the national, regional and institutional level. *Scientometrics*, **37** (2), 195-221.

Full Text: [1996\Scientometrics37, 195.pdf](1996/Scientometrics37,%20195.pdf)

Abstract: In an earlier study the authors have shown that bibliographic coupling techniques can be used to identify ‘hot’ research topics. The methodology is based on appropriate thresholds for both number of related documents and the strength of bibliographic links. Those papers are called core documents that have more than 9 links of at Least the strength 0.25 according to Salton’s measure, provided they are articles, notes or reviews. This choice resulted in a selection of nearly one per cent of all papers of the above types recorded in the 1992 annual cumulation of the SCI. Core documents proved important nodes in the network of documented science communication. In the present study, the set of core documents is analysed by journals, subfields and corporate addresses. The latter analysis is conducted on both national and regional-institutional level. First all countries which have published at least 20 core documents in 1992 are investigated in terms of their research profiles, their international collaboration patterns and their citation impact. Finally, those eight members of the European Union which have published at least 20 core documents in 1992 are analysed in respect of regional and institutional distribution of core documents.

Keywords: Analysis, Articles, Authors, Bibliographic, Bibliographic Coupling, Citation, Citation Impact, Co-Citation, Collaboration, Communication, Core Documents, Core-Documents, Countries, Impact, Indicators, International Collaboration, Journals, Methodology, Network, Papers, Research, Research Topics, SCI, Science, Science Communication, Strength, Topics

? Zitt, M. and Bassecoulard, E. (1996), Reassessment of co-citation methods for science indicators: Effect of methods improving recall rates. *Scientometrics*, **37** (2), 223-244.

Full Text: [1996\Scientometrics37, 223.pdf](1996/Scientometrics37,%20223.pdf)

Abstract: wAlthough co-citation techniques are very powerful structuring tools, the use of science policy indicators based on co-citation has often been criticized, especially on ISI research fronts. A major issue is the small fraction of literature retrieved, i.e. The “recall rate” problem. Our investigations indicate that at the level of micro/meso studies high recall rates can be achieved by (a) the use of appropriate clustering techniques limiting singletons and (b) the enrichment of cocited cores by medium-cited items. This combination of appropriate clustering and extension of recall proves to be efficient, provided that careful trade-offs are sought between the extension and relevance of recall. It leads to a reassessment of the performance of the co-citation approach for structuring scientific fields and providing related indicators not limited to the ‘leading edge’. It also opens new opportunities for comparison/combination with other relational methods such as co-word analysis.

Keywords: Analysis, Clustering, Cocitation, Cocitation Analysis, Fraction, Index, Indicators, ISI, Literature, Policy, Research, Science, Science Policy, Scientific Literatures

? Niwa, F. and Tomizawa, H. (1996), A trial of general indicator of science and technology: Methodological study of overall estimation of national S&T activity. *Scientometrics*, **37** (2), 245-265.

Full Text: [1996\Scientometrics37, 245.pdf](1996/Scientometrics37,%20245.pdf)

Abstract: This paper presents methods using a large number of quantitative indicators of the overall estimation of national S&T activity. The methods collected here apply multivariate analysis techniques to a set of S&T indicators to investigate its structure and extract a single or a small number of indicators of S&T activity. We perform structural analysis and integration of 14 main S&T indicators in 5 countries, the U.S., Japan, Germany, France and the U.K. Latent variables underlying this set of indicators naturally emerge from this analysis, and from these we were able to extract valuable information concerning the nature of S&T activity in each country. This method was also useful for investigating the nature and interpretation, as well as the reliability, of previous S&T indicators.

Keywords: Analysis, Countries, France, Germany, Indicators, Information, Integration, Interpretation, Japan, Patents, Quantitative, Reliability, Science, Science and Technology, Technology

Tomov, D.T. and Mutafov, H.G. (1996), Comparative indicators of interdisciplinarity in modern science. *Scientometrics*, **37** (2), 267-278.

Full Text: [1996\Scientometrics37, 267.pdf](1996/Scientometrics37,%20267.pdf)

Abstract: A set of scientometric indicators of interdisciplinary links between advancing fields of biomedicine is suggested. Twenty journals listed in the JCR of the SCI for 1988 are analyzed. An index of interdisciplinarity for a given journal is calculated as the sum of ratios between the numbers of journals from all other disciplines (except for general-scientific and miscellaneous journals) and from the same discipline cited by that journal or citing it, and of ratios between the numbers of citations to and by these journals. Some interdisciplinary patterns of 20 andrology journal articles are scientometrically assessed, too. The combined Usage of this method with coclassification and co-citation methodology can optimize interdisciplinarity evaluation and promotion.

Keywords: Scientific Field, Co-Citations

? Borrons, M., Gomez, I., Fernandez, M., Zulueta, M. and Mendez, A. (1996), Local, domestic and international scientific collaboration in biomedical research. *Scientometrics*, **37** (2), 279-295.

Full Text: [1996\Scientometrics37, 279.pdf](1996/Scientometrics37,%20279.pdf)

Abstract: Collaboration practices and partners vary greatly per scientific area and discipline and influence the scientific performance. Bibliometric indicators are used to analyse international, domestic and local collaboration in publications of Spanish authors in three Biomedical subfields: Neurosciences, Gastroenterology and Cardiovascular System as covered by the SCI database. Team size, visibility and basic-applied level of research were analysed according to collaboration scope. International collaboration was linked to higher visibility documents. Cluster analysis of the most productive authors and centres provides a description of collaboration habits and actors in the three subfields. A positive correlation was found between productivity and international and domestic collaboration at the author level.

? Artus, H.M. (1996), Science indicators derived from databases - the case of the social sciences. *Scientometrics*, **37** (2), 297-311.

Full Text: [1996\Scientometrics37, 297.pdf](1996/Scientometrics37,%20297.pdf)

Abstract: Quantitative data or indicators derived from databases are usually treated like any other empirical data. In this article, the social character of the different processes leading to them is outlined. As a social process taking place in systemic organizational structures the genesis of such data cannot be reconstructed as sort of mechanical application of formal rules but only as human (and as such: arbitrary) action. As a consequence the discussion of such data or indicators can no longer be subject to methodology alone but requires support by sociology.

Keywords: As, Character, Databases, Human, Indicators, Methodology, Process, Processes, Science, Science Indicators, Sciences, Social, Social Sciences, Sociology

? Hinze, S. and Grupp, H. (1996), Mapping of R and D structures in transdisciplinary areas: New biotechnology in food sciences. *Scientometrics*, **37** (2), 313-335.

Full Text: [1996\Scientometrics37, 313.pdf](1996/Scientometrics37,%20313.pdf)

Abstract: This study analyses activities in new biotechnology in food science and technology using bibliometric methods. Multidimensional scaling is used to visualise the structure of the field as represented by scientific literature and patent applications. for the science as well for the technology side increasing activities in the field were found. The specialisation analysis shows above average specialisation at the science and the technology side of the EU member countries (except for Germany) as well as for the USA. Within the EU also less developed countries intensified their R&D activities. At the science side aspects of food safety and quality are highly relevant. These topics are also tackled at the technology side but compared to the science side these sub-fields seem to be still more isolated within the structure of the field. Structural differences between the science and the technology side partly may be explained by special features of the patent law in biotechnology.

Keywords: Most-Cited Papers, SCI 1945-1988, Delayed Recognition, Time, Science, History

Sigogneau, A. (1996), Between policy categories and research activities: Reviews and journals to describe ‘environment’ networks. *Scientometrics*, **37** (2), 337-348.

Full Text: [1996\Scientometrics37, 337.pdf](1996/Scientometrics37,%20337.pdf)

Abstract: This article presents a scientometric procedure which assists in the production of bibliometric indicators for conducting international comparisons about transdisciplinary research field. The procedure aims at the analysis of how a nomenclature in the field of the environment, established by public research administrators, translates into subsets of scientific journals. Relations between the nomenclature and scientific disciplines were obtained through analysis of reviews. The environmental field’s structure has been analysed by using journal cross-citation data.

? de Looze, M.A. (1996), Scientometrics as a tool for analysis of the industrial relationships of two departments in a major French Applied Research Institute, 1988-1992. *Scientometrics*, **37** (2), 349-360.

Full Text: [1996\Scientometrics37, 349.pdf](1996/Scientometrics37,%20349.pdf)

Abstract: To study the nature of interactions between the laboratories’ industrial relationships and their scientific policies we posit that by drawing on enhanced knowledge of such interaction, recommendations concerning the management of industrial relationships can be formulated. The tools used are: - extraction of documentary references from PUBINRA (in-house database of publications by INRA researchers) followed by counts per laboratory; characterization of applied and fundamental research publications based on a classification of periodicals’ in the Science Citation Index, updated and completed with the help of researchers from the INRA Departments; mobilization of bibliometric variables in a body of synthesized variables, to account for the role of partnerships in a laboratory’s production.

Keywords: Technology, Science

? Markusova, V.A., Gilyarevskii, R.S., Chernyi, A.I. and Griffith, B.C. (1996), Information behavior of Russian scientists in the “Perestroika” period - Results of the questionnaire survey. *Scientometrics*, **37** (2), 361-380.

Full Text: [1996\Scientometrics37, 261.pdf](1996/Scientometrics37,%20261.pdf)

Keywords: Behavior, Questionnaire, Questionnaire Survey, Science, Survey

? (1996), Centre for informetric studies. *Scientometrics*, **37** (2), 381.

Full Text: [1996\Scientometrics37, 381.pdf](1996/Scientometrics37,%20381.pdf)

? Breimer, L.H. (1996), Authorship on and Usage of published papers in current Swedish biomedical theses (vol 36, pg 255, 1996). *Scientometrics*, **37** (2), 383.

Full Text: [1996\Scientometrics37, 283.pdf](1996/Scientometrics37,%20283.pdf)

Keywords: Authorship, Biomedical, Papers

? Lin, Y. (1996), Empirical studies of negative political advertising: A quantitative review using a method of combined citation and content analysis. *Scientometrics*, **37** (3), 385-399.

Full Text: [1996\Scientometrics37, 385.pdf](1996/Scientometrics37,%20385.pdf)

Abstract: This study quantitatively reviews the empirical studies of negative political advertising. A method of the combination of citation analysis and content analysis is used. The citation analysis examines each cited work in 20 selected studies with respect to its citation information; and the content analysis investigates these 20 selected studies (citing sources) in terms of their hypotheses, research questions, and methodologies. The aggregated information from the individual cited works and the citing works show that scholars from communication and other disciplines have strong influence on the development of the empirical studies on negative political ads, but communication scholars remain as the driving force: Facing continuously increased literatures in the area, communication scholars need to develop a theory or theories to guide the research. The direction of the research has been moving toward focusing on the boarder and more general effects of negative political ads.

Keywords: ADS, Advertising, Analysis, Citation, Citation Analysis, Communication, Communication Journals, Content Analysis, Development, Driving, Effects, General, Information, Patterns, Research, Review, Reviews, Sources, Theory

Lewison, G. (1996), The frequencies of occurrence of scientific papers with authors of each initial letter and their variation with nationality. *Scientometrics*, **37** (3), 401-416.

Full Text: [1996\Scientometrics37, 401.pdf](1996/Scientometrics37,%20401.pdf)

Abstract: This paper introduces ‘alphabet spectra’ which are the 26 frequencies of occurrence of scientific papers in a given sample with at least one author of each initial, A, B,...Z. The sum of these frequencies exceeds unity because of multiple authorships. Formulae are given relating this sum to the mean number of authors per paper in the sample. The method is applied to show the increase in this number over the last 15 years in different fields of science and for different countries. The ‘alphabet spectra’ vary greatly depending on the nationality of the scientists concerned and can be compared to frequency absorption spectra for chemical elements or molecules. The spectra can be used to determine the national composition of a country’s scientific authors and how this has changed with time.

Keywords: Absorption, Chemical, Chemical Elements, Composition, Elements, Occurrence, Paper, Science

? Hemlin, S. and Gustafsson, M. (1996), Research production in the arts and humanities - A questionnaire study of factors influencing research performance. *Scientometrics*, **37** (3), 417-432.

Full Text: [1996\Scientometrics37, 417.pdf](1996/Scientometrics37,%20417.pdf)

Abstract: This study explored the main factors influencing the research production in the arts and humanities. A questionnaire was constructed to identify and assess the effects of various factors important for the productivity of the individual researcher as reflected in the number of papers and Ph.D.’s produced. First, respondents were given the opportunity to list in their own words a number of important factors influencing research productivity. Secondly, they evaluated on rating scales the importance of a number of pre-selected factors (e.g. individual characteristics, organisational features, external factors) assumed to be important for research productivity. 50% of a sample of 256 researchers in the humanities responded. Ratings were grouped to produce a number of indices and these were subject to multiple regression analyses. The main results showed that the production of papers was predicted by the number of Ph.D.’s produced and inversely related to the importance of organisational factors. The production of Ph.D.’s was dependent on the year of the Ph.D. and the position of the respondent as well as on the number of papers s/he produced. A number of conclusions were drawn: a) there was support for the academic social position effect also in the humanities; b) organisational factors apparently played a minor role in comparison to individual characteristics in the humanities than in the sciences and; c) the differences in productivity of papers were also related to gender, but not to size, area or language of publications. Implications for further studies were suggested.

Keywords: Academic, Characteristics, Comparison, Effects, Features, Gender, Importance, Language, Multiple Regression, Performance, Position, Production, Productivity, Publications, Questionnaire, Regression, Research, Research Performance, Research Productivity, Role, Scales, Sciences, Size, Social, Support

? van Caulil, G.F., Mombers, C.A.M. and van den Beemt, F.C.H.D. (1996), Quantifying the utilization of research: the difficulties and two models to evaluate the utilization of research results. *Scientometrics*, **37** (3), 433-444.

Full Text: [1996\Scientometrics37, 433.pdf](1996/Scientometrics37,%20433.pdf)

Abstract: Although there are several methods for determining the quality of scientific research, there is no satisfactory method known that can measure the utilization of it. Earlier proposed methods measure a particular kind of utilization, but are - in practice - a poor indication for the utilization on the whole, a concept for which a definition is hard to make. These methods do not comply with the construct validity. The main problem in this case is the great diversity of what we mean by use of results of scientific research, resulting in a lack of consensus on the criteria for assessing the utilization. Here, we propose and discuss two methods. To evaluate utilization in a broad sense the four-dimensional model describes the degree of utilization with three, mostly independent, aspects: the involvement of the user, the availability of a transferable research product, and the commercial benefits resulting from the research results. In the other method the utilization of the research results is described first, and subsequently the utilization is quantified by a jury, who group the different projects in five classes, based on a Guttman scale.

Keywords: Availability, Concept, Consensus, Diversity, Group, Methods, Model, Models, Practice, Quality, Research, Research Performance, Research Results, Scale, Utilization, Validity

? Prpic, K. (1996), Scientific fields and eminent scientists’ productivity patterns and factors. *Scientometrics*, **37** (3), 445-471.

Full Text: [1996\Scientometrics37, 445.pdf](1996/Scientometrics37,%20445.pdf)

Abstract: A questionnaire study of 385 eminent Croatian scientists has examined the quantity, patterns and factors of their scientific production in four different scientific fields. The findings confirm the thesis that the contextual influences will be even more expressed within this elite group than within the whole research population. Thus the respondents’ scientific productivity much clearly shows the patterns typical for their scientific fields. The initial thesis is also supported by a very differentiated composition and the explanatory power of the productivity predictors in the observed fields. Yet, the scientific and linguistic qualifications, within a narrower predictors’ block, and the involvement in the international scientific activity, in a broader one, were the most important productivity factors in most fields.

Keywords: Activity, Composition, Developing-Countries, Group, Impact, Index, Inequality, International Collaboration, Performance, Population, Predictors, Production, Productivity, Quantity, Questionnaire, Research, Science, Scientific Production, Scientific Productivity

Bourke, P. and Butler, L. (1996), Publication types, citation rates and evaluation. *Scientometrics*, **37** (3), 473-494.

Full Text: [1996\Scientometrics38, 473.pdf](1996/Scientometrics38,%20473.pdf)

Abstract: In order to resolve questions frequently raised in the context of research evaluation about the citation rates of journal publications in relation to other types of publications, the total research output of substantial institutions or systems has to be brought under bibliographic control. That precondition has rarely been met: there are few published studies of the total range of publications of major research institutions, including books, book chapters, technical reports and published conference proceedings. The Research Evaluation and Policy Project (REPP) at the Australian National University (ANU) has established a database covering all the publications from the Institute of Advanced Studies (IAS), a full-time research institution at the ANU, and has examined in detail citations in the journal literature accruing to all types of publications. The database contains a significant number of publications, nearly 30 000 items, and covers the sciences and the social sciences and humanities. This data enables us to examine whether the citation record of research publications appearing in journals indexed by the Institute for Scientific information (ISI) is a useable surrogate for the citation record within ISI journals of all model of publication. We contend that, if certain preconditions am met, the choice of citation rate is not critical.

Keywords: Citation, Citations, Control, Evaluation, Institute for Scientific Information, Institutions, ISI, Journal, Model, Order, Output, Publication, Publications, Range, Research, Research Evaluation, Sciences, Social, Social Sciences

? Balaban, A.T. (1996), How should citations to articles in high- and low-impact journals be evaluated, or what is a citation worth? *Scientometrics*, **37** (3), 495-498.

Full Text: [1996\Scientometrics37, 495.pdf](1996/Scientometrics37,%20495.pdf)

Abstract: After a brief discussion on the normalization factors allowing the quantitative comparison between various disciplines, a formula is proposed for taking into account the value of citations to papers published in journals with different impact factors.

Keywords: Brief, Citation, Citations, Comparison, Impact, Impact Factors

? Wouters, P. and Leydesdorff, L. (1997), Proceedings of the Erasmus Workshop on Quantitative Approaches to Science & Technology Studies - Amsterdam, 21-24 May 1996 - Introduction. *Scientometrics*, **38** (1), 3-5.

Full Text: [1997\Scientometrics38, 3.pdf](1997/Scientometrics38,%203.pdf)

? Rip, A. (1997), Qualitative conditions of scientometrics: the new challenges. *Scientometrics*, **38** (1), 7-26.

Full Text: [1997\Scientometrics38, 7.pdf](1997/Scientometrics38,%207.pdf)

Abstract: While scientometrics is now an established field, there are challenges. A closer look at how scientometricians aggregate building blocks into artfully made products, and point-represent these (e.g. as the map of field X) allows one to overcome the dependence on judgements of scientists for validation, and replace or complement these with intrinsic validation, based on quality checks of the several steps. Such quality checks require qualitative analysis of the domains being studied. Qualitative analysis is also necessary when noninstitutionalized domains and/or domains which do not emphasize texts are to be studied. A further challenge is to reflect on the effects of scientometrics on the development of science; indicators could lead to ‘induced’ aggregation. The availability of scientometric tools and insights might allow scientists and science to become more reflexive.

Keywords: Aggregate, Aggregation, Analysis, Availability, Bibliometric Indicators, British Science, Building, Decline, Dependence, Development, Effects, Indicators, Lead, Made, Products, Qualitative, Quality, Science, Scientometrics, Tools, Validation

? Luukkonen, T. (1997), Why has Latour’s theory of citations been ignored by the bibliometric community? Discussion of sociological interpretations of citation analysis. *Scientometrics*, **38** (1), 27-37.

Full Text: [1997\Scientometrics38, 27.pdf](1997/Scientometrics38,%2027.pdf)

Abstract: the paper discusses the often lamented lack of a theory of citations, and the lack of a sociological theory in particular. It draws attention to one proposed theory and discusses the potential reasons why it has not been generally accepted as the theory of citations, despite its merits in explaining many phenomena in the citation behaviour of scientists. This theory has been expounded by Latour and presented, in particular, in his book entitled Science in Action.

Keywords: Analysis, Attention, Bibliometric, Citation, Citation Analysis, Citations, Community, Paper, Theory

? Wouters, P. (1997), Citation cycles and peer review cycles. *Scientometrics*, **38** (1), 39-55.

Full Text: [1997\Scientometrics38, 39.pdf](1997/Scientometrics38,%2039.pdf)

Abstract: Hardly anyone will dispute that the creation of the Science Citation Index has made an important difference to science. It is less clear, however, in what way the science system has been influenced. This article proposes a qualitative model to better understand the mutual interactions involved. Science is pictured as an information processing cycle. Its quality is maintained in the “peer review cycle”. The main upshot of the SCI has been the creation of a second-order cycle on top of the primary knowledge production cycle. This is the citation cycle. The specialty of scientometrics has a key role in this citation cycle. The model enables a more profound understanding of the various feed back processes between the two cycles. Moreover, it may give insight in the development of hybrid and heterogenous scientific specialties like scientometrics.

Keywords: Citation, Creation, Development, Feed, Hybrid, Indicators, Information, Interactions, Key, Knowledge, Made, Model, Peer Review, Processing, Production, Qualitative, Quality, Review, Role, SCI, Science, Science Citation Index, Scientometrics, Second Order, Specialties

? Barre, R. (1997), The European perspective on S&T indicators. *Scientometrics*, **38** (1), 57-70.

Full Text: [1997\Scientometrics38, 57.pdf](1997/Scientometrics38,%2057.pdf)

Abstract: the S&T indicators activity is first described as a complex process involving a variety of functions, capabilities and institutions; this provides a framework to assess the S&T indicators activity in a country or, more generally, in a research system. Then, the main features of the S&T indicators scene in Europe are presented: regarding the countries, the diversity of the institutional settings and the growing potentials is stressed; among countries, at European level, the important and original role of the European Commission in the dynamics of the S&T indicators activites in Europe is presented; finally, it is argued that the European scene consists of a diversity of research groups which are in competition and collaboration, sharing a number of intellectual concerns and orientations. The perspectives for S&T indicators activity in the EU countries are defined by the greater quantity of source data, by the conceptual advances regarding the S&T system and by the new needs of the decision-makers. In conclusion, some alternative scenarios are suggested.

Keywords: Activity, Collaboration, Competition, Complex, Diversity, Dynamics, EU, Europe, European Commission, Features, Groups, Indicators, Institutions, Process, Quantity, Research, Role, Scenarios, Source

Cunningham, P. (1997), The evaluation of European programmes and the future of scientometrics. *Scientometrics*, **38** (1), 71-85.

Full Text: [1997\Scientometrics38, 71.pdf](1997/Scientometrics38,%2071.pdf)

Abstract: This paper presents the results of an examination of a selection of published European evaluations. The incidence of quantitative and scientometric approaches has been reviewed and an assessment made of their contributory role in each evaluation. The various approaches have been broadly categorised according to the type of data they draw upon, and by the issues they attempt to address. The author analyses such approaches with regard to the degree of success in meeting the objectives of the evaluation. In the light of this some likely future trends are suggested.

Keywords: Assessment, Evaluation, Examination, Incidence, Light, Made, Paper, Role, Scientometrics, Selection, Trends

? VanderMeulen, B.J.R. (1997), The use of S&T indicators in science policy: Dutch experiences and theoretical perspectives from policy analysis. *Scientometrics*, **38** (1), 87-101.

Full Text: [1997\Scientometrics38, 87.pdf](1997/Scientometrics38,%2087.pdf)

Abstract: the relation between bibliometrics and science policy remains underdeveloped. Relevance of new methods to produce indicators is easily claimed, but often without real insight in the policy processes. Drawing on experiences with the use of S&T indicators in science policy in the Netherlands and on principal-agent theory, I develop an analytical perspective which enables to assess the role of S&T indicators in science policy. It is argued that the use of S&T indicators can only be understood well if one takes the socio- political context with its specific dynamics and rationalities into account.

Keywords: Analysis, Bibliometrics, Dynamics, Indicators, Methods, Policy, Policy Analysis, Role, Science, Science Policy, Science-Policy, Theory

? Schmoch, U. (1997), Indicators and the relations between science and technology. *Scientometrics*, **38** (1), 103-116.

Full Text: [1997\Scientometrics38, 103.pdf](1997/Scientometrics38,%20103.pdf)

Abstract: the relationship between science and technology is an important issue, as science-based technologies play a key role in modern economies. The exploration of the science-technology interface can be effectively supported by quantitative indicators, in particular patents of scientific institutions, publications of industrial enterprises, and scientific; references in patent search reports. The most promising approach is the parallel observation of patents and publications in order to analyse the dynamics of the interaction of science and technology and the professional move of academic and industrial researchers between institutions.

Keywords: Academic, Dynamics, Enterprises, Exploration, Indicators, Industrial, Institutions, Interaction, Interface, Key, Knowledge, Observation, Order, Patents, Publications, Role, Science, Scientific Institutions, Technologies

Blauwhof, G. (1997), Mapping the dynamics of telephone switching devices. *Scientometrics*, **38** (1), 117-140.

Full Text: [1997\Scientometrics38, 117.pdf](1997/Scientometrics38,%20117.pdf)

Abstract: In this contribution relations between scientific articles, conference proceedings and patents relating to telephone switching are analyzed. The state-of-the-art in scientometrics and science and technology studies leads one to expect relations among these documents. Empirical findings show the opposite. To interpret these findings I focus on two key issues in scientometrics, namely the frequency of linkages among documents and the nature of communication. The resulting conclusion is that scientometrics should be informed by theories concerning the evolutionary dynamics of science and technology.

Keywords: Communication, Dynamics, Key, Patents, Science, Scientometrics, Technology

Katz, J.S. and Hicks, D. (1997), Desktop scientometrics. *Scientometrics*, **38** (1), 141-153.

Full Text: [1997\Scientometrics38, 141.pdf](1997/Scientometrics38,%20141.pdf)

Abstract: Advanced scientometric tools are moving from the realm of the privileged few with access to mainframe and minicomputers to the desktop of researchers equipped with personal computers. This shift is not only due to the decreasing cost and technological advances in PCs but the ready availability of a powerful multitasking operating system, a versatile text processing language and easy access to the Internet. Furthermore, the latest releases of PC software, such as Microsoft Excel, make it possible to develop graphical user interfaces into complex bibliometric data for a wide spectrum of researchers and policy analysts. Recent developments in digital communication, in particular, tools to access the Internet via the World Wide Web will provide even greater flexibility to those researchers wishing to make their scientometric data available to a diverse international audience. This paper examines how the BESST project developed a Desktop Scientometric environment using public domain, hardware independent software, prototyped a graphical user interface to provide easy access to UK sectoral level bibliometric data and gives a glimpse into future developments.

Keywords: Access, Availability, Bibliometric, Communication, Complex, Computers, Cost, Environment, Flexibility, Graphical User Interface, Interface, Interfaces, Internet, Language, Paper, Policy, Processing, Scientometrics, Software, Tools, UK, World Wide Web

Leydesdorff, L. and Van den Besselaar, P. (1997), Scientometrics and communication theory: Towards theoretically informed indicators. *Scientometrics*, **38** (1), 155-174.

Full Text: [1997\Scientometrics38, 155.pdf](1997/Scientometrics38,%20155.pdf)

Abstract: the theory of citations should not consider cited and, or citing agents as its sole subject of study. One is able to study also the dynamics in the networks of communications. While communicating agents (e.g., authors, laboratories, journals) can be made comparable in terms of their publication and citation counts, one would expect the communication networks not to be homogeneous. The latent structures of the network indicate different codifications that span a space of possible ‘translations’. The various subdynamics can be hypothesized from an evolutionary perspective. Using the network of aggregated journal-journal citations in Science & Technology Studies as an empirical case, the operation of such subdynamics can be demonstrated. Policy implications and the consequences for a theory-driven type of scientometrics will be elaborated.

Keywords: Agents, Citation, Citations, Communication, Consequences, Dynamics, Homogeneous, Indicators, Made, Operation, Publication, Science, Scientometrics, Technology, Theory

Braun, T. and Schubert, A. (1997), Dimensions of scientometric indicator datafiles: World science in 1990-1994. *Scientometrics*, **38** (1), 175-204.

Full Text: [1997\Scientometrics38, 175.pdf](1997/Scientometrics38,%20175.pdf)

Abstract: Scientometric indicators are treated according to dimensional approaches. One, two, three, dimensions and multidimensional characteristics are revealed graphically for giving a panoramic view on the publication activity and citation impact of different countries.

Keywords: Activity, Characteristics, Citation, Citation Impact, Eighties, Impact, Indicator, Indicators, Life, National Performances, Publication, Publication Output, Science

Van Raan, A.F.J. (1997), Scientometrics: State-of-the-art. *Scientometrics*, **38** (1), 205-218.

Full Text: [1997\Scientometrics38, 205.pdf](1997/Scientometrics38,%20205.pdf)

Abstract: In this presentation we argue that the core research activities of scientometrics fall in four interrelated areas: science and technology indicators, information systems on science and technology, the interaction between science and technology, and cognitive as well as socio-organisational structures in science and technology.

Keywords: Academic, Applications, Balance, Climate, Community, Condition, Core, Development, Driving, Environment, Fall, Indicators, Information, Interaction, Methodology, Research, Research Performance, Science, Scientometrics

Yitzhaki, M. (1997), Variation in informativity of titles of research papers in selected humanities journals: A comparative study. *Scientometrics*, **38** (2), 219-229.

Full Text: [1997\Scientometrics38, 219.pdf](1997/Scientometrics38,%20219.pdf)

Abstract: Titles constitute the most concise statement of a document’s content, and are heavily used by information retrieval systems. Consequently, the great importance of titles being highly informative is indisputable. The most common measure of title ‘informativity’ has been the number of ‘substantive’ words it includes. Previous studies found significant differences between journals of different subject fields, in the sciences and the social sciences, regarding the number of substantive words in article titles. However, unlike the sciences and the social sciences, very little research has been done on *humanities* journals. Examining title informativity in a group of eighteen leading English-language journals, covering various humanities disciplines, from 1940 to 1990, the present study searched for possible differences between the humanities journals and the scientific and social sciences ones, concerning patterns of title informativity. Generally, considerable differences were found in the number of substantive words in article titles between the various humanities journals checked. On the other hand, a comparison of the *group-average* means and medians of the humanities journals to group figures of journals from the sciences and the social sciences indicates significant differences for almost all decade years studied. However, titles of papers in humanities journals did follow the general trend of increase in informativity, although in a slower pace. Possible explanations of these differences are discussed and areas for further study are suggested.

Keywords: Article, Comparative Study, Comparison, General, Group, Hand, Importance, Information, Information Retrieval, Research, Sciences, Social, Social Sciences, Trend

van Dalen, H.P. (1997), Measuring giants and dwarfs: Assessing the quality of economists. *Scientometrics*, **38** (2), 231-252.

Full Text: [1997\Scientometrics38, 231.pdf](1997/Scientometrics38,%20231.pdf)

Abstract: the emergence of ideas in economic science is dominated by scientists situated in the US. The brain drain to thee US after de Second World War gave economic scientists who stayed behind a chance to obtain a monopoly position in determining the development of economics in their home country. These facts are illustrated by a citations study of economic science in the Netherlands. Especially one man, the Nobel laureate Jan Tinbergen, has left an indelible mark on the way Dutch economic science has developed. The development of Dutch economics shows strong path-dependence.

Keywords: American, Brain, Citations, Development, Economic, Economics, Emergence, Europe, Home, Position, Quality, Science, US

Vogel, E.E. (1997), Impact factor and international collaboration in Chilean physics: 1987-1994. *Scientometrics*, **38** (2), 253-263.

Full Text: [1997\Scientometrics38, 253.pdf](1997/Scientometrics38,%20253.pdf)

Abstract: the 598 papers on physics published between 1987 and 1994 with at least one author presenting Chilean affiliation are scrutinized. Several aspects are cross-examined along the period of eight years: number of papers, cumulative impact factor, average impact factor, international co-authorship, most visited journals and main Chilean institutions. It is found that physics is growing in Chile with international collaboration playing an important role. The average impact factor is relatively high and rather constant throughout the period reflecting that the good level of Chilean physics is stable. The articles spread in 165 different journals, but most of the productivity is to be found in a few journals of high impact factor. Most of the research is done by institutions in Santiago but other emerging institutions are also identified.

Keywords: Chile, Citation Impact, Co-Authorship, Collaboration, Cumulative Impact, Eighties, Impact, Impact Factor, Institutions, International Collaboration, National Performances, Productivity, Publication Output, Research, Role, World Science

Notes: UUniversity

Ugolini, D., Parodi, S. and Santi, L. (1997), Analysis of publication quality in a cancer research institute. *Scientometrics*, **38** (2), 265-274.

Full Text: [1997\Scientometrics38, 265.pdf](1997/Scientometrics38,%20265.pdf)

Abstract: the paper presents an experimental method for the evaluation of scientific papers in the field of oncology and related disciplines developed at the National Institute for Cancer Research (IST), Genoa, Italy. The method is based on the partitioning of categories of the *Science Citation Index-Journal Citation Reports* (SCI-JCR) into deciles, thus normalizing Impact Factor (IF), in order to guage the quality of the productivity. A second parameter related to the number of staff of each department co-authoring a given paper has been introduced for the allocation of Institute funding. The following studies have been carried to compare the assigned score and the average number of citations of papers published by a research group. The identification of correctives is in progress. The method provides a basis for a possible method to judge the quality of publications from within a research organization, and should be reproducible independently of the disciplines considered.

Keywords: Allocation, Cancer, Citations, Evaluation, Experimental, Funding, Group, Identification, Indicators, Italy, Oncology, Order, Paper, Partitioning, Productivity, Publication, Publications, Quality, Research

? Small, H. (1997), Update on science mapping: Creating large document spaces. *Scientometrics*, **38** (2), 275-293.

Full Text: [1997\Scientometrics38, 275.pdf](1997/Scientometrics38,%20275.pdf)

Abstract: Science mapping projects have been revived by the advent of virtual reality software capable of navigating large synthetic three dimensional spaces. Unlike the earlier mapping efforts aimed al creating simple maps at either a global or local level, the focus is now on creating large scale maps displaying many thoUSAnds of documents which can be input into :he new VR systems. This paper presents a general framework for creating large scale document spaces as well as some new methods which perform some of the individual processing steps. The methods are designed primarily for citation data but could be applied to other types of data, including hypertext links.

Keywords: Citation, General, Global, Local, Mapping, Methods, Paper, Processing, Scale, Science, Scientific Literatures, Software, Synthetic, Three-Dimensional, Virtual Reality, VR

Notes: CCountry

Macías-Chapula, C.A. and Rodea-Castro, I.P. (1996), Subject content of the Mexican production on health and the environment (1982-1993). *Scientometrics*, **38** (2), 295-308.

Full Text: [1997\Scientometrics38, 295.pdf](1997/Scientometrics38,%20295.pdf)

Abstract: This work reports on the subject content analysis performed to 1323 records retrieved from international databases, related to the Mexican production on environmental health. The U.S. National Library of Medicine’s Medical Subject Headings (MeSH) and BIREME’s Health Sciences Descriptors (DeCS) were used as guiding tools to select the subject content of records. Overall, 97 descriptors were identified; 65 corresponded to MeSH terms and 32 were generated by the authors. Results indicated that most of the production was related to environmental pollution studies focused on water and air pollution, and environmental monitoring. Through the development of hierarchical models, patterns of subjects covered and uncovered could be easily identified. Further lines of action and research are proposed by the authors.

Keywords: Air, Air Pollution, Analysis, Content Analysis, Databases, Development, Environment, Environmental, Environmental Health, Environmental Monitoring, Environmental Pollution, Health, Information, Models, Monitoring, Pollution, Production, Research, Tools, Water

Zhang, H.Q. and Guo, H. (1997), Scientific research collaboration in China. *Scientometrics*, **38** (2), 309-319.

Full Text: [1997\Scientometrics38, 309.pdf](1997/Scientometrics38,%20309.pdf)

Abstract: the purpose of this study is to analyze the characteristics of scientific research collaboration in China by bibliometric indicators, collaborative index, degree of collaboration and level of collaboration, based on the articles published in 1218 titles of Chinese scientific and technical periodicals in the year 1993. The results suggest that the current trend of collaboration among multiauthors and multiinstitutions for producing scientific articles may have reflected the multidimensional science of China.

Keywords: Bibliometric, Bibliometric Indicators, Characteristics, China, Chinese, Co-Authorship, Collaboration, Cooperation, Current, Index, Indicators, International Collaboration, Journals, Multiple Authorship, Output, Patterns, Periodicals, Research, Research Collaboration, Science, Sciences, Trend

Notes: TTopic

Braun, T., Schubert, A. and Zsindely, S. (1997), Nanoscience and nanotechnology on the balance. *Scientometrics*, **38** (2), 321-325.

Full Text: [1997\Scientometrics38, 321.pdf](1997/Scientometrics38,%20321.pdf)

Abstract: A number of advantages of nanostructured materials over bulk materials and their potential applications in many scientific and technological fields have been revealed in recent years. To find out the main growth and trends of this exciting new science and technology fields the growth rate of the nano-prefixed terms in the title of journal papers has been measured. It has been shown that the investigations dealing with graphite nanotubes represent kinetically the most active field of research in the nanosciences.

Keywords: Applications, Balance, Graphite, Growth, Growth Rate, Investigations, Journal, Materials, Nanosciences, Nanotechnology, Recent, Research, Science, Trends

? (1997), Cumulative indexes for volumes 26-35. *Scientometrics*, **38** (3), 327-422

Full Text: Scientometrics38, 327

? Romanov, A.K. and Terekhov, A.I. (1997), The mathematical model of productivity- and age-structured scientific community evolution. *Scientometrics*, **39** (1), 3-17.

Full Text: [1997\Scientometrics39, 3.pdf](1997/Scientometrics39,%203.pdf)

Abstract: the productivity factor is very important at the mathematical simulation of scientific community evolution. In Ref. 1 the productivity index has been incorporated into the model exogenously to formulate the criterion of dynamic optimization of the scientific community age structure. In this paper we are going to include the productivity (as well as the age) in the individual state space and to derive the main dynamic equation which takes into account the stochastic fluctuations of scientific community members’ productivity and some modifications of the Fokker-Planck equation. An approximation method for the evolution model is suggested with the aid of which the computational experiment is carried out. The discussion of experimental results and possible ways for improvement and extension of model are presented.

Keywords: Age, Community, Computational, Dynamic, Evolution, Experiment, Experimental, Fokker Planck Equation, Index, Mathematical Model, Model, Optimization, Paper, Productivity, Simulation, Stochastic, Structure

Cunningham, S.J. and Dillon, S.M. (1997), Authorship patterns in information systems. *Scientometrics*, **39** (1), 19-27.

Full Text: [1997\Scientometrics39, 19.pdf](1997/Scientometrics39,%2019.pdf)

Abstract: This paper examines the patterns of multiple authorship in five information systems journals. Specifically, we determine the distribution of the number of authors per paper in this field, the proportion of male and female authors, gender composition of research teams, and the incidence of collaborative relationships spanning institutional affiliations and across different geographic regions.

Keywords: Authorship, Composition, Distribution, Female, Gender, Incidence, Information, Journals, Male, Paper, Research, Scientific Collaboration

Keywords: Access, Analysis, Bibliometric, Bibliometric Methods, Characteristics, Crisis, Information, Internet, Methods, Paper

Bar-Ilan, J. (1997), The ‘mad cow disease’, usenet newsgroups and bibliometric laws. *Scientometrics*, **39** (1), 29-55.

Full Text: [1997\Scientometrics39, 29.pdf](1997/Scientometrics39,%2029.pdf)

Abstract: In this paper the reactions of Usenet News users’ to ‘mad cow disease’ is examined. ThoUSAnds of newsgroups on an extremely wide variety of subjects exist, and anyone, having access to the Internet, can express his/her thoughts freely on this medium. We collected information on the news items relevant to ‘mad cow disease’ for a period of one hundred days starting very close to the eruption of the crisis. The analysis of the collected information reveals some similarities between the bibliometric characteristics of news items on an electronic medium and the physically printed scientific literature. As far as we know, this is one of the first attempts to systematically apply bibliometric methods to the Internet.

Notes: CCountry

Goldberg, A.I., Oigenblick, L. and Rubin, A.H.E. (1997), Scientific articles and national medical cultures: A comparison of Russian and American medical journals. *Scientometrics*, **39** (1), 57-75.

Full Text: [1997\Scientometrics39, 57.pdf](1997/Scientometrics39,%2057.pdf)

Abstract: Medical journals are products of national medical cultures, which influence the organization of medical research and the readiness to employ different research methodologies. A content analysis was undertaken to ascertain the characteristics of scientific papers in nine Russian and three American medical journals published in 1992. The American medical journals were thriving, both in appearance, and with research contributions coming from a decentralized national system of research institutions and also from European and other international research centers. Much of American medical research is ‘big science’ based on collaborative efforts of researchers at a number of institutions. Russian medical journals, in contrast, were more parochial in content, reporting mainly local research, with several primary journals serving as outlets for endeavors of sponsoring institutes. While Russian medical culture did appear to discourage Usage of classical random experimental designs, the choice of research methodologies proved to be influenced more by medical specialization than by national culture.

Keywords: Analysis, Appearance, Characteristics, Citation Analysis, Collaboration, Comparison, Content Analysis, Culture, Experimental, Health-Care, Institutions, Life Sciences, Local, Medical, Medical Journals, Products, Reporting, Research, Soviet Science

? Spasser, M.A. (1997), Mapping the terrain of pharmacy: Co-classification analysis of the International Pharmaceutical Abstracts database. *Scientometrics*, **39** (1), 77-97.

Full Text: [1997\Scientometrics39, 77.pdf](1997/Scientometrics39,%2077.pdf)

Abstract: This research uses descriptive multivariate data-analytic techniques - in particular, multidimensional scaling and hierarchical cluster analysis - to explore and visualize the structure of the pharmacy literature as refracted through the editorial policies of the International Pharmaceutical Abstracts (IPA) database. Specifically, the co-occurrence of the section headings/codes, used to exhaustively categorize publications in the IPA database, are clustered and mapped to evaluate the usefulness of two methods of section heading assignment. A secondary purpose of this research is to evaluate the use of descriptive multivariate data-analytic techniques and co-classification analysis to explore and depict the structure of an inherently heterogeneous and multidisciplinary professional literature, such as pharmacy.

Keywords: Analysis, Biotechnology, Cluster, Cluster Analysis, Combined Cocitation, Editorial Policies, Heterogeneous, Hierarchical Cluster Analysis, Methods, Multidisciplinary, Multivariate, Publications, Research, Research-And-Development, Scaling, Science, Structure, Techniques, Word Analysis

Notes: TTopic

Bird, J.E. (1997), Authorship patterns in marine mammal science, 1985-1993. *Scientometrics*, **39** (1), 99-105.

Full Text: [1997\Scientometrics39, 99.pdf](1997/Scientometrics39,%2099.pdf)

Abstract: Authorship studies in such disciplines as physics and economics show that with the passage of time there has been an increase in the number of authors per paper, indicating a trend toward more collaboration. In this study, a search was run on the Aquatic Sciences and Fisheries Abstracts database to identify marine mammal science papers published from 1985 to 1993. A total of 1308 papers published in scientific journals was examined. There were weak but statistically significant trends in the increase in the number of authors per paper as well as in the number of multi-authored papers written by authors from different institutions, with the passage of time. Possible reasons for these results include the increasing specialization of researchers necessitating collaboration, more access to electronic means of communication, and more competition for research funds. Confounding factors in this analysis include the possibility that different journals have different publication patterns and regional vs. national/international journal differences.

Keywords: Access, Analysis, Collaboration, Communication, Competition, Economics, Institutions, Journal, Journals, Mammal, Marine, Marine Mammal, Multiple Authorship, Paper, Publication, Regional, Research, Science, Trend, Trends

Notes: TTopic

Schummer, J. (1997), Scientometric studies on chemistry I: the exponential growth of chemical substances, 1800-1995. *Scientometrics*, **39** (1), 107-123.

Full Text: [1997\Scientometrics39, 107.pdf](1997/Scientometrics39,%20107.pdf)

Abstract: the number of chemical substances is considered as a cumulative measure of the cognitive growth of preparative chemistry. During the past 200 years there is approximately exponential growth without saturation. Separate analysis of organic and inorganic chemistry suggests at least a two-phase model either. Detailed discussion of the results (considering also the growth of chemists, chemical papers, patents, and chemical elements) reveals that an external (socio-economical) explanation is insufficient. Instead, an internal (methodological) approach is suggested to explain the exponential growth as well as balancing phenomena in war and post-war times.

Keywords: Analysis, Chemical, Chemical Elements, Elements, Growth, Inorganic, Model, Organic, Patents, Saturation, War

Notes: TTopic

Schummer, J. (1997), Scientometric studies on chemistry II: Aims and methods of producing new chemical substances. *Scientometrics*, **39** (1), 125-140.

Full Text: [1997\Scientometrics39, 125.pdf](1997/Scientometrics39,%20125.pdf)

Abstract: Chemistry, as today’s most active science, has increased its substances exponentially during the past 200 years without saturation. To get more insight why and how chemists produce new substances, a content analysis of 300 communications to the *Angewandte Chemie* of the years 1980, 1990, and 1995 is carried out regarding aims and methods of preparative research. In the most productive field of organic chemistry production mainly occurs to improve abilities for further production, while the less productive field of inorganic chemistry has more diverse aims. Methodological differences between organic and inorganic chemistry are discussed in detail as well as the relationship between pure and applied science.

Keywords: Analysis, Chemical, Content Analysis, Inorganic, Methods, Organic, Organic Chemistry, Production, Research, Saturation, Science

Oppenheim, C. (1997), Patent citation analysis. *Scientometrics*, **39** (1), 141.

Full Text: [1997\Scientometrics39, 141.pdf](1997/Scientometrics39,%20141.pdf)

Keywords: Analysis, Citation, Citation Analysis

? (1997), In memoriam of Vassily Vassiliyevich Nalimov, 1910-1997. *Scientometrics*, **39** (2), 143-145

Full Text: [1997\Scientometrics39, 143.pdf](1997/Scientometrics39,%20143.pdf)

Budilova, E.V., Drogalina, J.A. and Teriokhin, A.T. (1997), Principal trends in modern ecology and its mathematical tools: An analysis of publications. *Scientometrics*, **39** (2), 147-157.

Full Text: [1997\Scientometrics39, 147.pdf](1997/Scientometrics39,%20147.pdf)

Abstract: the paper deals with a scientometric analysis of publications from the journals ‘Ecology’ and ‘Ecologia’ (Russia) based on the frequencies of individual and cojoint encountering of ecological and mathematical keywords in these publications. Two main research approaches are revealed: population ecology and system ecology. The first one is used primarily in studies of plant communities, while the other in terrestrial animals and birds. Water communities are the subject of both approaches. The most spread mathematical methods are the methods of mathematical statistics which can be clustered into four groups: standard ones, multivariate methods, in particular multiple regression and multivariate analysis of variance, nonparametric or allowing deviations from normality, and methods of analysis of categorical data. Differential equations and stochastic process are used much lesser. The intensities of using mathematical methods are notably different in two journals.

Keywords: Analysis, Birds, Communities, Ecology, Equations, Groups, Methods, Multiple Regression, Multivariate, Multivariate Analysis, Paper, Plant, Plant Communities, Population, Process, Publications, Regression, Research, Russia, Standard, Statistics, Stochastic, Terrestrial, Tools, Trends

? Fonseca, L., Velloso, S., Wofchuk, S. and DeMeis, L. (1997), The importance of human relationships in scientific productivity. *Scientometrics*, **39** (2), 159-171.

Full Text: [1997\Scientometrics39, 159.pdf](1997/Scientometrics39,%20159.pdf)

Abstract: Fifty Brazilian scientists working in life sciences were interviewed in order to explore reasons of bursts and falls in their scientific productivity. Scientists recognize specific periods of time of their career during which they are more productive. Bursts of productivity are influenced mainly by human relationships and, to a lower extent, by material conditions (equipment, grants, etc), time dedicated to work and reasons linked to the kind of work carried out. The most productive scientists tend to attribute more importance to human relations than their colleagues with lower productivity scores. Some possible reasons for this discrepancy are discussed.

Keywords: Falls, Human, Importance, Life, Order, Productivity, Sciences, Scientific Productivity

Avkiran, N.K. (1997), Scientific collaboration in finance does not lead to better quality research. *Scientometrics*, **39** (2), 173-184.

Full Text: [1997\Scientometrics39, 173.pdf](1997/Scientometrics39,%20173.pdf)

Abstract: the study reports an empirical comparison of quality of collaborative research with the quality of individual research. Quality of a paper is measured by the citation rate over the four years following the year of publication. papers published in fourteen Finance journals between 1987-1991 are sampled. There is no significant difference between the quality of collaborative and individual research. Decision-makers should hesitate in interpreting collaborative research as a definitive sign of ability to produce better research.

Keywords: Authorship, Citation, Collaboration, Comparison, Lead, Paper, Productivity, Psychology, Publication, Quality, Research, Single

Notes: CCountry

Sikka, P. (1997), Statistical profile of science and technology in India and Brazil. *Scientometrics*, **39** (2), 185-195.

Full Text: [1997\Scientometrics39, 185.pdf](1997/Scientometrics39,%20185.pdf)

Abstract: By making comparison of the science indicators, the author has critically examined the development of science and technology (S&T) in India and Brazil. The SWOT analysis indicate that, with the support of federal government, both of these developing countries have built capacities and capabilities in many areas of S&T towards attaining self-reliance and have developed potential to excel in the world-market and face challenges thereof. India and Brazil are continuing to make efforts for attaining the transition from a developing to a developed country and reviewing S&T policies towards achieving industrial competitiveness.

Keywords: Analysis, Brazil, Comparison, Developing Countries, Development, India, Indicators, Industrial, Profile, Science, Support

Notes: CCountry

de Haan, J. (1997), Authorship patterns in Dutch sociology. *Scientometrics*, **39** (2), 197-208.

Full Text: [1997\Scientometrics39, 197.pdf](1997/Scientometrics39,%20197.pdf)

Abstract: This article looks at authorship patterns in Dutch sociology from 1939 to 1987. Results from co-author analysis show an increase in collaboration. Yet, most publications are still written by single authors. Network analysis of co-author relations for two seven year intervals and one six year interval distinguished 37 clusters with three or more members. Most clusters could be identified by experts. However, the clusters only partially matched their perception of research networks within Dutch sociology.

Keywords: Analysis, Authorship, Clusters, Collaboration, Perception, Publications, Research

Notes: CCountry

Persson, O., Melin, G., Danell, R. and Kaloudis, A. (1997), Research collaboration at Nordic universities. *Scientometrics*, **39** (2), 209-223.

Full Text: [1997\Scientometrics39, 209.pdf](1997/Scientometrics39,%20209.pdf)

Abstract: Scientific collaboration has become a major issue in science policy. The need to survey and follow up such collaboration calls for statistical indicators sensitive enough to reveal the structure and change of collaborative networks. Bibliometric analysis of co-authored scientific articles is one promising approach. This study presents data generated from a comprehensive analysis of some 20,000 articles produced by 22 Nordic universities (Denmark, Finland, Iceland, Norway, Sweden) in 1993. The results show that scientific collaboration plays a key role for all universities, and that they collaborate with external institutions in just about the same extent. The inter-Nordic university network comprises about ten percent of all institutional collaborations. However, the amount of collaboration varies across fields, physics and medicine having a high degree of collaboration. The inter-Nordic network is of equal importance as the national network in physics and geosciences. Especially, when one looks at international collaboration outside the Nordic arena, the number of overlapping partners is quite low. This suggests that research specialization is the major force governing international contacts.

Keywords: Analysis, Collaboration, Denmark, Finland, Follow up, Follow-up, Importance, Indicators, Institutions, International Collaboration, Key, Low, Norway, Policy, Research, Role, Science, Science Policy, Science-Policy, Scientific Collaboration, Structure, Survey, Sweden, Universities

? Kostoff, R.N. (1997), Citation analysis cross-field normalization: A new paradigm. *Scientometrics*, **39** (3), 225-230.

Full Text: [1997\Scientometrics39, 225.pdf](1997/Scientometrics39,%20225.pdf)

Abstract: A new paradigm for comparing quality of published papers across different disciplines has been proposed. This method uses a figure of merit of the ratio of actual citations received to the potential maximum number of citations that could have been received. It is analogous to approaches used to compare performance in physical systems, and appears intrinsically more useful than present approaches.

Keywords: Analysis, Citations, Performance, Physical, Quality

? WagnerDobler, R. (1997), Time dependencies of Bradford distributions: Structures of journal output in 20th-century logic and 19th-century mathematics. *Scientometrics*, **39** (3), 231-252.

Full Text: [1997\Scientometrics39, 231.pdf](1997/Scientometrics39,%20231.pdf)

Abstract: Time dependencies of Bradford distributions are investigated for 19th-century mathematics and for 20th-century logic. To facilitate comparisons, for the representation of empirical Bradford distributions “ Pareto’s law “ and Lorenz diagrams are used. It is shown that the character of a Bradford distribution (including the “ core zone “ and the “ Groos droop “) depends on the stage in the development of a scientific field and that it varies with the time-span considered.

Keywords: Core, Development, Distribution, Distributions, Index, Journal, Law, Lorenz, Output, Representation

Osareh, F. and Wilson, C.S. (1997), Third World Countries (TWC) research publications by disciplines: A country-by-country citation analysis. *Scientometrics*, **39** (3), 253-266.

Full Text: [1997\Scientometrics39, 253.pdf](1997/Scientometrics39,%20253.pdf)

Abstract: This paper discusses the publications of Third World Countries (TWC) in the Science Citation Index by disciplines. TWC documents which were nationally cross-linked at least 20 times were identified and their citing documents categorised into seven disciplines. The top 12 TWC are discussed vis-a-vis their population, Gross National Product, and the extent of participation using observed rates of contribution in each discipline and expected rates based on numbers of citations received. Brazil, Mexico, Argentina and Chile, appeared most frequently in the top five ranks in each of the seven disciplines; however, none of these countries had neither the largest population nor the highest GNP per capita. Overall observed rates exceeded expected rates in all but two disciplines: Biomedicine and Agriculture. Physics? Engineering had the highest overall observed rate with the top five TWC exceeding the overall and their individual expected rates. Brazil and Venezuela led by exceeding their expected rates in four of the seven disciplines.

Keywords: Analysis, Argentina, Brazil, Chile, Citation, Citation Analysis, Citations, Crosslinked, Journals, Mexico, Paper, Participation, Periphery, Population, Publications, Research, Science, Science Citation Index, Venezuela

? DeLooze, M.A. and Lemarie, J. (1997), Corpus relevance through co-word analysis: An application to plant proteins. *Scientometrics*, **39** (3), 267-280.

Full Text: [1997\Scientometrics39, 267.pdf](1997/Scientometrics39,%20267.pdf)

Abstract: Different corpuses are analysed by means of co-word analysis, in the framework of technological watch of the industrial valorization of plant proteins. The comparison of keyword clusters reveals unequal results, raising the question of the relevance of information retrieval. The corpuses compiled do not provide ail the important signals that can be expected from this type of study. Research on several data bases (five) provides increasingly detailed images which allow for rapid progress, with the experts, towards critical points of information.

Keywords: Analysis, Clusters, Co-Word Analysis, Comparison, Industrial, Information, Information Retrieval, Leximappe, Plant, Proteins

Gupta, B.M. and Karisiddappa, C.R. (1997), Productivity of authors as reflected by duration of their scientific participation and speed of publication. *Scientometrics*, **39** (3), 281-291.

Full Text: [1997\Scientometrics39, 281.pdf](1997/Scientometrics39,%20281.pdf)

Abstract: the paper analyses the frequency distribution of scientific productivity of authors active for same length of time in theoretical population genetics speciality. The focus of analysis is on two aspects: their actual duration of participation in total research output and the speed at which they are able to produce their research publications.

Keywords: Analysis, Distribution, Genetics, Output, Paper, Participation, Population, Productivity, Publication, Publications, Research, Scientific Productivity, Speed

Gupta, B.M., Kumar, S. and Karisiddappa, C.R. (1997), Collaboration profile of theoretical population genetics speciality. *Scientometrics*, **39** (3), 293-314.

Full Text: [1997\Scientometrics39, 293.pdf](1997/Scientometrics39,%20293.pdf)

Abstract: Traces the growth of collaborated and funded research as reflected in research papers in theoretical population genetics research speciality from 1916-80 through a case study. Analyses the proportion and extent of collaborated papers, averge number of authorship per paper, and collaborative coefficient index of research papers thereby giving an overall perspective of the growth of professionalism in the field. Studies the relation between collaboration, productivity, and funding of research papers in theoretical population genetics. Classifies the total collaborative papers/authors by type of collaboration and studies the trends and shifts in the nature and type of collaborative research over the years.

Keywords: Authorship, Case Study, Collaboration, Funding, Genetics, Growth, Index, Paper, Population, Productivity, Professionalism, Profile, Research, Sciences, Scientific Co-Authorship, Trends

Zumelzu, E. (1997), Mainstream engineering publishing in Latin America: the Chilean experience. *Scientometrics*, **40** (1), 3-12.

Full Text: [1997\Scientometrics40, 3.pdf](1997/Scientometrics40,%203.pdf)

Abstract: An analysis was made using databases at the Institute for Scientific Information (ISI) in Philadelphia concerning the productivity in the field of engineering sciences in Chile, a developing country with a neoliberal economy which has mainstream articles related to the Latin American context. This paper also mentions policies and actions to be adopted in order to strengthen R&D activities to attain a higher scientific and technological progress.

Keywords: Analysis, Chile, Databases, Economy, Engineering, Institute for Scientific Information, ISI, Latin America, Made, Order, Paper, Philadelphia, Productivity, Publishing, Science, Sciences

Todorovsky, D. (1997), On the working time budget of the university teacher. *Scientometrics*, **40** (1), 13-21.

Full Text: [1997\Scientometrics40, 13.pdf](1997/Scientometrics40,%2013.pdf)

Abstract: Results of a self-observation of the working time distribution of an university teacher for a period of 28 years are reported. Averaged over the whole period, the teaching activities take 18%, scientific work −20%, and the various kinds of administrative, organizational and technical activities −51% of the working time. The changes of the working time distribution and of the working day duration during the years and the respective data related to the months in the year are presented. The working time data are compared with the growth of the scientific production of the observed person.

Keywords: Budget, Distribution, Growth, Organizational, Production, Scientific Production, Teaching

Notes: CCountry

Anwar, M.A. and Abu Bakar, A.B. (1997), Current state of science and technology in the Muslim world. *Scientometrics*, **40** (1), 23-44.

Full Text: [1997\Scientometrics40, 23.pdf](1997/Scientometrics40,%2023.pdf)

Abstract: Reviews the current state of science and technology in the Muslim world in the light of the CASTASIA 1968 and the International Conference on Science in Islamic Polity 1983 recommendations of allocating 1.0 percent of GNP for R&D. The data presented indicates that the Muslim countries have not been able to achieve this target. OIC countries on the average spend 0.45 percent of their GNP on R&D as compared to 2.30 percent by OECD countries. Egypt which leads the Muslim countries spends 0.86 percent of its GNP on R&D as compared to 2.27 percent by Israel. Indonesia spends 0.17 percent as compared to 1.78 percent by Taiwan. Annual growth of R&D expenditure in a few Muslim countries, especially Turkey and Malaysia, is very encouraging. Muslims are also far behind in terms of R&D manpower. OIC countries have 8.5 scientists, engineers and technicians per 1,000 population as compared to 40.7 of world average and 139.3 for OECD countries. The contribution of Muslim countries to world science literature is also meagre. Forty-six Muslim countries contribute 1.17 percent to world science literature as compared to 1.66 percent by India and 1.48 percent by Spain. Twenty Arab countries contribute 0.55 percent as compared to 0.89 percent by Israel alone. Contribution to science literature is also analyzed on the basis of total population, literate population, and GNP per capita. Growth of science literature in many Muslim countries is faster than OECD countries.

Keywords: Current, Egypt, Growth, India, Indonesia, Israel, Light, Malaysia, Population, Recommendations, Science, Spain, Taiwan, Turkey

Rousseau, S. and Rousseau, R. (1997), Data envelopment analysis as a tool for constructing scientometric indicators. *Scientometrics*, **40** (1), 45-56.

Full Text: [1997\Scientometrics40, 45.pdf](1997/Scientometrics40,%2045.pdf)

Abstract: It is shown that Data Envelopment Analysis (DEA) can be used to construct relative scientific and technological indicators. The method is explained and illustrated using countries as objects of study; GDP, active population and R&D expenditure as inputs, and publications and patents as outputs. Using these parameters the efficiency of countries is assessed.

Keywords: Efficiency, GDP, Government-Sponsored Research, Indicators, Inputs, Parameters, Patents, Performance-Measures, Population, Publications

? Bhattacharya, S., Singh, S.P. and Sudhakar, P. (1997), Tracking changes in research priorities in Physics: A macro level analysis. *Scientometrics*, **40** (1), 57-82.

Full Text: [1997\Scientometrics40, 57.pdf](1997/Scientometrics40,%2057.pdf)

Abstract: This paper attempts to monitor the changes in research priorities in Physics by analyzing the research profile of thirty three countries in major fields of Physics as classified under PACS (Physics and Astronomy Classification scheme). Data is taken from INSPEC (CD-ROM) version under two different time periods - 1990 & 1995. Priority Index (PI) is used to understand the priorities of countries in major fields and shifts in their priorities during these two time periods. Correspondence analysis is applied to the matrices of research priorities to understand the multivariate relationships between countries and fields and reveal the dynamics of changes taking place in two time periods. The results and its implications for policy studies are discussed.

Keywords: Analysis, CD-ROM, Dynamics, Multivariate, PAC, Paper, Policy, Profile, Research

? Rotto, E. and Morgan, R.P. (1997), An exploration of expert-based text analysis techniques for assessing industrial relevance in US engineering dissertation abstracts. *Scientometrics*, **40** (1), 83-102.

Full Text: [1997\Scientometrics40, 83.pdf](1997/Scientometrics40,%2083.pdf)

Abstract: This paper describes exploratory research on the application of computerized text analysis techniques to all U.S. engineering doctoral dissertation abstracts dated 1981, 1986, and 1991. Experts were utilized to categorize abstracts by industrial relevance, and to identify appropriate non-technology-specific word indicators within the abstracts. Word frequency and cluster analysis techniques were also explored for their potential utility in identifying technology-related word indicators of industrial relevance. The results of this work suggest that text analysis of engineering dissertation abstracts holds potential utility for identifying industrially relevant university-based engineering research, when used in conjunction with expert input and feedback.

Keywords: Analysis, Cluster, Cluster Analysis, Engineering, Exploration, Feedback, Indicators, Industrial, Paper, Representations, Research, Science Maps, Techniques, US, Utility

? Kostoff, R.N., Eberhart, H.J., Toothman, D.R. and Pellenbarg, R. (1997), Database Tomography for technical intelligence: Comparative roadmaps of the research impact assessment literature and the journal of the American Chemical Society. *Scientometrics*, **40** (1), 103-138.

Full Text: [1997\Scientometrics40, 103.pdf](1997/Scientometrics40,%20103.pdf)

Abstract: This paper shows how Database Tomography can be used to derive technical intelligence From the published literature. Database Tomography is a patented system for analyzing large amounts of textual computerized material. It includes algorithms for extracting multi-word phrase frequencies and performing phrase proximity analyses. Phrase frequency analysis provides the pervasive themes of a database, and the phrase proximity analysis provides the relationships among the pervasive themes, and between the pervasive themes and sub-themes. One potential application of Database Tomography is to obtain the thrusts and interrelationships of a technical field from papers published in the literature within that field. This paper provides applications of Database Tomography to analyses of both the non-technical field of Research Impact Assessment (RIA) and the technical field of Chemistry. A database of relevant RIA articles was analyzed to produce characteristics and key features of the RIA field. The recent prolific RIA authors, the journals prolific in RIA papers, the prolific institutions in RIA, the prolific keywords specified by the authors, and the authors whose works are cited most prolifically as well as the particular papers/journals/institutions cited most prolifically, are identified. The pervasive themes of RIA are identified through multi-word phrase analyses of the database. A phrase proximity analysis of the database shows the relationships among the pervasive themes, and the relationships between the pervasive themes and subthemes. A similar process was applied to Chemistry, with the exception that the database was limited to one year’s issues of the Journal of the American Chemical Society. Wherever possible, the RIA and Chemistry results were compared. Finally, the conceptual use of Database Tomography to help identify promising research directions was discussed.

Keywords: Algorithms, Analysis, Applications, Assessment, Characteristics, Features, Impact, Impact Assessment, Institutions, Journal, Key, Paper, Process, Recent, Research

? Gupta, B.M. (1997), Analysis of distribution of the age of citations in theoretical population genetics. *Scientometrics*, **40** (1), 139-162.

Full Text: [1997\Scientometrics40, 139.pdf](1997/Scientometrics40,%20139.pdf)

Abstract: Analyses the age of references cited in source papers of the theoretical population genetics speciality at different phases bf its development. Discusses the characteristics of specialities in terms of obsolescence measures such as half-life and immediacy index. Explores the applicability of different theoretical probability functions in the age densities of references cited. Concludes that age of references cited is best modelled according to lognormal distribution.

Keywords: Age, Characteristics, Citations, Densities, Development, Distribution, Genetics, Half-Life, Immediacy Index, Index, Population, Probability, Source

Vinkler, P. (1997), Relations of relative scientometric impact indicators. The relative publication strategy index. *Scientometrics*, **40** (1), 163-169.

Full Text: [1997\Scientometrics40, 163.pdf](1997/Scientometrics40,%20163.pdf)

Abstract: Relations of three relative scientometric indicators (Relative Citation Rate, RCR, Relative Subfield Citedness, R-W, and Relative Publication Strategy, RPS) are studied. R-W can be calculated by the percentage share of citations divided by that of publications. The findings indicate that publishing in journals with relatively high impact factor is a necessary but not sufficient condition for attaining a high R-W index.

Keywords: 27 Science Areas, 50 Nations, Bradford Law, Citations, Condition, Impact, Impact Factor, Index, Indicators, Publication, Publications, Publishing, Strategy, Weight

Davidse, R.J. and Vanraan, A.F.J. (1997), Out of particles: Impact of CERN, DESY and SLAC research to fields other than physics. *Scientometrics*, **40** (2), 171-193.

Full Text: [1997\Scientometrics40, 171.pdf](1997/Scientometrics40,%20171.pdf)

Abstract: This paper presents the results of an exploratory bibliometric study aiming at an analysis of basic high energy physics (HEP) research impact on fields other than physics, and particularly on application-oriented R&D. After a general discussion of an extensive citation analysis of basic research publications from three HEP institutes - CERN, DESY, and SLAG - the paper focuses on the ‘knowledge flow’ from physics to non-physics, and more specifically the flow from basic physics research to the ‘applied world’. At this level, we report journal-as well as research field characteristics, and we identify the most frequently citing R&D groups. We conclude that DESY is most cited by the ‘applied world’, followed by SLAG and CERN. if the number of journals that institutes have in common - whether based on the source or the citing publication - is taken as an indicator of the resemblance of their research interests, we found that CERN and SLAG have the closest resemblance, followed by SLAG and DESY, with CERN and DESY having the least in common

Keywords: Analysis, Basic Research, Bibliometric, Bibliometric Study, Characteristics, Citation, Citation Analysis, Core, Energy, Flow, General, Groups, Impact, Indicator, Knowledge, Paper, Particles, Publication, Publications, Research, Slag, Source

Rivas, A.L., Wilson, D.J., Gonzalez, R.N., Mohammed, H.O., Quimby, F.W., Lein, D.H., Milligan, R.A., Colle, R.D., Deshler, J.D. and Trochim, W.M.K. (1997), An interdisciplinary and systems-based evaluation of academic programs: Bovine mastitis-related veterinary research, education and outreach. *Scientometrics*, **40** (2), 195-213.

Full Text: [1997\Scientometrics40, 195.pdf](1997/Scientometrics40,%20195.pdf)

Abstract: An interdisciplinary and systems-oriented approach for evaluation of academic programs was explored in veterinary research, education and extension in the context of prevention of bovine mastitis. Bibliometric-based document analysis and observation methods were used to assess disciplinary contents of veterinary research and graduate education theses, and New York Stare dairy farmers’ adoption rate of selected veterinary recommendations (bacteriological testing of raw milk, ‘closed herds’, and three hygiene-related practices). Findings indicated that: a) the veterinary extension literature was lower in output and less differentiated in disciplinary content than that of the agricultural counterpart; b) three disciplines accounted for 58% of all theses’ major contents; and c) 39.7% of New York dairies requested bacteriological testing, 50% of investigated dairies had ‘closed herds’ and at least 9.4% of those did not adopt all the hygiene-related practices. Context-specific recommendations are proposed. It is concluded that this evaluation approach may facilitate policy analysis, program development and may be applicable to other academic settings.

Keywords: Academic, Agricultural, America, Analysis, Bovine, Colleges, Development, Education, Evaluation, Interdisciplinary, Management-Practices, Methods, Milk, New York, Observation, Output, Policy, Policy Analysis, Prevention, Program, Recommendations, Research, Testing, York

Shrum, W. (1997), View from afar: ‘visible’ productivity of scientists in the developing world. *Scientometrics*, **40** (2), 215-235.

Full Text: [1997\Scientometrics40, 215.pdf](1997/Scientometrics40,%20215.pdf)

Abstract: Much of what we know about science and technology in less developed countries comes from international databases such as bibliographies and citation indices. However, it is not clear if researchers whose work appears in international databases are representative of scientists in the developing world as a whole, or whether they differ in terms of important social characteristics. A search of international databases on agriculture and natural resource management in Ghana, Kenya, and Kerala was used to compile a bibliography that could be compared with results from a face-to-face survey of researchers. Results indicate that many of the characteristics of those who are internationally visible differ from the wider population of scientists. The implication is that the ‘view from afar’ based exclusively on information drawn from international databases does not accurately reflect the population of researchers or domestic productivity in less developed countries.

Keywords: Agriculture, Characteristics, Citation, Countries, Databases, Indicators, Information, Kenya, Kerala, Mainstream Science, Management, Natural, Output, Population, Productivity, Publication, Resource Management, Science, Social, Survey, Third-World

? Nederhof, A.J. and VanWijk, E. (1997), Mapping the social and behavioral sciences world-wide: Use of maps in portfolio analysis of national research efforts. *Scientometrics*, **40** (2), 237-276.

Full Text: [1997\Scientometrics40, 237.pdf](1997/Scientometrics40,%20237.pdf)

Abstract: We have developed a method to identify and map the internationally most visible research topics occurring in the social and behavioral sciences, as well as the topics which changed most over a decade. Methods and data relevant to a portfolio analysis of national research efforts are described. Keywords used by authors in scientific or scholarly publications provide a window on scientific developments and changes in scientific research. Using an interdisciplinary database, the SSCI, developments in publications were traced world-wide and for the US, UK, France, Germany, and the Netherlands. We compared two periods: 1981-85 and 1986-90. We discuss the major substantive developments occurring during 1981-1990, as visible in maps depicting both topics and disciplines. It is shown that the maps, enriched with scientometric indicators of strengths and weaknesses of national research efforts, can be important tools for science policy. The findings indicate that the research front on many topics in both social and behavioral sciences is international in the late 1980s.

Keywords: Analysis, Behavioral, France, Front, Germany, Humanities, Indicators, Interdisciplinary, Patterns, Policy, Psychology, Publications, Research, Research Front, Research Performance, Science, Science Policy, Science-Policy, Sciences, Social, Strengths, Tools, UK, US

Kishida, K. and Matsui, S. (1997), International publication patterns in social sciences: A quantitative analysis of the IBSS file. *Scientometrics*, **40** (2), 277-298.

Full Text: [1997\Scientometrics40, 277.pdf](1997/Scientometrics40,%20277.pdf)

Abstract: A scientometric analysis of social science literature is tried by using the machine-readable files of the *IBSS* 1981-1985. This is a comprehensive international bibliography in social sciences including cultural anthropology, economics, political science and sociology. Data used were 40, 313 monograph records in the *IBSS* files. First, the number of scholarly monographs was examined by country. As a result, it is shown that a large number of monographs was published by only a very small number of countries. Second, the number of monographs was examined by language. A similar pattern as that of countries was observed. Third, the relationship between the publishing country and the language used is discussed. It is clarified that some languages, such as English, French and Spanish, are used in many countries because of their historical background such as colonization. Finally, we examined the correlation among the number of published monographs, GDP, population and the number of people attaining a university education. A regression model that incorporates GDP as explanatory variables explains well the variation of the number of monographs by countries (R2 = 0.77).

Keywords: Analysis, Background, Colonization, Correlation, Economics, Education, GDP, Historical, Language, Languages, Model, Population, Publication, Publishing, Quantitative Analysis, Regression, Regression Model, Science, Sciences, Scientific Output, Social, Social Sciences

? Urban, D. and Hoban, T.J. (1997), Cognitive determinants of risk perceptions associated with biotechnology. *Scientometrics*, **40** (2), 299-331.

Full Text: [1997\Scientometrics40, 299.pdf](1997/Scientometrics40,%20299.pdf)

Abstract: Previous research on risk perception suggests that levels of education and information influence concerns over the effects of new technology. This article reports analysis of the impact of several cognitive factors (including education and knowledge) on the perception of risks attributed to applications of modern biotechnology (based on genetic engineering) to food production and agriculture. Using data From a 1992 US-nationwide telephone survey the statistical research identifies those cognitive factors that significantly influence risk perceptions. Additionally, the study reveals those potential influences that, despite their prominence in political and popular debates on risk communication and science education, do not determine the perception of risks on biotechnology in ally significant manner.

Keywords: Agriculture, Analysis, Applications, Biotechnology, Communication, Education, Effects, Engineering, Food, Food Production, Genetic, Genetic Engineering, Impact, Information, Knowledge, Levels, Perception, Perceptions, Production, Public-Attitudes, Research, Risk, Risk Communication, Risk Perception, Risk Perceptions, Risks, Science, Survey

? Courtial, J.P. and Gourdon, L. (1997), A scientometric approach to autism based on translation sociology. *Scientometrics*, **40** (2), 333-355.

Full Text: [1997\Scientometrics40, 333.pdf](1997/Scientometrics40,%20333.pdf)

Abstract: We advance the following hypothesis with respect to the construction of scientific knowledge: a) a scientific article may be seen as bringing together differing knowledge networks within the same experimental context; b) the researcher attempts to prove the existence of objective links within this context. This process allows the researcher to link or associate his own subjective proposals to those that are verifiably objective relationships for all researchers, Researchers consolidate the relationships put forward by others accordingly. There is a statistic method which makes it possible to demonstrate these dynamics, i.e., co-word analysis, This method, applied to articles on autism, has provided results that support this hypothesis. The methods brought to bear by the majority of researchers follow these general dynamics.

Keywords: Analysis, Autism, Co-Word Analysis, Dynamics, Experimental, General, Knowledge, Methods, Process, Support

? Small, H. (1997), Comments on Belver C. Griffith, recipient of the 1997 Derek de Solla Price Award. *Scientometrics*, **40** (3), 359-362.

Full Text: [1997\Scientometrics40, 359.pdf](1997/Scientometrics40,%20359.pdf)

? Pavitt, K. (1997), Comments on John Irvine and Ben R. Martin, recipient of the 1997 Derek de Solla Price Award. *Scientometrics*, **40** (3), 363-366.

Full Text: [1997\Scientometrics40, 363.pdf](1997/Scientometrics40,%20363.pdf)

? Peritz, B. (1997), From the opening address of the conference. *Scientometrics*, **40** (3), 367-368.

Full Text: [1997\Scientometrics40, 367.pdf](1997/Scientometrics40,%20367.pdf)

? Bookstein, A. and Wright, B. (1997), Ambiguity in measurement. *Scientometrics*, **40** (3), 369-384.

Full Text: [1997\Scientometrics40, 369.pdf](1997/Scientometrics40,%20369.pdf)

Abstract: This paper gives an overview of the role of ambiguity in measurement and explores analytical methods for exploring its impact. It is argued that certain functional forms are more resilient than others to problems of ambiguity, and that these should be preferred when ambiguity is a serious concern.

Keywords: Functional, Impact, Informetric Distributions, Measurement, Methods, Paper, Role

Bhattacharya, S. (1997), Cross-national comparison of frontier areas of research in physics using bibliometric indicators. *Scientometrics*, **40** (3), 385-405.

Full Text: [1997\Scientometrics40, 385.pdf](1997/Scientometrics40,%20385.pdf)

Abstract: This paper attempts to reveal the characteristics of high activity areas of world research in Physics. ‘Frontier areas’ - areas of high activity and areas of low activity are identified. Research activities in ‘Frontier areas’ for twenty six countries (major countries) contributing maximum research output in Physics are analyzed for two time periods (1990 & 1995). The main objective of this study is to reveal the areas of research priorities, trends, gaps and similarity of research efforts of major countries in these ‘frontier’ areas. Key countries in these areas in both the time periods are identified. Multivariate Scaling Algorithm is applied to the countries and fields in each time period, and also simultaneously to understand the relationship between countries and fields and the dynamics of change in research priorities. Results and implications of this study for policy research is highlighted.

Keywords: Activity, Bibliometric, Bibliometric Indicators, Characteristics, Comparison, Dynamics, Indicators, Low, Output, Paper, Policy, Research, Similarity, Trends

Bonitz, M., Bruckner, E. and Scharnhorst, A. (1997), Characteristics and impact of the Matthew effect for countries. *Scientometrics*, **40** (3), 407-422.

Full Text: [1997\Scientometrics40, 407.pdf](1997/Scientometrics40,%20407.pdf)

Abstract: In this paper newly established characteristics of the so-called Matthew Effect for Countries (MEC) are presented: field-dependency, time-stability, order of magnitude. We find that the MEC is observable in all main scientific fields that were investigated. Over fifteen years the MEC has been relatively stable. The MEC is a redistribution phenomenon at the macro-level of the sciences. Its magnitude is small; the MEC affects only about five percent of the world production of citations. The MEC, however, crucially impacts many nations when their ‘national loss of citations’ amounts to a high percentage of their expected citations. The relationship between the MEC and Merton’s Matthew Principle is discussed. It is our hypothesis that the MEC provides an additional approach for the assessment of the scientific performance of nations.

Keywords: 27 Science Areas, 50 Nations, Assessment, Characteristics, Citations, Impact, Impacts, Order, Paper, Performance, Production, Sciences, Scientometric Weight

Notes: UUniversity

Bordons, M. and Zulueta, M.A. (1997), Comparison of research team activity in two biomedical fields. *Scientometrics*, **40** (3), 423-436.

Full Text: [1997\Scientometrics40, 423.pdf](1997/Scientometrics40,%20423.pdf)

Abstarct: A study of the structure and scientific activity of the most productive Spanish research teams in two biomedical subfields, Pharmacology & Pharmacy and Cardiovascular System (SCI), during the period 1990-93 was carried out through bibliometric indicators. The teams were characterized according to their size, production, productivity, research level and expected impact factor of their output, collaboration pattern and interdisciplinarity. Main differences between both subfields were analyzed and explained by their different clinical/basic character. The study was undertaken to identify structural or dynamic features of teams associated with good scientific performance.

Keywords: Activity, Bibliometric, Bibliometric Indicators, Collaboration, Departments, Dynamic, Features, Impact, Impact Factor, Indicators, Output, Performance, Production, Productivity, Publication-Rate, Research, SCI, Size, Structure, Team

Notes: CCountry

Czapski, G. (1997), The use of deciles of the citation impact to evaluate different fields of research in Israel. *Scientometrics*, **40** (3), 437-443.

Full Text: [1997\Scientometrics40, 437.pdf](1997/Scientometrics40,%20437.pdf)

Abstract: One often uses the average citation impact factor in order to perform international comparisons between the levels of scientific performance within given disciplines. In averaging over all (or all cited) papers one may give undue weight to papers with few citations while, in fact, the standing of a country within a given field would be better assessed by looking only at the ‘successful’ papers in that discipline. The present papers suggests that one should do so by averaging citations only over the ten (or twenty) percent of the most cited papers in a discipline and use these in order to establish a ranking between countries. The case of Israel is used as an illustration of this approach.

Keywords: Citation, Citations, Eighties, Impact, Impact Factor, Indicators, Israel, Journals, Levels, National Performances, Order, Performance, Publication Output, Ranking, Research, Science Fields, World Science

Danell, R., Engwall, L. and Persson, O. (1997), The first mover and the challenger: the relationship between two journals in organization research. *Scientometrics*, **40** (3), 445-453.

Full Text: [1997\Scientometrics40, 445.pdf](1997/Scientometrics40,%20445.pdf)

Abstract: Many new journals are started in response to increasing specialization and limited space in existing journals. In this study two journals in organization research are studied, *Administrative Science Quarterly* as the first mover in the field and *Organization Studies* as the challenger. It is shown that the new journal gradually differ from the old in terms of the national origin of its authors as well as the documents cited. It is concluded that the scientific journal market may not mirror the copy-cat behaviour found among news papers or companies in other markets.

Keywords: Journal, New Journal, Research

? Egghe, L. (1997), Fractal and informetric aspects of hypertext systems. *Scientometrics*, **40** (3), 455-464.

Full Text: [1997\Scientometrics40, 455.pdf](1997/Scientometrics40,%20455.pdf)

Abstract: the present paper studies fractal features (such as the fractal dimension) of hypertext systems (such as WWW) and establishes the link with informetric parameters. More concretely, a formula for the fractal dimension in function of the average number of hyperlinks per page is presented and examples are calculated. In general the complexity of these systems is high. This is also expressed by formulae for the total number of hypertext systems that are possible, given a fixed number of documents.

Keywords: Breeds-Success Principle, Features, Fractal Dimension, Function, General, Hyperlinks, Laws, Paper, Parameters

? Faucompre, P., Quoniam, L. and Dou, H. (1997), An effective link between science and technology. *Scientometrics*, **40** (3), 465-480.

Full Text: [1997\Scientometrics40, 465.pdf](1997/Scientometrics40,%20465.pdf)

Abstract: the link between science and technology represents a major strategic stake, so the relation between scientific bibliographic references and technical bibliographic references can be of very important documentary interest. To set up this link, International Patent Classification catchwords have been used as a switching language. A previous feasibility study had shown the possibilities of such a full automatic correspondence and its obvious inadequacies. We present here the most important modifications brought to this correspondence, in particular the consideration of multilingual indexes which allow to link several indexation fields with one of the most complete representation of patent classification. The major evolution of our project affects the correspondence mechanism which now generates a global reindexation of bibliographic reference with classification codes. We also discuss the concept of correspondence itself which must be interpreted as a simple presumption of the link. There are some consequences due to these developments: First, insofar as there is not an univocal relation, end users do not have to select switching keywords which generate concordances. They can directly use codes which symbolize the industrial property classification. Next, main documentary indicators do not seem to be adapted to measure the performance evaluation of this new field. It has the single role of suggesting trails that can be explored. Lastly, it seems that only end users should be able to supply a complete validation and we show that a documentary validation is not sufficient.

Keywords: Bibliographic References, Classification, Concept, Consequences, Effective, Evaluation, Evolution, Global, Indicators, Industrial, Language, Mechanism, Multilingual, Performance, Reference, Representation, Role, Science, Validation

? Glänzel, W. (1997), On the possibility and reliability of predictions based on stochastic citation processes. *Scientometrics*, **40** (3), 481-492.

Full Text: [1997\Scientometrics40, 481.pdf](1997/Scientometrics40,%20481.pdf)

Abstract: A statistical model for citation processes, a particular version of a non-homogeneous birth process, is analysed in the context of predictions of future citation rates. Important properties of the process were already studied by the author in earlier papers. Although the applicability of the model was demonstrated by several examples, practical aspects of predictions and questions of statistical reliability were not tackled so far. The present study is focused on the demonstration of the possibility of true predictions and on the analysis of the statistical reliability of predictions based on the mean value function E(X(t)-X(s)\X(s)=i) of citation processes. The citation rates for papers published in 1980 and 1991 were recorded in the period 1980 through 1995, and 1991 through 1995, respectively, in all science areas. It is shown that parameters of mean value Functions estimated for earlier time periods can be applied to more recent years, too. As a byproduct, the model may serve as a validation tool for the particular choice of citation windows in evaluation studies.

Keywords: Analysis, Chemistry, Citation, Evaluation, Evaluation Studies, Function, Model, Parameters, Physics, Predictions, Process, Properties, Recent, Reliability, Science, Scientific Literature, Stochastic, Validation

? Grivel, L., Polanco, X. and Kaplan, A. (1997), A computer system for big scientometrics at the age of the World Wide Web. *Scientometrics*, **40** (3), 493-506.

Full Text: [1997\Scientometrics40, 493.pdf](1997/Scientometrics40,%20493.pdf)

Abstract: A computer system combining hypertext and database management technologies is shown to be appropriate with the goals of information analysis. Such a system, HENOCH, designed to easily store any SGML document in a relational database, and to make these data accessible via the World Wide Web is exemplified in the particular case where the stored data is the result of clustering and mapping tools on bibliographic data. The software features of this system (genericity, reUSAbility, extensibility) are explained and justified by the use of the SGML tree structure and the encapsulation of creation and manipulation functions of the relational database management system (RDBMS). The interest of WWW-RDBMS-based user interface is demonstrated by two complementary types of navigation for information analysis: an intuitive exploration mode based on the map metaphor and an assisted searching mode based on the ‘Who does What, and Where, with Whom’ metaphor.

Keywords: Age, Analysis, Clustering, Cocitation, Creation, Encapsulation, Exploration, Features, Information, Interface, Management, Management System, Manipulation, Mapping, Navigation, Scientometrics, Searching, Software, Structure, Technologies, Tools, Tree, World Wide Web

Gupta, B.M., Sharma, P. and Karisiddappa, C.R. (1997), Growth of research literature in scientific specialities. A modelling perspective. *Scientometrics*, **40** (3), 507-528.

Full Text: [1997\Scientometrics40, 507.pdf](1997/Scientometrics40,%20507.pdf)

Abstarct: the paper discusses the application of three well known diffusion models and their modified versions to the growth of publication data in four selected fields of S&T. It is observed that all the three models in their modified versions generally improve their performance in terms of parameter values, fit statistics, and graphical fit to the data. The most appropriate model is generally seen to be the modified exponential-logistic model.

Keywords: Diffusion, Diffusion Models, Evolution, Growth, Innovation Diffusion, Model, Modelling, Models, Modified, Paper, Pattern, Performance, Publication, Research, Statistics, Technological Substitution

? Christensen, F.H., Ingwersen, P. and Wormell, I. (1997), Online determination of the journal impact factor and its international properties. *Scientometrics*, **40** (3), 529-540.

Full Text: [1997\Scientometrics40, 529.pdf](1997/Scientometrics40,%20529.pdf)

Abstract: the article describes the method for the online determination of the journal impact factor (JIF). The method is very simple and can be used both for the ISI defined journal impact factor and for the calculation of other generalised journal impact factors. But the direct online method fails for non-ISI journals i.e. journals not indexed by ISI to the three citation databases. for such journals only the ‘External Cited Impact Factor’ associated with citations from ISI journals (ECIFisi) can be determined online by the common method. As an extra benefit the online method makes available the determination of the geographical distribution of citations and citable units in relation to any given JIF, i.e. The international impact for a particular journal in a given year. The method is illustrated by calculating the generalised JIF, self-citations and ECIF(isi) as well as the international impact for Journal of Documentation and Scientometrics.

Keywords: Benefit, Citation, Citations, Databases, Determination, Distribution, Impact, Impact Factor, Impact Factors, ISI, Journal, Journal Impact Factors, Properties

Katz, J.S. and Hicks, D. (1997), How much is a collaboration worth? A calibrated bibliometric model. *Scientometrics*, **40** (3), 541-554.

Full Text: [1997\Scientometrics40, 541.pdf](1997/Scientometrics40,%20541.pdf)

Abstract: Interest in collaboration is increasing in policy circles. There are numerous international and national programs to encourage collaboration, for example, between university and industry researchers. However, little is know about the way in which collaboration changes the impact of a research publication. This paper explores how the impact (average citations per paper) varies with different types of collaboration. A calibrated bibliometric model is derived that demonstrates that collaborating with an author from the home institution or another domestic institution increases the average impact by approximately 0.75 citations while collaborating with an author from a foreign institution increases the impact by about 1.6 citations.

Keywords: Bibliometric, Citations, Collaboration, Home, Impact, Model, Paper, Policy, Publication, Research

Kortelainen, T.A.M. (1997), Applying concepts of diffusion research in an informetric study. *Scientometrics*, **40** (3), 555-568.

Full Text: [1997\Scientometrics40, 555.pdf](1997/Scientometrics40,%20555.pdf)

Abstract: the frame of reference of the study consists of theoretical concepts adopted from the diffusion of innovations theory. The study focuses on the diffusion of a formerly national scientific journal toward a more international audience, and on factors that have influenced the diffusion. The study is part of a larger project aiming to construct a model that describes the diffusion of a scientific journal towards an international audience based on the diffusion theory and a model of information acquisition.

Keywords: Diffusion, Information, Journal, Model, Reference, Research, Theory

Notes: CCountry

Krauskopf, M. and Vera, M.I. (1997), Assessment of scientific profiles and capabilities of Ph.D. programs in Chile: A scientometric approach. *Scientometrics*, **40** (3), 569-577.

Full Text: [1997\Scientometrics40, 569.pdf](1997/Scientometrics40,%20569.pdf)

Abstract: It is well known that the quality of a doctorate program is related to the level of involvement of its faculty in research. Thus, we worked with the hypothesis that postulates that if the in-house scientific output of the core faculty involved in a Ph.D. program can be appraised in such a manner that the achievements render quantitative and qualitative indicators, it is possible to depict profiles amenable for comparisons. We describe the methodology, that uses performance scientometric indicators, and results obtained after studying five Ph.D. programs in the field of Cell and Molecular Biology/Biochemistry in three different Chilean universities and show that the approach serves to portray the in-house capacity of each program *vis a vis* national and international standards.

Keywords: Capacity, Chile, Core, Faculty, Indicators, International Standards, Methodology, Output, Performance, Profiles, Program, Qualitative, Quality, Research, Science, Scientific Output, Standards, Universities

? Kretschmer, H. (1997), Patterns of behaviour in coauthorship networks of invisible colleges. *Scientometrics*, **40** (3), 579-591.

Full Text: [1997\Scientometrics40, 579.pdf](1997/Scientometrics40,%20579.pdf)

Abstract: the characteristic structure underlying interpersonal relations in social networks in general is identifiable in a great number of such social processes, as the spread of diseases, the propagation of information, the change of views or the dissemination of technological innovations. The patterns of behaviour reflected in the coauthorship networks of the invisible colleges of physics, resemble the general structure of relations identified in social networks beyond the communities of scholars. The patterns of behaviour are portrayed both as two-dimensional and three-dimensional models.

Keywords: Communities, Diseases, General, Information, Models, Social, Social Networks, Structure, Three-Dimensional

Notes: UUniversity

De Lange, C. and Glänzel, W. (1997), Modelling and measuring multilateral co-authorship in international scientific collaboration. Part I. Development of a new model using a series expansion approach. *Scientometrics*, **40** (3), 593-604.

Full Text: [1997\Scientometrics40, 593.pdf](1997/Scientometrics40,%20593.pdf)

Abstract: International co-operation has strongly intensified during the last decades owing to rapid developments in scientific communication. Economic, political, and intra-scientific factors also strongly influence international collaboration links among individual countries. Obviously research results of international scientific co-operation are reflected in the documented scientific communication as international co-authorship links in scientific publications. Most bibliometric studies on this issue pertain to the share of international co-authored papers in national publication output and their impact on national and international research, or to the analysis and mapping of the structure of collaboration links. The present study attempts to develop a model to measure and analyse the extent of multilateral international co-authorship links. A new indicator, the Multilateral Collaboration Index (rho) is introduced and analysed as a function of the share of internationally co-authored papers (f). Based on f a series expansion approach is applied that can be considered an extension of a fractionation model by Nederhof and Meed and allows classifying the extent of multilateral links both among science fields and among individual countries. The paper is concluded by a first attempt to estimate the errors involved in our approach.

Keywords: Analysis, Bibliometric, Bibliometric Studies, Co-Authorship, Collaboration, Communication, Countries, East, Errors, Fractionation, Function, Germany, Impact, Indicator, International Collaboration, Mapping, Model, New Model, Output, Paper, Publication, Publications, Research, Research Results, Science, Sciences, Scientific Collaboration, Scientific Communication, Scientific Publications, Structure

? Glänzel, W. and De Lange, C. (1997), Modelling and measuring multilateral co-authorship in international scientific collaboration. Part II. A comparative study on the extent and change of international scientific collaboration links. *Scientometrics*, **40** (3), 605-626.

Full Text: [1997\Scientometrics40, 605.pdf](1997/Scientometrics40,%20605.pdf)

Abstract: the present study is focused on international collaboration in science, involving more than two countries. The authors developed a promising model to measure and analyse the extent of multilateral co-authorship links in a previous study. The model is based on a series expansion approach which relates a new indicator, the Multilateral Collaboration Index (rho), to the share of internationally co-authored papers (f). The model was found suitable to classify both the share of international papers, as well as the extent of multilateral links through the deviations from their expectations. A comparative analysis is made of changing collaboration patterns between 1983 and 1993 for 8 selected subfields, as well as all fields combined of the most active 38 countries. As expected an intensification of international scientific collaboration was observed, especially for a number of former COMECON countries. Different types of behaviour for different countries and science subfields emerged.

Keywords: Analysis, Co-Authorship, Collaboration, Comparative Analysis, Comparative Study, Countries, East, Germany, Indicator, Intensification, International Collaboration, Made, Model, Science, Sciences, Scientific Collaboration

Lewison, G. (1998), New bibliometric techniques for the evaluation of medical schools. *Scientometrics*, **41** (1-2), 5-16.

Full Text: [1998\Scientometrics41, 5.pdf](1998/Scientometrics41,%205.pdf)

Abstract: Bibliometrics have been used in novel ways to assist with the evaluation of two medical schools, one in England and one in Sweden. The first evaluation was intended to allow the relative strengths in 26 subfields of five component campuses to be estimated. Selective filters for each subfield were defined, many of them with the help of the school’s research staff, so that relevant papers could be retrieved from a database on the basis of their title keywords and specialist journals. The campus outputs were then analysed by the research level of the journals (clinical/basic) and their influence. In the second evaluation, nine different indicators of research output were produced so that the school could be compared with four others in Scandinavia. The indicators included measures of output, co-authorship, journal esteem and citations by papers and by patents.

Keywords: Bibliometric, Bibliometric Techniques, Citations, Co-Authorship, England, Evaluation, Indicators, Journal, Medical, Output, Patents, Performance, Research, School, Schools, Strengths, Sweden, Techniques

Notes: TTopic

Lewison, G. and Dawson, G. (1998), The effect of funding on the outputs of biomedical research. *Scientometrics*, **41** (1-2), 17-27.

Full Text: [1998\Scientometrics41, 17.pdf](1998/Scientometrics41,%2017.pdf)

Abstract: the Research Outputs Database (ROD) has been used to investigate the effects of different input variables, including the numbers of funding bodies, on the impact of research papers in a biomedical subfield (gastroenterology). This was determined by the medium-term impact of the journals in which they were published. It was shown that, when account was taken of the effects of the other input factors, the mean impact for a group of papers increased with the number of authors, the type of research (basic more than clinical), and with the number and identity of the funding bodies. However it *decreased* slightly if there were more addresses; whether the paper was multinational had no significant effect. Previous work showing that multi-institution or multi-country papers are more highly cited reached this conclusion because it did not take into account the confounding effect of multiple funding sources, and possibly other factors.

Keywords: Biomedical Research, Clinical, Effects, Funding, Group, Identity, Impact, Paper, Research, Sources

? Luwel, M. and Moed, H.F. (1998), Publication delays in the science field and their relationship to the ageing of scientific literature. *Scientometrics*, **41** (1-2), 29-40.

Full Text: [1998\Scientometrics41, 29.pdf](1998/Scientometrics41,%2029.pdf)

Abstract: This article presents an exploratory analysis of publication delays in the science field. Publication delay is defined as the time period between submission and publication of an article for a scientific journal. We obtained a first indication that these delays are longer with regard to journals in the fields of mathematics and technical sciences than they are in other fields of science. We suggest the use of data on publication delays in the analysis of the effects of electronic publishing on reference/citation patterns. A preliminary analysis on a small sample suggests that - under rather strict assumptions - the cited half-life of references may be reduced with a factor of about 2 if publication delays decrease radically.

Keywords: Ageing, Analysis, Cited Half-Life, Effects, Half-Life, Journal, Publication, Publishing, Science, Sciences

Notes: TTopic

Macias-Chapula, C.A., Rodea-Castro, I.P. and Narvaez-Berthelemot, N. (1998), Bibliometric analysis of AIDS literature in Latin America and the Caribbean. *Scientometrics*, **41** (1-2), 41-49.

Full Text: [1998\Scientometrics41, 41.pdf](1998/Scientometrics41,%2041.pdf)

Abstract: This work reports on the preliminary results of a bibliometric analysis of AIDS literature, as produced in or about Latin America and the Caribbean for the period 1980-1996. Two international and two regional secondary sources were used in order to obtain comparative analyses regarding for example, comprehensiveness of AIDS literature coverage and local/main frame visibility. Less than 1000 records were retrieved from each of the databases searched. Leading countries in AIDSLINE were Haiti, Brasil, Mexico and Puerto Rico. The distribution by year of publication showed a decrease in Haiti records, from 54 in 1983, to 4 in 1995. The rest of the countries either increased or maintained an average production throughout the years. Regional secondary information sources were less current and comprehensive in the field. Further lines of research are described by the authors.

Keywords: AID, AIDS, Analysis, Bibliometric, Bibliometric Analysis, Caribbean, Collaboration, Countries, Current, Databases, Distribution, Field, Immunodeficiency-Syndrome AIDS, Information, Latin America, Mexico, Order, Patterns, Production, Publication, Puerto Rico, Regional, Research, Sources, Visibility

? Narin, F. and Olivastro, D. (1998), Linkage between patents and papers: An interim EPO/US comparison. *Scientometrics*, **41** (1-2), 51-59.

Full Text: [1998\Scientometrics41, 51.pdf](1998/Scientometrics41,%2051.pdf)

Abstract: A unification of more than one million non-patent references (NPR’s) on the front pages of U.S. and EPO patents has been carried out, with a subsequent match to the Science Citation Index (SCI), in order to investigate the citation linkage between patented technology and the scientific research literature. The U.S. system shows an extremely rapid increase in linkage, with citations from U.S. patents to U.S. authored papers increasing more than three-fold over the last decade. The EPO system does not show any increase; the occurrence of non-patent references appears to be relatively constant in the EPO system over the last decade. In both systems the cited papers are in relatively basic journals, especially in biomedicine. In the U.S. system approximately 75 percent of the cited papers originate in public science institutions, showing large dependence of patented industrial technology on public science. We expect to find similar result in the EPO system.

Keywords: Biomedicine, Citation, Citations, Comparison, Dependence, Front, Industrial, Institutions, Occurrence, Order, Patents, Research, SCI, Science, Science Citation Index, Technology

? Noyons, E.C.M. and Van Raan, A.F.J. (1998), Advanced mapping of science and technology. *Scientometrics*, **41** (1-2), 61-67.

Full Text: [1998\Scientometrics41, 61.pdf](1998/Scientometrics41,%2061.pdf)

Abstract: In the paper we will present the adjustments we implemented on the mapping procedure. We consider them as important improvements to make the maps more user-friendly. The improvements concern the implementation of graphical user interfaces, and the addition of ‘map-external’ information. This interface enables the users of the maps to focus onto their specific areas of interest and to determine the position of actors in the field. In addition the ‘map-external’ information contributes to an objective validation of the maps. The presentation will include a demonstration of the electronic maps and added tools.

Keywords: Implementation, Information, Interface, Interfaces, Mapping, Mapping of Science, Paper, Position, Science, Tools, Validation

? Polanco, X., Francois, C. and Keim, J.P. (1998), Artificial neural network technology for the classification and cartography of scientific and technical information. *Scientometrics*, **41** (1-2), 69-82.

Full Text: [1998\Scientometrics41, 69.pdf](1998/Scientometrics41,%2069.pdf)

Abstract: This paper describes the implementation of multivariate data analysis: NEURODOC applies the axial k-means method for automatic, non-hierarchical cluster analysis and a Principal Component Analysis (PCA) for representing the clusters on a map. We next introduce Artificial Neural Networks (ANNs) to extend NEURODOC into a neural platform for the cluster analysis and cartography of bibliographic data. The ANNs tested are: the Adaptive Resonance Theory (ART 1), a Multilayer Perceptron (MLP), and an associative network with unsupervised learning (KOHONEN). This platform is intended for quantitative analysis of information.

Keywords: Analysis, Art, Cartography, Classification, Cluster, Cluster Analysis, Clusters, Implementation, Information, Learning, Multivariate, Neural Network, Paper, PCA, Principal Component Analysis, Quantitative Analysis

? Quoniam, L., Balme, F., Rostaing, H., Giraud, E. and Dou, J.M. (1998), Bibliometric law used for information retrieval. *Scientometrics*, **41** (1-2), 83-91.

Full Text: [1998\Scientometrics41, 83.pdf](1998/Scientometrics41,%2083.pdf)

Abstract: Zipf’s law was used to qualify all the key-words of documents in a data set. This qualification was used to build a graphical representation of the resulting indicator in each document the graphical resolution leads to a document dispatch in a three dimensional space. This graphical representation was used as an information retrieval tool without using any keyword. The presentation of a case study is internet available. The graph is drawn in Virtual Reality Markup Language (VRML) allowing a dynamic picture which is linked to a Database Management System (FreeWais). The experimentation was drawn to get a first impression of documents data set by querying without any keyword.

Keywords: Case Study, Dynamic, Experimentation, Indicator, Information, Information Retrieval, Internet, Law, Qualify, Representation, Resolution, Three-Dimensional

? Rao, I.K.R. (1998), An analysis of Bradford multipliers and a model to explain law of scattering. *Scientometrics*, **41** (1-2), 93-100.

Full Text: [1998\Scientometrics41, 93.pdf](1998/Scientometrics41,%2093.pdf)

Abstract: In his book on ‘Documentation’, Bradford derived the law of scattering, based on algebric explanation with the supposition that n(1) = n(2) = n. n(1) and n(2) are computed based on average no. of articles per journals in the first three zones. An analysis of a small sample of 12 data sets, using t-test suggests that it is unlikely that n(1) = n(2). Further an attempt has been made to identify a suitable model to explain the law of scattering; among the various models tried, log-normal fits much better than many models including the log-linear model.

Keywords: Analysis, Information, Law, Made, Model, Models, Periodical Literature

? Rey, J., Martin, M.J., Plaza, L., Ibanez, J.J. and Mendez, I. (1998), Changes on publishing behavior in response to research policy guidelines. The case of the Spanish Research Council in the field of agronomy. *Scientometrics*, **41** (1-2), 101-111.

Full Text: [1998\Scientometrics41, 101.pdf](1998/Scientometrics41,%20101.pdf)

Abstract: the aim of this study is to identify changes in publishing behavior of Spanish scientists belonging to the Area of Agronomy of the Spanish Research Council (CSIC), in response to scientific policy actions carried out in Spain. for this purpose, we analyze Spanish scientific output published in Spanish journals (covered by the ICYT database) as well as in international journals (covered by the Science Citation Index), during the period 1980-1995. Congress and conference publications, books and monographs, are also considered. The following changes in publication habits have been noticed: migration of works towards SCI journals and increased use of books and monographs as channel of publication of research works. A decreasing participation of Spanish researchers in scientific meetings has also been noticed, especially since 1989.

Keywords: Behavior, Guidelines, Journals, Migration, Output, Participation, Policy, Publication, Publications, Publishing, Research, SCI, Science Citation Index, Scientific Output, Scientific Policy, Spain

Notes: CCountry

Russell, J.M. (1998), Publishing patterns of Mexican scientists: Differences between national and international papers. *Scientometrics*, **41** (1-2), 113-124.

Full Text: [1998\Scientometrics41, 113.pdf](1998/Scientometrics41,%20113.pdf)

Abstract: the publication and coauthorship patterns between 1980-1994 of 15 highly productive Mexican scientists were studied in relation to their 565 research papers involving only national institutions and 232 published with colleagues from abroad. Three scientists were selected from each of the following areas: Biomedicine, Chemistry, Physics, Astronomy and Astrophysics, and Geosciences. Parameters studied were: vehicles used for publication; document types; number of authors; collaborating countries; and author position. The results are discussed in relation to Mexico’s peripheral position with regard to the scientific center, and the increasing internationalization of Mexican science.

Keywords: Collaboration, Institutions, Position, Publication, Research, Science

? Small, H. (1998), A general framework for creating large-scale maps of science in two or three dimensions: the SciViz system. *Scientometrics*, **41** (1-2), 125-133.

Full Text: [1998\Scientometrics41, 125.pdf](1998/Scientometrics41,%20125.pdf)

Abstract: Data visualization techniques have opened up new possibilities for science mapping. To exploit this opportunity new methods are needed to position tens of thoUSAnds of documents in a single coordinate space. A general framework is described for achieving this goal involving hierarchical clustering, ordination of clusters, and the merging of ordinations into a common coordinate space. The SciViz system is presented as one particular implementation of this framework.

Keywords: Clustering, Clusters, General, Goal, Implementation, Mapping, Methods, Ordination, Position, Science, Techniques, Visualization

? Sen, S.K. and Chatterjee, S.K. (1998), Bibliographic scattering and time: An empirical study through temporal partitioning of bibliographies. *Scientometrics*, **41** (1-2), 135-154.

Full Text: [1998\Scientometrics41, 135.pdf](1998/Scientometrics41,%20135.pdf)

Abstract: Time dependence of bibliographic scattering is not at all understood. There are not many studies to establish any relation between growth of a bibliography over time and scattering. In this empirical study three different types of bibliographies have been taken. Each bibliography has been partitioned in different temporal periods (according as the particular bibliography should allow). The complete bibliography and the partitions have then been used to draw corresponding Bradford bibliographs whose natures have been studied. No conclusive relation between growth and scattering could be drawn except that the nature of the bibliograph depends on the value of concentration that is the ratio of the number of items and the number of sources in the bibliography. The paper shows that much needs to be done in this area and partition studies may be a useful technique.

Keywords: Concentration, Dependence, Growth, Paper, Partition, Partitioning, Sources, Temporal

Notes: CCountry

Stefaniak, B. (1998), International cooperation of Polish researchers with partners from abroad: A scientometric study. *Scientometrics*, **41** (1-2), 155-167.

Full Text: [1998\Scientometrics41, 155.pdf](1998/Scientometrics41,%20155.pdf)

Abstract: Publications resulting from international cooperation and included in seven SCI annual files 1987-1989 and 1992-1995 were analyzed. It was observed that after the political changes of the turn of 1980s considerable increase in the number of publications was accompanied by the geographic development of co-authorship. Information coming from SCI 1992-1995, elaborated, completed and encoded were entered into an own database designed for analytical purposes. During these four years above 9600 papers were published in over 1600 prestige journals, of which almost 2200 publications resulted from multilateral cooperation. Altogether the foreign co-authors came from 102 countries, but over 80% of international papers were published in cooperation with the partners from 11 countries. The domestic participants came from over 200 research and educational organizations. It was found that the biggest share of papers within this multidisciplinary file represented physics (40%), chemistry (21%), and biomedical research (11%).

Keywords: Biomedical Research, Collaboration, Development, Multidisciplinary, Organizations, Publications, Research, SCI

Van Hooydonk, G. and Milis-Proost, G. (1998), Measuring impact by a full option method and the notion of bibliometric spectra. *Scientometrics*, **41** (1-2), 169-183.

Full Text: [1998\Scientometrics41, 169.pdf](1998/Scientometrics41,%20169.pdf)

Abstract: A full option method for determining impact takes into account citations to all cited publications, instead of limiting the analysis to ISI-publications only, as usually done in the standard method. The method was tested for the 258 early Ghent professors, teaching in 6 different faculties. The impact of monographs is, in general, much larger than the impact of articles (whether of ISI-type or not). This result remains valid for all six faculties separately Limiting the bibliometric visibility to ISI-publications reduces the number of citations to only 16%. Bibliometric spectra are presented, in which citations, cited publications and their impact are shown in function of the year of publication. The number of cited publications is always important to expose the influence of activity (production) upon bibliometric scores. for the faculty of Arts, the citations to early professors are compared with those obtained for the present-day generation: the bibliometric spectrum for the former group is rather discontinuous (showing a large erosion in the number of citations by year), whereas that of the latter is continuous. The Ghent citation data are also compared with those given internationally in the same period.

Keywords: Activity, Analysis, Bibliometric, Citation, Citations, Erosion, Faculty, Function, General, Group, Impact, Production, Publication, Publications, Standard, Teaching, Visibility

Vinkler, P. (1998), General performance indexes calculated for research institutes of the Hungarian academy of sciences based on scientometric indicators. *Scientometrics*, **41** (1-2), 185-200.

Full Text: [1998\Scientometrics41, 185.pdf](1998/Scientometrics41,%20185.pdf)

Abstract: Activities of research institutes of the Hungarian Academy of Sciences were assessed multi-dimensionally. Taking into account *goals and tasks* of the institutes, *weighted scientometric indicators* were suggested. The weights of the individual indexes were *distributed* among the institutes by the values of their indicators. The sum of the individual weighted scores representing special aspects of the total activity yields a *General Performance Index* (GPI) which, together with a thorough peer review, may be used for distributing grants.

Keywords: Activity, Basic Research, Indicators, Peer Review, Performance, Research, Review, Weights

Notes: MModel

Wagner-Döbler, R. (1998), Scientometric evidence for the existence of long economic growth cycles in Europe 1500-1900. *Scientometrics*, **41** (1-2), 201-208.

Full Text: [1998\Scientometrics41, 201.pdf](1998/Scientometrics41,%20201.pdf)

Abstract: In times of economic stagnation, the debate about ‘long waves’ of economic growth typically refreshes. This has also been the case in the period of the world-wide economic stagnation since 1970. But the results concerning the existence of long-term cycles of economic activity are still controversial. In this contribution, the ‘ups and downs in the pulse of science and technology’ (*Price*) are related to economic growth cycles. It turns out that Schumpeter’s contention of an inverse relationship between the level of scientific and technological activity on the one side and economic growth on the other side is correct for 1500 to 1900. Thereby also an indirect proof is furnished for the existence of long economic growth cycles in the last centuries.

Keywords: Activity, Economic, Europe, Growth, Long-Term, Pulse, Science, Technological Activity

? Wilson, C.S. (1998), Defining subject collections for informetric analyses: the effect of varying the subject aboutness level. *Scientometrics*, **41** (1-2), 209-223.

Full Text: [1998\Scientometrics41, 209.pdf](1998/Scientometrics41,%20209.pdf)

Abstract: Subject literature collections are typically formed by judgements which are inexplicit and imprecise. This seems to compromise the worth of precise measurements made of their properties. In this paper an examination is made of how several commonly-measured properties of subject literatures vary as an important factor in the compilation of subject collections is varied. The factor is the amount which a document must ‘say’ about a subject for it to be included in such a collection. This document property has been expressed in formal terms and given a simple measure for the one subject examined, the research topic of Bradford’s Law of Scattering. It is found that lowering the level of subject aboutness required for admission to a collection produces a large increase in the size of the collection obtained, and an appreciable change in some size-related properties. for these properties, the initial concern is warranted. However, other parameters are found to be invariant to such changes.

Keywords: Bradford Distribution, Examination, Made, Measurements, Paper, Parameters, Properties, Research, Size

? Wouters, P. (1998), The signs of science. *Scientometrics*, **41** (1-2), 225-241.

Full Text: [1998\Scientometrics41, 225.pdf](1998/Scientometrics41,%20225.pdf)

Abstract: Since the Science Citation Index emerged within the system of scientific communication in 1964, an intense controversy about its character has been raging: in what sense can citation analysis be trusted? This debate can be characterized as the confrontation of different perspectives on science. In this paper the citation representation of science is discussed: the way the citation creates a new reality of as well as in the world of science; the main features of this reality; and some implications for science and science policy.

Keywords: Analysis, Citation, Citation Analysis, Citations, Communication, Features, Paper, Policy, Representation, Science, Science Citation Index, Science Policy, Science-Policy, Scientific Communication

? Yitzhaki, M. (1998), The ‘language preference’ in sociology: Measures of ‘language self-citation’, ‘relative own-language preference indicator’, and ‘mutual use of languages’. *Scientometrics*, **41** (1-2), 243-254.

Full Text: [1998\Scientometrics41, 243.pdf](1998/Scientometrics41,%20243.pdf)

Abstract: Although between one-third to one-half of world social sciences research literature is published in languages other than English, studies show very scant use of it by American and English scholars. Almost all studies, however, were conducted from the Anglo-Saxon perspective, limiting the scope of the study to English-published sources or English-speaking scientists and research workers. The present study aimed at assessing the scope of the language preference in a social sciences field, not only among American and British scholars, but among German and French ones as well, using the technique of citation analysis. Samples including mostly 50-60 original research articles were drawn from the 1985-1994 volumes of nine leading sociology journals published in the US, UK, Germany and France and the references appended to each were scrutinized in order to determine the frequency distribution of the languages cited in each periodical. Findings clearly showed a strong preference of writers to cite material in their own language. However, the extent of this bias differed from journal to journal. The American and British writers rank first, with close to 99% of their references being in English. German scholars rank next, preferring German sources in 75% of the cases, and French scholars quote French sources in only 66% of their references. In order to calculate the new refined measure of ‘relative own-language preference’ (ROLP) indicator, the proportions of ‘language self-citation’ were related to the estimated proportions of these languages in the existing body of sociology research. This measure reveals that German sociologists have the strongest bias towards their mother-tongue, their ratio of references in German exceeding almost 12 to 28 times the expected figure according to the German language share in sociology research. Next come French sociologists (8 to 14 times) while American and British ones display the lowest own-language bias, only slightly higher than expected. Further analysis of the foreign languages preference of each group, according to a ‘mutual-use’ matrix, shows a relative low use of German and French sources by British-American sociologists.

Keywords: Analysis, Bias, Citation, Citation Analysis, Distribution, France, Germany, Group, Indicator, Journal, Language, Languages, Low, Order, Preference, Rank, Research, Research Articles, Sciences, Social, Social Sciences, Sources, UK, US

Zitt, M. and Bassecoulard, E. (1998), Internationalization of scientific journals: A measurement based on publication and citation scope. *Scientometrics*, **41** (1-2), 255-271.

Full Text: [1998\Scientometrics41, 255.pdf](1998/Scientometrics41,%20255.pdf)

Abstract: Although impact factor and related measurements are the best-known features of scientific journals, other characteristics are of particular interest. The way a journal reflects the internationalized nature of science may be determined by many methods, one of which is based on the distribution of authoring and citing countries. This can be systematically measured either by a comparison of these distributions with averages profiles of a discipline or specialty, or by concentration indexes on the other. This paper focuses on the first approach. As the average profile of science drifts with the level of visibility, stratification by impact level is discussed. In this study, experimental internationalization indexes were calculated on the SCI for journals belonging to Earth&Space and Applied Biology. Convergence of measurements (types of indexes, type of normalization, publication vs citation scope) is adressed. Internationalization indexes may have a variety of applications, including characterization of the scientific publishing market and sampling of the SCI for science indicators.

Keywords: Applications, Averages, Characteristics, Characterization, Citation, Comparison, Concentration, Distribution, Distributions, Drifts, Experimental, Features, Impact, Impact Factor, Indicators, Journal, Measurement, Measurements, Methods, Paper, Profile, Profiles, Publication, Publishing, Sampling, SCI, Science, Set, Stratification, Visibility

Okubo, Y., Dore, J.C., Ojasoo, T. and Miquel, J.F. (1998), A multivariate analysis of publication trends in the 1980s with special reference to South-East Asia. *Scientometrics*, **41** (3), 273-289.

Full Text: [1998\Scientometrics41, 273.pdf](1998/Scientometrics41,%20273.pdf)

Abstract: This study is a follow-up to a published Correspondence Factor Analysis (CFA) of a dataset of over 6 million bibliometric entries. In the previous paper, CFA was used to show how the 48 most prolific countries stand in relation to each with regard to their publication interests in 17 specific disciplinary areas and one multidisciplinary field over the period 1981-1992. In this paper, we illustrate how the publication profiles of these 48 countries evolved over time during this period. We have (i) shown how analysis of the dataset highlights cutting edge versus ancient disciplines; (ii) identified the countries whose publication patterns underwent the most marked changes (e.g. The Asian dragons who chose to focus on engineering, materials sciences, computer sciences and molecular biology), and (iii) revealed the widespread attraction exerted by the publication pattern of the USA. There is, without doubt, an overall shift toward an American-style pattern that may be a true reflection of research interests worldwide but that may also be explained by the hegemony of those who hold the reins of international publication.

Keywords: 48 Countries, Analysis, Asia, Asian, Bibliometric, Biology, Collaboration, Cutting, Engineering, Follow up, Follow-up, Materials, Molecular Biology, Multidisciplinary, Multivariate, Multivariate Analysis, Paper, Patterns, Period 1981-1992, Profiles, Publication, Reference, Research, Science, Sciences, Southeast, Southeast Asia, Trends, Typology, USA

? O’Neill, G.P. (1998), Authorship patterns in theory based versus research based journals. *Scientometrics*, **41** (3), 291-298.

Full Text: [1998\Scientometrics41, 291.pdf](1998/Scientometrics41,%20291.pdf)

Abstract: This article examines authorship pattern in two theory based journals, one American and one Canadian. Data were collected on the number of single, double, and multiple authors from 1955 to 1994 in Educational Theory and from 1970 to 1994 in the Journal of Educational Thought. The years were, in turn, divided into eight and five five-year intervals respectively. Frequencies and percentages were generated for each interval and chi squares were computed between intervals and overall. In addition, author/article ratios were calculated for each year for Educational Theory. Results revealed that the majority of authorships were single in both journals regardless of the date of publication. These findings further challenge de Solla Price’s predictions that co-and multiple authorships would eventually outnumber single authorships. The failure to distinguish between journal type and to allow for discrepancies within disciplines raises new concerns about conclusions drawn, to date, in the literature.

Keywords: Authorship, Clinical Research, Journal, Multiple Authorship, Predictions, Publication, Research, Theory, Trend

Fonseca, L., Velloso, S., Wofchuk, S. and de Meis, L. (1998), The relationship between advisors and students. *Scientometrics*, **41** (3), 299-312.

Full Text: [1998\Scientometrics41, 299.pdf](1998/Scientometrics41,%20299.pdf)

Abstract: Considering the influence of graduation courses on the scientific productivity in Brazil, fifty productive Brazilian scientists working in life sciences were interviewed about their relationship with their advisors and their own experience with their students. Admired by freedom and intellectual qualities, by their love and dedication for science, advisors seem to have had a deep influence on their students. This bond is not free from either an idealized frame or from some complaints and conflicts. Interviewed scientists see in themselves lesser qualities and faults but the same respect for freedom. Some students are thought to be specially important to the interviewed’s productivity. Eldest and most productive scientists seem to be intellectually more impressed by their advisors than the other groups. The emotional and sometimes strong and idealized bond between advisor and students lead us to believe that the stated frequencies of conflicts might be underestimated.

Keywords: Brazil, Emotional, Graduation, Groups, Lead, Life, Productivity, Science, Sciences, Scientific Productivity, Students

Notes: CCountry

Leta, J., Lannes, D. and de Meis, L. (1998), Human resources and scientific productivity in Brazil. *Scientometrics*, **41** (3), 313-324.

Full Text: [1998\Scientometrics41, 313.pdf](1998/Scientometrics41,%20313.pdf)

Abstract: the number of Brazilian scientific publications increased from 0.29% to 0.56% of the worldwide total during the 1981-1993 period. There was a decrease of the funds allocated to most scientific activities, except for that allocated for training of new scientists. The numbers of research fellowships and scientific publications increased at the same ratio during the period. The pattern of scientific publications and the number of fellowship granted along the years in the different fields of research were analyzed. The data presented indicate that even in a period of economic crisis, a selective investment of funds in human resources may lead to an increase of the scientific productivity of a country in all science fields.

Keywords: Brazil, Crisis, Economic, Fellowship, Human, Latin-America, Lead, Productivity, Publications, Research, Science, Scientific Productivity, Scientific Publications, Selective, Training

? So, C.Y.K. (1998), Citation ranking versus expert judgment in evaluating communication scholars: Effects of research specialty size and individual prominence. *Scientometrics*, **41** (3), 325-333.

Full Text: [1998\Scientometrics41, 325.pdf](1998/Scientometrics41,%20325.pdf)

Abstract: Numerous attempts have been made to validate the use of citation as an evaluation method by comparing it with peer review. Unlike past studies using journals, research articles or universities as the subject matter, the present study extends the comparison to the ranking of individual scholars. Results show that citation ranking and expert judgment of communication scholars are highly correlated. The citation method and the expert judgment method are found to work batter in smaller research areas and yield more valid evaluation results for more prominent scholars.

Keywords: Citation, Communication, Comparison, Evaluation, Made, Matter, Peer, Peer Review, Ranking, Research, Research Articles, Research Performance, Review, Size, Universities, Validate, Yield

Thomas, P.R. and Watkins, D.S. (1998), Institutional research rankings via bibliometric analysis and direct peer review: A comparative case study with policy implications. *Scientometrics*, **41** (3), 335-355.

Full Text: [1998\Scientometrics41, 335.pdf](1998/Scientometrics41,%20335.pdf)

Abstract: Recent years have seen enormously increased interest, in the comparative evaluation of research quality in the UK, with considerable resources devoted to ranking the output of academic institutions relative to one another at the sub-discipline level, and the disposition of even greater resources dependent on the outcome of this process. The preferred methodology has been that of traditional peer review, with expert groups of academics tasked to assess the relative worth of all research activity in ‘their’ field. Extension to institutional evaluation of a recently refined technique of journal ranking (Discipline Contribution Scoring) holds out the possibility of ‘automatic’ evaluation within a time-frame considerably less than would be required using methods based directly on citation counts within the corpus of academic work under review. This paper tests the feasibility of the technique in the sub-field of Business and management Studies Research, producing rankings which are highly correlated with those generated by the much more complex and expensive direct peer review approach. More generally, the analysis also gives a rare opportunity directly to compare the equivalence of peer review and bibliometric analysis over a whole sub-field of academic activity in a non-experimental setting.

Keywords: Academic, Activity, Analysis, Bibliometric, Bibliometric Analysis, Case Study, Citation, Complex, Departments, Determinants, Evaluation, Groups, Institutions, Journal, Journals, Management, Methodology, Methods, Outcome, Output, Paper, Peer Review, Policy, Policy Implications, Process, Psychology, Publication, Quality, Ranking, Rankings, Research, Research Performance, Research Quality, Review, Sciences, Scores, Tests, UK

? Jain, A., Garg, K.C., Sharma, P. and Kumar, S. (1998), Impact of SERC’s funding on research in chemical sciences. *Scientometrics*, **41** (3), 357-370.

Full Text: [1998\Scientometrics41, 357.pdf](1998/Scientometrics41,%20357.pdf)

Abstract: the paper assesses impact of Science and Engineering Research Council (SERC) funding in chemical sciences during 1976-1989 using scientometric techniques. Other indicators like awards won, fellowship to prestigious academies, membership to editorial boards received by the project investigators, Ph.D. degrees awarded, collaborations established and new courses introduced due to SERC funding have also been analyzed. The study indicates that activity index of research out put in various frontier areas of chemical sciences have gone up despite a decrease in Indian activity index in these areas. The growth pattern of papers for ‘Organometallic and Organometalloidal Compounds’ are similar for India and world. Contribution of SERC’s project investigators in high impact factor (greater than or equal to 2) journals and the citations received by the papers published by them are higher than Indian contributions in chemical sciences. The SERC funding has resulted in a three fold increase in the number of Ph.D, degrees awarded in chemical sciences and SERC project investigators have won many prestigious awards, fellowship to academies and membership of the editorial board of the journals. The SERC funded research has also resulted in new courses at various universities.

Keywords: Activity, Chemical, Citations, Fellowship, Funding, Growth, Impact, Impact Factor, Index, India, Indicators, Model, Paper, Research, Sciences, Techniques, Universities

Notes: UUniversity

Schwarz, A.W., Schwarz, S. and Tijssen, R.J.W. (1998), Research and research impact of a technical university: A bibliometric study. *Scientometrics*, **41** (3), 371-388.

Full Text: [1998\Scientometrics41, 371.pdf](1998/Scientometrics41,%20371.pdf)

Abstract: the research output of the Danish Technical University (DTU) has been studied as an aspect of the organization’s research policy and visibility in its international context. papers published in the three-year period (1992-94) were grouped according to 20 clusters of research areas. Using citation analysis techniques, the dynamics of citation frequencies, and a number of other features of the research system, like self-citation, research collaborations, relative impact on the international literature, etc., could be studied. The methods can be used to analyze institutional and national research efforts and to monitor effects of changing policies.

Keywords: Analysis, Bibliometric, Bibliometric Study, Citation, Citation Analysis, Dynamics, Indicators, International, Literature, Methods, Policy, Research, Research Performance, Research Policy, Self-Citation, Techniques, University

? Mccain, K.W. (1998), Neural networks research in context: A longitudinal journal cocitation analysis of an emerging interdisciplinary field. *Scientometrics*, **41** (3), 389-410.

Full Text: [1998\Scientometrics41, 389.pdf](1998/Scientometrics41,%20389.pdf)

Abstract: A cocitation analysis for thirty-six journals and other publications in neural networks research and related disciplines was conducted over three consecutive time periods spanning the years 1990 - early 1997. Cluster analysis and MDS maps identified groupings representing foundation research areas (physics/optics, computer engineering, neuroscience, expert systems gi cognition, and perception) along with neural networks and mathematical modeling of neural systems. Principal components analysis demonstrated a similar structure, with several journals and books loading on a majority of the factors. An INDSCAL analysis showed an increasing separation between natural sciences/psychology and engineering/neural networks research from the first time period to the third.

Keywords: Analysis, Cocitation, Cognition, Engineering, Expert Systems, Interdisciplinary, Journal, Loading, Longitudinal, Mathematical Modeling, Modeling, Natural, Neural Networks, Neuroscience, Perception, Publications, Research, Separation, Specialties, Structure

? Marton, J., Hulesch, H. and Zallar, I. (1998), Intensity breeds effectivity. *Scientometrics*, **41** (3), 411-415.

Full Text: [1998\Scientometrics41, 411.pdf](1998/Scientometrics41,%20411.pdf)

Abstract: the 1990-1996 publication activity of 10 medium-sized European countries in the leading journals of 37 life science disciplines and in the seven top general life science journals was investigated. for each country the number of leading disciplinary journal articles per 100000 inhabitants (intensity) was compared to the percentage of top journal articles (:effectivity). A high and significant correlation, i.e. quality heightening was found.

Keywords: Activity, Correlation, General, Intensity, Journal, Life, Output, Publication, Quality, Science

? Vinogradov, A.E. (1998), Scientists of old vintage support a ‘winter-biased birthday’ theory. *Scientometrics*, **41** (3), 417-420.

Full Text: [1998\Scientometrics41, 417.pdf](1998/Scientometrics41,%20417.pdf)

Abstract: the association of the season of birth with lifetime intellectual achievement was studied by means of analysis of two data sets, one of the prominent chemists of the world and another of members of the Russian Academy of Sciences (RAS). It is found that a (statistically) significantly greater number of prominent chemists born before 1850 and of the full members of RAS born before 1875 were born in month of the winter half-year than of the summer one. The effect was gradually decreasing with time, the decrease being slower in Russia. The possible influence of the season of birth on the early personality development is discussed.

Keywords: Achievement, Analysis, Dates, Development, Lifetime, Personality, RAS, Revolutionary Birthdays, Russia, Season, Support, Theory, Winter

Notes: CCountry

Mély, B., el Kader, M.Abd., Dudognon, G. and Okubo, Y. (1998), Scientific publications of China in 1994: Evolution or revolution? *Scientometrics*, **42** (1), 3-16.

Full Text: [1998\Scientometrics42, 325.pdf](1998/Scientometrics42,%20325.pdf)

Abstract: SCI data bases have been widely used to analyse scientific production of various nations, their position in the international research community as well as their fields specializations. In the present study we examined, within the same methodological framework, the impact of the drastic reorientation of science funding systems which occurred in China (PRC) in the midst of the eighties. A decade after this turning point the pattern of Chinese publications from the 1994 SCI-CDRom reflects those of other countries although with its own peculiarities i.e. a relative weakness of life sciences and a prevalence of fundamental physics compared to the world average. Some effect of PRC’s policy could nevertheless be detected on this SCI profile like e.g. a neat increase of international papers after the opening of the country or the relatively high weight of collaborative works with laboratories from Hong Kong. We suggest that SCI data base is best suited for the analysis of public research of international standard due to the narrowness of the SCI window concerning applied research.

Keywords: Analysis, Base, China, Chinese, Collaboration, Community, Countries, Funding, Hong Kong, Impact, Life, Policy, Position, Prevalence, Production, Profile, Publications, Research, SCI, Science, Sciences, Scientific Production, Standard, Turning

Notes: CCountry

? Raina, D. and Gupta, B.M. (1998), Four aspects of the institutionalization of physics research in India (1900-1950): Substantiating the claims of historical sociology through bibliometrics. *Scientometrics*, **42** (1), 17-40.

Full Text: [1998\Scientometrics42, 17.pdf](1998/Scientometrics42,%2017.pdf)

Abstract: This paper examines the process of the institutionalization of research in physics in India. In order to do so, it employs bibliometric data such as research publications in physics research journals between 1900 and 1950. This data is then analyzed to obtain certain indicators that are pointers of the aspects of the institutionalization of research in physics in India. The four aspects of institutionalization studied here are important for the researches of those adopting sociological approaches in the study of the history of sciences. Thus the bibliometric techniques employed complements the efforts of historians of science studying the professionalization of physics research in India, and in this case those dealing with disciplines like physics. Further, the bibliometric data helps substantiate the claims of historians of science that the years 1905 to 1935 were particularly important for the history of physics in India. The conclusions of historians are based on success stories of a few leading physicists of the time. Within an institutional framework, this paper argues that there was a larger ground swell indicative of the emergence of a physics research community in India.

Keywords: Bibliometric, Bibliometric Techniques, Bibliometrics, Collaboration, Community, Emergence, Historical, History, India, Indicators, Order, Paper, Process, Publications, Research, Research Journals, Science, Sciences, Techniques

Tijssen, R.J.W. and van Wijk, E. (1998), The global science base of information and communication technologies: Bibliometric analysis of ICT research papers. *Scientometrics*, **42** (1), 41-60.

Full Text: [1998\Scientometrics42, 41.pdf](1998/Scientometrics42,%2041.pdf)

Abstract: the science and engineering base is a key source of knowledge for the development and use of Information and Communication Technologies (ICTs). In order to be able to effectively describe and monitor world-wide scientific activity related to ICTs, it is important to be able to provide reliable macro-level statistics of this knowledge base. International bibliographic databases and related bibliometric indicators together provide an analytical framework and appropriate measures to cover both the ‘supply side’ - research capabilities and outputs - and ‘demand side’ - collaboration, diffusion and citation impact - related to the ICT research. This paper presents results of such a bibliometric study describing macro-level features of this ICT knowledge base. The data were retrieved from a specially developed *CWTS ICT Database* which provides a broad-scope world-wide coverage of ICT-relevant research papers published in high-quality international scientific and technical journals. The cross-country comparison focuses on the level of scientific output and co-operation patterns of the most actively publishing nations with a focus on the three Triad zones - the European Union, the USA and Japan.

Keywords: Activity, Analysis, Base, Bibliographic Databases, Bibliometric, Bibliometric Indicators, Bibliometric Study, Citation, Collaboration, Communication, Comparison, Databases, Development, Diffusion, Engineering, Engineers, European Union, Features, Global, Indicators, Information, Information and Communication, Japan, Key, Knowledge, Knowledge Base, Order, Output, Paper, Patterns, Publishing, Research, Science, Scientific Output, Source, Statistics, Technologies, USA

Fernández, J.A. (1998), The transition from an individual science to a collective one: the case of astronomy. *Scientometrics*, **42** (1), 61-74.

Full Text: [1998\Scientometrics42, 61.pdf](1998/Scientometrics42,%2061.pdf)

Abstract: the trend toward collectivization in Astronomy during this century (1901-1996), as measured by the increase in the number of authors per paper, is analyzed. for this purpose, two leading astronomical journals: the *Astrophysical Journal and Monthly Notices of the Royal Astronomical Society* are surveyed. It is found that the average number of authors per paper has jumped from a little more than one in the first half of this century to about three at present. Most of this dramatic increase has taken place during the last 20-25 years. At the same time, the ratio of *collective* papers (three or more authors) to single-authored ones has passed from nearly zero to 3-4 at present. The latter means that collective papers were almost nonexistent until the fifties or sixties to become nowadays 3-4 times more frequent than single-authored ones. The reasons underlying the collectivization of Astronomy (and perhaps of all natural sciences) are analyzed. The growing professionalization of science accompanied by a massive influx of graduate students into University research institutes, the revolution in communication, the pressure to publish in order to progress in a scientific career, and the growing complexity of knowledge are invoked as causes for the abandonment of the traditional individualism in science to a collective regime.

Keywords: Communication, Knowledge, Natural, Order, Paper, Pressure, Research, Science, Sciences, Students, Trend, Trends

Rousseau, S. and Rousseau, R. (1998), The scientific wealth of European nations: Taking effectiveness into account. *Scientometrics*, **42** (1), 75-87.

Full Text: [1998\Scientometrics42, 75.pdf](1998/Scientometrics42,%2075.pdf)

Abstract: In this study we continue the application of Data Envelopment Analysis (DEA) to assess the efficiency and effectiveness of the R&D effort of European countries. We use GDP, active population and R&D expenditure as inputs, and publications and patents as outputs. Being effective means that, in order to obtain a maximum efficiency score countries are forced to perform on every output goal. A discussion of each country’s performance and a comparison with May’s Science results concludes our analysis.

Keywords: Analysis, Comparison, Effective, Effectiveness, Efficiency, GDP, Goal, Inputs, Order, Output, Patents, Performance, Population, Publications

Wang, C.D. and Wang, Z. (1998), Evaluation of the models for Bradford’s law. *Scientometrics*, **42** (1), 89-95.

Full Text: [1998\Scientometrics42, 89.pdf](1998/Scientometrics42,%2089.pdf)

Abstract: A goodness of fit test is conducted for two models for Bradford’s law given by Egghe and Smolkov. The conclusion is that Smolkov’s model is of comparatively higher accuracy. Finally the paper points out the necessity of carrying out statistical tests for comparisons more frequently for the new models of Bradford’s law in the development of the law in order to get the best model.

Keywords: Accuracy, Development, Law, Model, Models, Order, Paper, Statistical Tests, Test, Tests

? Falkingham, L.T. and Reeves, R. (1998), Context analysis - A technique for analysing research in a field, applied to literature on the Management of R&D at the Section Level. *Scientometrics*, **42** (2), 97-120.

Full Text: [1998\Scientometrics42, 97.pdf](1998/Scientometrics42,%2097.pdf)

Abstract: Context analysis is a new method for appraising a body of publications. The process consists of creating a database of attributes assigned to each paper by the reviewer and then looking for interesting relationships in the data. Assigning the attributes requires an understanding of the subject matter of the papers. We present findings about one particular research field, Management of R&D at the Section Level. Our findings support the view that this body of academic publications does nor meet the needs of practitioner R&D managers. The paper discusses practical aspects of how to apply the method in other fields.

Keywords: Academic, Analysis, Matter, Paper, Process, Publications, Research, Strategic Management, Support, Technology

? Nemtsov, A.V. and Zorin, N.A. (1998), Mathematical methods in psychiatric papers. *Scientometrics*, **42** (2), 121-128.

Full Text: [1998\Scientometrics42, 121.pdf](1998/Scientometrics42,%20121.pdf)

Abstract: A comparative study was carried out to determine the trend in the use of statistical methods in the papers published in the leading Russian, American and British psychiatric journals of the 1980 -90 -ies. Within 10 years the quota of papers with statistics increased considerably in the American and British journals (from 58.6% to 67.6%), especially in the Archives of General Psychiatry (88%). Qualitative changes were notable as well, tending towards the use of non-ordinary innovative.;methods. As regards the Russian psychiatric papers the use of statistical methods was a rare occurrence (21.8% in 1980s), that never changed within 10 years.

Keywords: Comparative Study, Methods, Occurrence, Statistical Methods, Statistics, Trend

de Oliveira Cabral, J.E. (1998), Survey on technological innovative behavior in the Brazilian Food Industry. *Scientometrics*, **42** (2), 129-169.

Full Text: [1998\Scientometrics42, 129.pdf](1998/Scientometrics42,%20129.pdf)

Abstract: This paper is based on the information collected through a survey on technological innovation in a relatively large sample of 1000 firms of the Brazilian Food industry (hereafter BFI). 248 firms (24.8%) responded to the questionnaire and 77 (31.0%) declared that they had introduced innovations in the period surveyed (1994-1996). This paper concentrates both on the different characteristics related to food firms and innovative activity and on the nature of the innovations. Regarding the former we have asked questions about firms’ industrial sector, major activities, production stages, ownership, age, turnover, exports effort, advertising, R&D and technological innovation effort, size (number of employees), external alliances, organization of management functions (technological innovation policy, long term strategic plan, marketing research), and perceived barriers to innovation. Regarding the nature of the innovations, questions included: institutional sources of knowledge of the innovations, sources of innovations (external or internal), degree of protection of innovations (patents and other means), external collaboration, novelty of innovations (radical or incremental), type of innovations (product, process or combined), newness of innovations (to the world, to the country or to the firm), and impact of innovations on inputs (manpower, material, capital and energy). The results of the research are presented in this paper in a descriptive way. Therefore, we have not carried out advanced statistical analysis and we have not tried to establish cause-effect relationships among variables, but just links among them and trends. From the analysis, we can claim that technological innovation is actually a very complex process within firms, even though they are in a so called ‘low-tech’ industry. Nevertheless, it is possible to identify outstanding factors linked to this process both at industry level (some sectors are more innovative than others) and at Arm level (the large firms tend to be more innovative than small ones).

Keywords: Activity, Advertising, Age, Analysis, Barriers, Behavior, Capital, Characteristics, Collaboration, Complex, Energy, Firms, Food, Impact, Industrial, Information, Innovation, Inputs, Knowledge, Long-Term, Management, Paper, Patents, Plan, Policy, Process, Production, Protection, Questionnaire, Radical, Research, Size, Sources, Statistical Analysis, Survey, Technical Change, Technological Innovation, Trends, Turnover

? Kutlaca, D.G. (1998), Patent-related activities in Serbia from 1921 to 1995. *Scientometrics*, **42** (2), 171-193.

Full Text: [1998\Scientometrics42, 171.pdf](1998/Scientometrics42,%20171.pdf)

Abstract: In 1883 the Kingdom of Serbia was a co-founder of the well-known Paris Convention dedicated to protection of industrial property. This paper presents the analysis of inventive activities in Serbia in the period from 1921 to 1995. The available patent statistics is analyzed from the aspects of: (a) patenting structure according to the International Patent Classification sections, and (b) patenting dynamics. The findings of analysis indicate: (1) the fields in which technology development potentials are created in Serbia, and (2) the variations in inventors’ productivity as a direct consequence of the variation in the country’s innovation policy.

Keywords: Analysis, Development, Dynamics, Industrial, Innovation, Paper, Policy, Productivity, Protection, Statistics, Structure

Meyer, M. and Persson, O. (1998), Nanotechnology - Interdisciplinarity, patterns of collaboration and differences in application. *Scientometrics*, **42** (2), 195-205.

Full Text: [1998\Scientometrics42, 195.pdf](1998/Scientometrics42,%20195.pdf)

Abstract: Nanotechnology is a novel technological field said to be one of the key technologies in the 21st century revolutionizing information technology, materials and medicine. Bibliometric quantification is a way to show the emergence of a new technology. Braun et al. (1) could establish an exponential growth pattern of publications in nano-science and technology starting in the early 1990s. Using their study as basis we intend to further characterize nanotechnology using bibliometric as well as patent data. We can show that the share of boundary-spanning publications is exceptionally high in the field of nanotechnology. Our co-authorship analysis indicates that countries follow different patterns of collaboration. Some countries tend to have bilateral relations while others collaborate with a much larger array of nations. Patent data in combination with bibliometric reveals differences in the application of science. In our conclusion we raise a number of questions requiring an analysis using also other types of data. Still, a closer investigation and disaggregation of bibliometric data may come up with additional findings.

Keywords: Analysis, Bibliometric, Bilateral, Co-Authorship, Collaboration, Disaggregation, Emergence, Growth, Information, Information Technology, Investigation, Key, Materials, Nanotechnology, Publications, Quantification, Science, Technologies

? Bar-Ilan, J. (1998), On the overlap, the precision and estimated recall of search engines, a case study of the query ‘Erdos’. *Scientometrics*, **42** (2), 207-228.

Full Text: [1998\Scientometrics42, 207.pdf](1998/Scientometrics42,%20207.pdf)

Abstract: In this paper we investigate the retrieval capabilities of six Internet search engines on a simple query. As a case study the query ‘Erdos’ was chosen. Paul Erdos was a world famous Hungarian mathematician, who passed away in September 1996. Existing work on search engine evaluation considers only the first ten or twenty results returned by the search engine, therefore approximation of the recalls of the engines has not been considered so far. In this work we retrieved all 6681 documents that the search engines pointed at and thoroughly examined them. Thus we could calculate the precision of the whole retrieval process, study the overlap between the results of the engines and give an estimate on the recall of the searches. The precision of the engines is high, recall is very low and the overlap is minimal.

Keywords: Case Study, Evaluation, Internet, Low, Paper, Precision, Process

Anegon, F.D., Contreras, E.J. and Corrochano, M.D. (1998), Research fronts in library and information science in Spain (1985-1994). *Scientometrics*, **42** (2), 229-246.

Full Text: [1998\Scientometrics42, 229.pdf](1998/Scientometrics42,%20229.pdf)

Abstract: Publications and author cocitations in library and information science in Spain during the period from 1985 to 1994 were analyzed as a measure of the structure, specificity and composition of research fronts in this country. A cocitation matrix developed from an ad hoc database was subjected to cluster analysis, multidimensional scaling and principal components analysis. The resulting cocitation maps identified specific areas of research and their knowledge bases. we inferred the degree of consolidation of the discipline of library and information science, and of the subdisciplines informetrics, librarianship and university affiliation, from the research activities revealed. In this respect, the conclusions from the study show the existence of several research fronts in Spanish literature the contents of which are in most cases difficult to compare with those in other countries. A lesser degree of maturity of research in this field is shown.

Keywords: Analysis, Citation Analysis, Cluster, Cluster Analysis, Co-Citation, Cocitation, Composition, Indicators, Information, Information Science, Informetrics, Intellectual Structure, Knowledge, Library and Information Science, Principal Components, Principal Components Analysis, Research, Scaling, Science, Spain, Specificity, Structure

Notes: UUniversity

Friedrich, M.P. and Rodrigues, P.D. (1998), Looking at science in Brazilian universities: the case of the Instituto de Biofisica Carlos Chagas Filho. *Scientometrics*, **42** (2), 247-258.

Full Text: [1998\Scientometrics42, 247.pdf](1998/Scientometrics42,%20247.pdf)

Abstract: Performance indicators were built for the Institute de Biofisica Carlos Chagas Filho, one of the most well-reputed Brazilian science centers. The Institute’s performance presents a positive trend - articles number have doubled (1981-1995), and the articles impact grew from 4.20, in 1981, to 7.78, in 1990. This trend is probably being influenced by increasingly human resources involved in the Institute’s scientific activities and by the continuous growth of national and international collaboration. The follow up of indicators trends can be useful for the evaluation of long term policies directed to implement human resources programs and institutional collaborative work among scientific institutions.

Keywords: Collaboration, Evaluation, Follow up, Follow-up, Growth, Human, Impact, Indicators, Institutions, International Collaboration, Long-Term, Performance, Profile, Science, Scientific Institutions, Trend, Trends, Universities

Notes: MModel

Su, Y. and Han, L.F. (1998), A new literature growth model: Variable exponential growth law of literature. *Scientometrics*, **42** (2), 259-265.

Full Text: [1998\Scientometrics42, 259.pdf](1998/Scientometrics42,%20259.pdf)

Abstract: This article derives a ‘literature variable exponential growth model’ from Price’s literature growth model F(t) = ae(bt). The method is replacing bt by a polynomial of degree n-1. Our research shows that the new model is more convincing than the former ones. Detailed calculation procedure, examples, parameter values and mean square errors are given.

Keywords: Errors, Growth, Growth Model, Law, Model, New Model, Research

Beckmann, M. and Persson, O. (1998), The thirteen most cited journals in economics. *Scientometrics*, **42** (2), 267-271.

Full Text: [1998\Scientometrics42, 267.pdf](1998/Scientometrics42,%20267.pdf)

Abstract: A citation matrix for the thirteen most cited journals in economics is constructed from data in the Social Sciences Citation Index. (TM) the components of the eigenvector associated with the largest possible eigenvalue (the Frobenius root) of this matrix defines ‘impact values’ by which these journals may be ranked.

Keywords: Citation, Constructed, Data, Economics, Journals, Matrix

Radosevic, S. and Auriol, L. (1998), Measuring S & T activities in the former socialist economies of central and Eastern Europe: Conceptual and methodological issues in linking past with present. *Scientometrics*, **42** (3), 273-297.

Full Text: [1998\Scientometrics42, 273.pdf](1998/Scientometrics42,%20273.pdf)

Abstract: the economic and social transformation of countries of central and eastern Europe has deeply affected their S&T systems. However, conceptual and methodological problems in monitoring transformation of their S&T systems are not trivial. In this paper we analyse conceptual and methodological issues involved in measuring S&T activities in the socialist and post-socialist period across the most important S&T indicators (R&D, US and national patents; innovation surveys; bibliometrics). Our conclusions are that: i) the process of methodological harmonisation of S&T indicators has progressed considerably and we have provided some evidence in that respect; ii) the use of similar or identical indicators (business R&D, innovation counts, patents, citations) when making inter-country or inter- temporal comparisons should be approached with caution because of the significant differences between the socialist and post- socialist periods as well as between post-socialist R&D systems and R&D in other market economies. This latter applies especially to the interpretation of business R&D data in the post-socialist period

Keywords: Bibliometrics, Citations, Economic, Europe, Indicators, Innovation, International Collaboration, Monitoring, Paper, Patents, Process, Social, Surveys, Transformation, US

Hart, P.W. and Sommerfeld, J.T. (1998), Relationship between growth in gross domestic product (GDP) and growth in the chemical engineering literature in five different countries. *Scientometrics*, **42** (3), 299-311.

Full Text: [1998\Scientometrics42, 299.pdf](1998/Scientometrics42,%20299.pdf)

Abstract: Data were compiled and linearly correlated on the growth in the gross domestic product (GDP) with the academic chemical engineering literature over a recent 26-year period for five different English-speaking countries, namely, the United States, Canada, Great Britain, India and Australia. The publication figures were also scaled to the total number of chemical engineering schools in the country; furthermore, all of these data were normalized from zero to unity, using the figures far the most recent year (1996) as the denominators, and then correlated against each other in linear fashion. Resulting confidence levels were in excess of 99% for each of the individual five countries, as well as for the entire set of normalized data for all of the countries.

Keywords: Academic, Australia, Britain, Canada, Chemical, Confidence, Engineering, GDP, Great Britain, Growth, India, Journals, Levels, Linear, Publication, Recent, Schools, United States

Godin, B. (1998), Measuring knowledge flows between countries: the use of scientific meeting data. *Scientometrics*, **42** (3), 313-323.

Full Text: [1998\Scientometrics42, 313.pdf](1998/Scientometrics42,%20313.pdf)

Abstract: the present paper tries to compare international flows of knowledge as measured in meetings with flows as measured with papers in order to see what meetings can add to bibliometric studies. It is shown that most of known bibliometric results are confirmed with meetings, although more skewly: the concentration of proceedings, the dominance and attraction of the United States, and the decline of United Kingdom. However, important limitations are associated with ISTP, namely the low rate of authors’ addresses, a limitation which reduces the interest of ISTP for bibliometric studies.

Keywords: Bibliometric, Bibliometric Studies, Biotechnology, Communication, Concentration, Flows, Knowledge, Limitations, Low, Order, Paper, Participation, United Kingdom, United States

Notes: MModel

Gupta, B.M., Kumar, S. and Rousseau, R. (1998), Applicability of selected probability distributions to the number of authors per article in theoretical population genetics. *Scientometrics*, **42** (3), 325-334.

Full Text: [1998\Scientometrics42, 325.pdf](1998/Scientometrics42,%20325.pdf)

Abstract: Recently scientists have investigated what statistical distributions can be used to describe the distribution of the number of authors per article. Ajiferuke has undertaken the most comprehensive study of this problem. He has found that by and large the Inverse Gaussian-Poisson distribution could describe most properly the observed authorship distributions. However, it is well known that this distribution is rather intricate, so Rousseau tried to fit some simple one-parameter distributions to the number of authors of LIS articles. He has found that the geometric and the truncated Poisson distribution adequately describe these authorship data sets. The main purpose of the present paper is to continue these investigations and to analyse and test the viability of simple statistical distributions. As to (sub)felds where the single author dominates the results of Rousseau were corroborated: the truncated Poisson and the geometric distribution give often adequate fits to describe the number of authors. The Lotka distribution should be rejected. The truncated binomial distribution and the truncated negative binomial were investigated as well. However, it is not clear whether they are acceptable candidates.

Keywords: Authorship, Distribution, Distributions, Genetics, Investigations, Lotka Law, Paper, Population, Probability, Test, Viability

Gupta, B.M. (1998), Growth and obsolescence of literature in theoretical population genetics. *Scientometrics*, **42** (3), 335-347.

Full Text: [1998\Scientometrics42, 335.pdf](1998/Scientometrics42,%20335.pdf)

Abstract: Studies the relation between growth rates and obsolescence rates and half-life of theoretical population genetics literature. Explores the application of lognormal distribution in age distribution of citations over a period of time.

Keywords: Access, Age, Aging, Attention, Discard, Genetics, Information, Information Retrieval, Informetrics, Knowledge, Older, Population, Probability, Reviews, Storage, Time, Utility, Validity

? Gupta, B.M. and Karisiddappa, C.R. (1998), Collaboration in theoretical population genetics speciality. *Scientometrics*, **42** (3), 349-376.

Full Text: [1998\Scientometrics42, 349.pdf](1998/Scientometrics42,%20349.pdf)

Abstract: Analyses the growth of funded and collaborative research publications and authors as reflected in selected theoretical population genetics literature from 1956-60 to 1976-80. Indicates that the number of funded and collaborated publications has not proportionally increased along with the growth of total research publications and authors with time, but however, there is a strong correlation between the two. Indicates the extent of multi-authored research publications in different countries, and studies the growth of multi-authored publications from 1956-60 to 1976-80. Studies the impact of funding and collaboration on the productivity of authors over a period of time. Concludes that the authors who are more productive are generally found to be more collaborative and funded. The average productivity per author is observed to be larger in funded and collaborated authors subset and smaller in non-funded and non-collaborated authors subset, than the average productivity per author in the total authors subset in all the five block years studied. There is a systematic increase with time in the average productivity per author in the funded and collaborated authors subset. Studies the nature and type of collaborated research from 1956-60 to 1976-80, and the role of funding. Highlights the research priorities of few important countries in collaborative research. Indicates the collaboration linkages among various countries in transnational collaborative research. Concludes that with time, the focus of research is slowly shifting from internal collaboration to domestic and international collaboration, supported by increasing funding from government agencies in theoretical population genetics research.

Keywords: Collaboration, Correlation, Funding, Genetics, Growth, Impact, International Collaboration, Output, Population, Productivity, Publications, Research, Role

? Rivas, A.L., Deshler, J.D., Quimby, F.W., Mohammed, H.O., Wilson, D.J., Gonzalez, R.N., Lein, D.H. and Bruso, P. (1998), Interdisciplinary question generation: Synthesis and validity analysis of the 1993-1997 bovine mastitis-related literature. *Scientometrics*, **42** (3), 377-403.

Full Text: [1998\Scientometrics42, 377.pdf](1998/Scientometrics42,%20377.pdf)

Abstract: Interdisciplinary synthesis and validity analysis (ISVA), a structured learning approach which integrates teaming and communication theories, mete-analytic evaluation methods, and literature management-related technologies was applied in the context of the 1993-1997 bovine mastitis research literature. This study investigated whether ISVA could: 1) facilitate the analysis and synthesis of interdisciplinary knowledge claims, and a)generate projects or research questions. The bovine mastitis-related literature was conceptualized as composed of microbiological, immunological, and epidemiological dimensions. Keywords involving these dimensions were searched in the MEDLINE and Agricola databases. A final list of 148 articles were retrieved, analyzed, synthesized into fifteen information sub-sets, and evaluated for construct, internal, external and statistical validity through an interdisciplinary iterative dialogical process. Validity threats were re-phrased as new research or educational projects.

Keywords: Analysis, Bovine, Communication, Databases, Decision-Support System, Endotoxin-Induced Mastitis, Evaluation, Flow Cytometric Analysis, Health-Monitoring-System, Information, Interdisciplinary, Knowledge, Lactating Dairy-Cows, Learning, MEDLINE, Methods, Necrosis-Factor-Alpha, Online Electrical-Conductivity, Periparturient Holstein Cattle, Process, Research, Somatic-Cell Count, Staphylococcus-Aureus Mastitis, Synthesis, Technologies, Validity

? bd el Kader, M., Ojasoo, T., Miquel, J.F., Okubo, Y. and Dore, J.C. (1998), Hierarchical author networks: An analysis of European Molecular Biology Laboratory (EMBL) publications. *Scientometrics*, **42** (3), 405-421.

Full Text: [1998\Scientometrics42, 405.pdf](1998/Scientometrics42,%20405.pdf)

Abstract: Go-authorship analyses are both difficult to perform and interpret. We have devised a new way of calculating and representing hierarchical author networks that depict relationships among authors in a more exhaustive and less equivocal manner than most available automatic analyses. Any structure, however complex, can be broken down into independent subclusters of authors that can be represented as individual interconnected networks. We illustrate our approach by analysing the authors of publications giving the European Molecular Biology Laboratory (EMBL) as an affiliation in 1994 (from the ISI 1994 CD-ROM). The networks can be interpreted by referring to the official EMBL staff list (Annual Report 1993) and, in terms of research topics, by consulting the article titles and abstracts. In this respect, correspondence analyses of the author-publication matrices - that are the counterparts of the author-author matrices - prove extremely useful in structuring the thematic information. In fact, both methods - the hierarchical author networks and the correspondence analysis biplots - mutually enrich each other and provide a global picture of the inherent structure and interests of the EMBL as given by their 1994 publications.

Keywords: 48 Countries, Analysis, Cd-Rom, Collaboration, Complex, Contributors, Global, Information, ISI, Methods, Patterns, Period 1981-1992, Publications, Research, Science, Specialties, Structure, Typology

? Van Raan, A.F.J. (1998), The influence of international collaboration on the impact of research results - Some simple mathematical considerations concerning the role of self-citations. *Scientometrics*, **42** (3), 423-428.

Full Text: [1998\Scientometrics42, 423.pdf](1998/Scientometrics42,%20423.pdf)

Abstract: There is an ongoing discussion on the influence of international collaboration on impact as measured by citation-based indicators. Collaboration generally involves more authors than ‘no collaboration’ work and it is obvious that the phenomenon of self-citation will be stronger (there are more authors to cite themselves). Thus it can be seen as an important amplifier’ of measured impact. Although this effect is certainly possible and already demonstrated recently, it should not be considered as the only or even major explanation of higher impact in the comparison between ‘no collaboration’ and international collaboration. Using data of an extensive bibliometric study of astronomical research in the Netherlands, we prove that higher rates of self-citation in international collaboration do not play any significant role as ‘impact amplifier’. The central point is that proper impact measurement must involve corrections for self-citations.

Keywords: Bibliometric, Bibliometric Study, Collaboration, Comparison, Impact, Indicators, International Collaboration, Measurement, Research, Research Results, Role

? LeClerc, M. (1998), Science and technology - the Japanese marriage. *Scientometrics*, **42** (3), 429-434.

Full Text: [1998\Scientometrics42, 429.pdf](1998/Scientometrics42,%20429.pdf)

? Braun, T. (1998), Untitled. *Scientometrics*, **43** (1), 3.

Full Text: [1998\Scientometrics43, 3.pdf](1998/Scientometrics43,%203.pdf)

Leydesdorff, L. (1998), Theories of citation? *Scientometrics*, **43** (1), 5-25.

Full Text: [1998\Scientometrics43, 5.pdf](1998/Scientometrics43,%205.pdf)

Abstract: Citations support the communication of specialist knowledge by allowing authors and readers to make specific selections in several contexts at the same time. In the interactions between the social network of (first-order) authors and the network of their reflexive (that is, second-order) communications, a sub-textual code of communication with a distributed character has emerged. The recursive operation of this dual-layered network induces the perception of a cognitive dimension in scientific communication. Citation analysis reflects on citation practices. Reference lists are aggregated in scientometric analysis using one (or sometimes two) of the available contexts to reduce the complexity: geometrical representations (‘mappings’) of dynamic operations are reflected in corresponding theories of citation. for example, a sociological interpretation of citations can be distinguished from an information-theoretical one. The specific contexts represented in the modern citation can be deconstructed from the perspective of the cultural evolution of scientific communication.

Keywords: Analysis, Citation, Citations, Communication, Dynamic, Evolution, Indicators, Interactions, Knowledge, Model, Operation, Perception, Science, Scientific Communication, Scientometrics, Second Order, Social, Social Network, Support

Kostoff, R.N. (1998), The use and misuse of citation analysis in research evaluation: Comments on theories of citation? *Scientometrics*, **43** (1), 27-43.

Full Text: [1998\Scientometrics43, 27.pdf](1998/Scientometrics43,%2027.pdf)

Abstract: the present paper addresses some of the many possible uses of citations, including bookmark, intellectual heritage, impact tracker, and self-serving purposes. The main focus is on the applicability of citation analysis as an impact or quality measure. If a paper’s bibliography is viewed as consisting of a directed (research impact or quality) component related to intellectual heritage and random components related to specific self-interest topics, then for large numbers of citations from many different citing papers, the most significant intellectual heritage (research impact or quality) citations will aggregate and the random author-specific self-serving citations will be scattered and not accumulate. However, there are at least two limitations to this model of citation analysis for stand-alone use as a measure of research impact or quality. First, the reference to intellectual heritage could be positive or negative. Second, there could be systemic biases which affect the aggregate results, and one of these, the ‘Pied Piper Effect’, is described in detail. Finally, the results of a short citation study comparing Russian and American papers in different technical fields are presented. The questions raised in interpreting this data highlight a few of the difficulties in attempting to interpret citation results without supplementary information. Leydesdorff (Leydesdorff, 1998) addresses the history of citations and citation analysis, and the transformation of a reference mechanism into a purportedly quantitative measure of research impact/quality. The present paper examines different facets of citations and citation analysis, and discusses the validity of citation analysis as a useful measure of research impact/quality.

Keywords: Affect, Aggregate, Analysis, Citation, Citation Analysis, Citations, Evaluation, History, Impact, Information, Limitations, Mechanism, Misuse, Model, Paper, Quality, Reference, Research, Research Evaluation, Transformation, Validity

? Cronin, B. (1998), Metatheorizing citation - Comments on theories of citation? *Scientometrics*, **43** (1), 45-55.

Full Text: [1998\Scientometrics43, 45.pdf](1998/Scientometrics43,%2045.pdf)

Abstract: This paper reviews a variety of perspectives on citation. It argues that citations have multiple articulations in that they inform our understanding of the socio-cultural, cognitive, and textual aspects of scientific communication. Two metatheoretical frameworks are proposed as a means of negotiating the interpretative differences which characterize the various discourse communities concerned with citation theory and practice.

Keywords: Citation, Citations, Communication, Communities, Information-Science, Paper, Practice, Reviews, Scientific Communication, Theory

? Egghe, L. (1998), Mathematical theories of citation - Comments on theories of citation? *Scientometrics*, **43** (1), 57-62.

Full Text: [1998\Scientometrics43, 57.pdf](1998/Scientometrics43,%2057.pdf)

Abstract: the paper focusses on possible mathematical theories of citation and on the intrinsic problems related to it. It sheds light on aspects of mathematical complexity as e.g. encountered in fractal theory and Mandelbrot’s law. There is also a discussion on dynamical aspects of citation theory as reflected in evolutions of journal rankings, centres of gravity or of the set of source journals. Some comments are given in this connection on growth and obsolescence.

Keywords: Citation, Fractal Theory, Gravity, Growth, Impact, Journal, Journals, Law, Light, Obsolescence, Paper, Rankings, Set, Source, Theory

Rousseau, R. (1998), Citation analysis as a theory of friction or polluted air? Comments on theories of citation? *Scientometrics*, **43** (1), 63-67.

Full Text: [1998\Scientometrics43, 63.pdf](1998/Scientometrics43,%2063.pdf)

Abstract: It is argued that Leydesdorff’s theory of citations mixes the ideal or pure case with complicating factors. Ideally, citations are used as shorthand and for ethical reasons. The social network between scientists should be seen as a second-order correction on the basic model or, sometimes, even as noise. Metaphorically speaking Leydesdorff’s theory is not a theory about ideal gases, but about polluted air.

Keywords: Air, Analysis, Citation, Citations, Gases, Ideal, Model, Noise, Second Order, Social, Social Network, Theory

Garfield, E. (1998), Random thoughts on citationology. Its theory and practice - Comments on theories of citation? *Scientometrics*, **43** (1), 69-76.

Full Text: [1998\Scientometrics43, 69.pdf](1998/Scientometrics43,%2069.pdf)

Abstract: Theories of citation are as elusive as theories of information science, which have been debated for decades. But as a basis for discussion I offer the term citationology as the theory and practice of citation, including its derivative disciplines citation analysis and bibliometrics. Several maxims, commandments if you will, have been enunciated. References are the result of a specialized symbolic language with a citation syntax and grammar. References, like words, have multiple meanings which are related to the aposteriori quality of citation indexes. Therefore, citation relevance cannot be predicted. Mathematical microtheories in bibliometrics abound, including the apposite laws of scattering and concentration. Citation behavior is a vast sub-set of citation theory, which like citation typology, can never be complete. Deviant citation behavior preoccupies certain authors but it is rarely significant in well-designed citation analyses, where proper cohorts are defined. Myths about uncitedness and the determinants of impact are discussed, as well as journal impact factors as surrogates and observation’s on scientists of Nobel Class. After two years at Johns Hopkins investigating ‘machine documentation,’ and another year as a student of library science, I became, fortuitously, a documentation consultant. By 1954, I called myself an information engineer, which was an apt description of my professional consulting activities. However, Pennsylvania licensing law requires that engineers be graduates of engineering schools. So I became an information scientist! I’ve never thought of myself as an information theoretician and have been skeptical about a need for a theory of information science. I’ve practiced information science and engineering without explicit theoretical support. But undoubtedly there are underlying principles which can guide information scientists who, like myself, could be called ‘citationists’ or ‘citationologists.’ If there is a theory and practice of citation, it should probably be called citationology.

Keywords: Analysis, Behavior, Bibliometrics, Citation, Citation Analysis, Citation Indexes, Concentration, Derivative, Engineering, Impact, Impact Factors, Information, Information Science, Journal, Journal Impact Factors, Language, Law, Practice, Quality, Schools, Science, Student, Support, Surrogates, Theory, Typology

? Fujigaki, Y. (1998), The citation system: Citation networks as repeatedly focusing on difference, continuous re-evaluation, and as persistent knowledge accumulation - Comments on theories of citation? *Scientometrics*, **43** (1), 77-85.

Full Text: [1998\Scientometrics43, 77.pdf](1998/Scientometrics43,%2077.pdf)

Abstract: It can be shown that claims of a lack of theories of citation are also indicative of a grate need for a theory which links science dynamics and measurement. There is a wide gap between qualitative (science dynamics) and quantitative (measurement) approaches. To link them, the present study proposes the use of the citation system, that potentially bridges a gap between measurement and epistemology, by applying system theory to the publication system.(1).

Keywords: Accumulation, Citation, Dynamics, Indicators, Knowledge, Measurement, Persistent, Publication, Qualitative, Science, Theory

Notes: IInstitute

Makino, J. (1998), Productivity of research groups: Relation between citation analysis and reputation within research communities. *Scientometrics*, **43** (1), 87-93.

Full Text: [1998\Scientometrics43, 87.pdf](1998/Scientometrics43,%2087.pdf)

Abstract: In this paper I discuss the relation between widely used ‘Scientometric’ measures and ‘reputation’ of research groups within the scientific community. To this goal, I present the result of the detailed comparison of two research groups of theoretical astrophysics in post-world-war-2nd Japan. Though one of the two groups gained much higher reputation within the research community, we could not find much difference in the macroscopic indices such as the number of publications or the average citation index. The two groups showed similar scores for these macroscopic indices. This result suggests that widely used quantitative measures of the productivity do not give meaningful measure for the actual contribution of a research group to science.

Keywords: Analysis, Citation, Citation Analysis, Communities, Community, Comparison, Goal, Group, Groups, Index, Japan, Paper, Productivity, Publications, Research, Science

? Scharnhorst, A. (1998), Citation - Networks, science landscapes and evolutionary strategies - Comments on theories of citation? *Scientometrics*, **43** (1), 95-106.

Full Text: [1998\Scientometrics43, 95.pdf](1998/Scientometrics43,%2095.pdf)

Abstract: the construction of virtual science landscapes based on citation networks and the strategic use of the information therein shed new light on the issues of the evolution of the science system and possibilities for control. Citations seem to have a key position in the retrieval and valuation of information from scientific communication networks. Leydesdorff’s approach to citation theory takes into account the dual-layered character of communication networks and the second-order nature of the science system. This perspective may help to sharpen the awareness of scientists and science policy makers for possible feedback loops within actions and activities in the science system, and probably nonlinear phenomena resulting therefrom. In this paper an additional link to geometrically oriented evolutionary theories is sketched and a specific landscape concept is used as a framework for some comments.

Keywords: Awareness, Bibliometrics, Citation, Cocitation Analysis, Communication, Concept, Control, Evolution, Feedback, Information, Key, Landscape, Light, Models, Nonlinear, Paper, Policy, Position, Science, Science Policy, Science-Policy, Scientific Communication, Second Order, Strategies, Theory, Valuation

? Vinkler, P. (1998), Comparative investigation of frequency and strength of motives toward referencing, the reference threshold model - Comments on theories of citation? *Scientometrics*, **43** (1), 107-127.

Full Text: [1998\Scientometrics43, 107.pdf](1998/Scientometrics43,%20107.pdf)

Abstract: Comparative investigation of frequency and strength of motives of authors toward referencing proves that references-citations can be used for exploring information links between items referencing and referenced. As referencing can be assumed as a peer evaluation process resulted in referencing some papers and neglecting others, citations obtained can be applied for assessing international impact of scientific publication activity.

Keywords: Activity, Bibliometric Analysis, Citation, Citations, Citer Motivations, Departments, Determinants, Evaluation, Impact, Indicators, Information, Information-Science, Investigation, Model, Motives, Obsolescence, Process, Publication, Publications, Quality, Reference, Referencing, Research Performance, Strength, Threshold

? Van Raan, A.F.J. (1998), In matters of quantitative studies of science the fault of theorists is offering too little and asking too much - Comments on theories of citation? *Scientometrics*, **43** (1), 129-139.

Full Text: [1998\Scientometrics43, 129.pdf](1998/Scientometrics43,%20129.pdf)

Abstract: In this paper we take position in the ‘citation theory’ debate. First we revisit relevant earlier work of our group and try to assemble the findings. We criticise the constructivist fashion in sociology of science concerning citation practices. With statistical arguments we show the strong limitations of any ‘citation theory’ at the ‘citer side’. We emphasize that citations should be conceived of as ‘binding properties’ of an individual publication, from which many types of structuring follow. As keywords also have such binding properties at the same time, and as there are empirically established relations between the citation domain and the word domain, it is useless to develop a model concerning citations only. We envisage an interesting development, both theoretically and empirically, of what we would like to call ‘bibliometric chemistry’.

Keywords: Bibliometric, Bibliometric Indicators, Binding, Citation, Citations, Combined Cocitation, Cum Laude Doctorates, Development, Group, Impact Factors, Limitations, Model, Ortega Hypothesis, Paper, Performance, Position, Properties, Publication, Science, Sociology of Science, Theory, Word Analysis

Arunachalam, S. (1998), Citation analysis: Do we need a theory? Comments on theories of citation? *Scientometrics*, **43** (1), 141-142.

Full Text: [1998\Scientometrics43, 141.pdf](1998/Scientometrics43,%20141.pdf)

Keywords: Analysis, Citation, Theory

? Small, H. (1998), Citations and consilience in science - Comments on theories of citation? *Scientometrics*, **43** (1), 143-148

Full Text: [1998\Scientometrics43, 143.pdf](1998/Scientometrics43,%20143.pdf)

Keywords: Citation, Science, Scientific Discovery

? Vinogradov, A.E. (1998), Secular trend of academician aging. *Scientometrics*, **43** (2), 149-160.

Full Text: [1998\Scientometrics43, 149.pdf](1998/Scientometrics43,%20149.pdf)

Abstract: the time-course of average age of members of the Russian Academy of Sciences in the XVIII-XIX centuries was analyzed. A long-term trend of academician aging was found, with its extrapolation correctly predicting the average age of the recent academicians. Although the lifespan was increasing as well and its effect can statistically explain the most part (up to 80%) of variance in the average age, it was not the only cause. Furthermore, its effect might be indirect (i.e, the increasing average age was not simply due to a longer lifespan of elected members), since average membership span was slightly decreasing. At least a part of the trend was caused by a growth of competition for election since it was negatively correlated with a contemporaneous number of members (at given lifespan and historical year). Comparison of three groups (full members, corresponding members and foreign members), differing in competition level, supports this suggestion. Besides the history of science, the results may be useful for dealing with the problem of growing age of the scientific establishment.

Keywords: Age, Aging, Competition, Groups, Growth, Historical, History, History of Science, Long-Term, Long-Term Trend, Predicting, Recent, Science, Supports, Trend

Cunningham, S.J. (1998), Applications for bibliometric research in the emerging digital libraries. *Scientometrics*, **43** (2), 161-175.

Full Text: [1998\Scientometrics43, 161.pdf](1998/Scientometrics43,%20161.pdf)

Abstract: Large numbers of research documents have recently become available on the Internet through ‘digital libraries’, and these collections are seeing high levels of use by their related research communities. A secondary use for these document repositories and indexes is as a platform for bibliometric research. We examine the extent to which the new digital libraries support conventional bibliometric analysis, and discuss shortcomings in their current forms. Interestingly, these electronic text archives also provide opportunities for new types of studies: generally the full text of documents are available for analysis, giving a finer grain of insight than abstract-only online databases; these repositories often contain technical reports or pre-prints, the ‘grey literature’ that has been previously unavailable for analysis; and document ‘Usage’ can be measured directly by recording user accesses, rather than studied indirectly through document references.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometric Research, Communities, Current, Databases, Internet, Levels, Libraries, Research, Retrieval, Support

Notes: CCountry

Pereira, J.C.R., Escuder, M.M.L. and Zanetta, D.M.T. (1998), Brazilian sciences and government funding at the State of Säo Paulo. *Scientometrics*, **43** (2) 177-188.

Full Text: [1998\Scientometrics43, 177.pdf](1998/Scientometrics43,%20177.pdf)

Abstract: the State of Sao Paulo plays an important role in national research activities. The Foundation for the Support of Research of Sao Paulo State (FAPESP) is commissioned to manage funds for these activities. The profile of Brazilian sciences is investigated and contrasted to FAPESP’s investments. ISI date relative to years 1981 to 1995 are analysed through multivariate methods (Factor and Cluster Analysis) as to provide weighted ranks of research fields, relationships among them as geometric distances, and group classification. This information is compared to public reports an FAPESP’s expenditures. Brazilian scientific production grows at 244 papers/year in the period, and its global share is almost doubled. impact shows no trend. Best performers are from exact and biological sciences. Though impact varies greatly among research fields, their major distinctive feature is magnitude of production. The six top research fields identified (Physics, Biology & Biochemistry, Clinical Medicine, Engineering, Chemistry, Plant & Animal Sciences) were found to equally be the prime beneficiaries FAPESP’s investments. The Brazilian scenario is one of increasing production under an international pattern. This trend is not accompanied by changes in impact. As a corollary, volume of publications rises as an important issue. Public investments from Sao Paulo State adequately conform this scenario giving reassurance that resources are not being squandered.

Keywords: Classification, Expenditures, Funding, Global, Government Funding, Group, Impact, Information, ISI, Methods, Multivariate, Production, Profile, Publications, Research, Role, Sciences, Scientific Production, Trend

Notes: CCountry

Guzman, M.V., Sanz, E. and Sotolongo, G. (1998), Bibliometric study on vaccines (1990-1995). Part I: Scientific production in Iberian-American countries. *Scientometrics*, **43** (2), 189-205.

Full Text: [1998\Scientometrics43, 189.pdf](1998/Scientometrics43,%20189.pdf)

Abstract: Analysis of scientific production is made in the domains of vaccines for the period 1990-1995, including eight Iberian-American countries. To attain the results, different indicators were applied such as: collaboration rate, activity index and representation techniques, using a cluster analysis and multidimensional scaling. Similarities between countries are represented according to their activity index in the subject field. Results show a discontinuity in the scientific production over the years, whe re each country has a peculiar behavior.

Keywords: Activity, Analysis, Behavior, Cluster, Cluster Analysis, Collaboration, Index, Indicators, Made, Production, Representation, Scaling, Scientific Production, Techniques

? Golub, B. (1998), The Croatian scientific elite and its socio-professional roots. *Scientometrics*, **43** (2), 207-229.

Full Text: [1998\Scientometrics43, 207.pdf](1998/Scientometrics43,%20207.pdf)

Abstract: No matter how strong the intellectual and other psychological predispositions for top scientific achievement and/or a successful scientific career, neither the processes of a general and scientific socialisation nor the socio-cultural or socio-professional environment can be avoided or neglected. Empirical support for the thesis on the impact of the social environment on the formation and the influence of the scientific elite of a country is supported by three analysed research studies: on distinguished Croatian scientists (1995), on the population of Croatian scientists (1990) and on Croatian scientific emigrants (1986).

Keywords: Achievement, Environment, Formation, General, Impact, Matter, Population, Psychological, Research, Roots, Social, Social Environment, Support

Notes: UUniversity

Moed, H.F., Luwel, M., Houben, J.A., Spruyt, E. and Van den Berghe, H. (1998), The effects of changes in the funding structure of the Flemish universities on their research capacity, productivity and impact during the 1980’s and early 1990’s. *Scientometrics*, **43** (2), 231-255.

Full Text: [1998\Scientometrics43, 231.pdf](1998/Scientometrics43,%20231.pdf)

Abstract: This article addresses the following issues: How did external funding of Flemish academic research develop during the 1980’s and early 1990’s? What are the effects of the increase of external funding on the size and the composition of the research capacity in Flemish universities, and on research performance as reflected in bibliometric indicators? We present results of a quantitative analysis of 340 research departments in the natural and life sciences at three Flemish universities. We found that the externally funded research capacity increased strongly and is more and more concentrated in a limited number of departments. Departments with a high international standing have profited more from external funds than groups with a low impact In the class of departments showing the strongest increase in the externally funded research capacity, the ratio of the number of junior and senior scientists in these departments increased radically, while the publication productivity decreased. Our findings point towards the problem that if these trends continue to develop, a situation may emerge in which the basis normally provided by the university itself has become too small for externally funded research activities.

Keywords: Academic, Analysis, Bibliometric, Bibliometric Indicators, Capacity, Composition, Effects, Funding, Groups, Impact, Indicators, Life, Low, Natural, Performance, Productivity, Publication, Quantitative Analysis, Research, Research Performance, Sciences, Size, Structure, Trends, Universities

? Bar-Ilan, J. (1998), The mathematician, Paul Erdos (1913-1996) in the eyes of the Internet. *Scientometrics*, **43** (2), 257-267.

Full Text: [1998\Scientometrics43, 257.pdf](1998/Scientometrics43,%20257.pdf)

Abstract: Paul Erdos was a world famous Hungarian mathematician, who passed away in September 1996. Documents on the World Wide Web, mentioning Paul Erdos’s name were systematically collected. These documents were categorized using the method of content analysis. This work enables us to draw some conclusions about the ways authors of Internet documents picture Paul Erdos. This is the first work we know of that thoroughly examines the content of a huge collection of documents on a specific topic on the Internet.

Keywords: Analysis, Content Analysis, Internet, World Wide Web

? Prpic, K. (1998), Science ethics: A study of eminent scientists’ professional values. *Scientometrics*, **43** (2), 269-298.

Full Text: [1998\Scientometrics43, 269.pdf](1998/Scientometrics43,%20269.pdf)

Abstract: A questionnaire study of eminent scientists’ professional values was carried out within more extensive research of professional ethics. The structure of scientists’ professional values is composed of five factors: collegial and professorial responsibility, the protection of respondents or patients, wider social and professional responsibility, scientific precision and originality and scientific objectivity. The core of the scientists’ professional code consists of the values with the highest ratings. These are: cognitive standards which define the research role, explicit expectations of the scientists’ social responsibility, and requirements for excellence of scientific institutions and personnel. At the same time, significant differences have been found among the observed scientific fields. The largest discriminative power has been shown in the importance of precise measurements and then also in the protection of respondents and patients. These results question the traditional unitary concept of science, but also the concept of intellectual and social atomisation of scientific disciplines and fields.

Keywords: Concept, Core, Determinants, Ethics, Importance, Institutions, Measurements, Patients, Precision, Productivity, Protection, Quality, Questionnaire, Requirements, Research, Responsibility, Role, Science, Scientific Institutions, Social, Social Responsibility, Standards, Structure

? Plaza, L.M. (1998), The use of multiple databases in the assessment of research. An application in the field of plant science. *Scientometrics*, **43** (2), 299-304.

Full Text: [1998\Scientometrics43, 299.pdf](1998/Scientometrics43,%20299.pdf)

Abstract: This paper argues the convenience of considering multiple databases in order to obtain a reliable set of scientific indicators in case of fields that includes a variety of disciplines. With this aim we analyse the Spanish scientific output in Plant Sciences regarding mainstream literature covered by SCI database and that published in domestic journals covered by ICYT database. This method allows us to obtain two different profiles of research. These results clearly underly the need to consider these databases jointly, thus avoiding potential inaccuracies induced by the use of the SCI as the only information source to be considered for the assessment of research.

Keywords: Assessment, Databases, Indicators, Information, Order, Output, Paper, Plant, Profiles, Research, SCI, Science, Scientific Output, Source

? Babu, A.R. and Singh, Y.P. (1998), Determinants of research productivity. *Scientometrics*, **43** (3), 309-329.

Full Text: [1998\Scientometrics43, 309.pdf](1998/Scientometrics43,%20309.pdf)

Abstract: Earlier researchers like Turkeli, suggested that the factors which determine the productivity of scientists are admittedly complex and perhaps not amenable to real scientific analysis’. The present investigation was designed with the sole purpose of confronting such a complex problem. Nearly 200 variables influencing research productivity were collected through relevant literature, analysis of biographies of great scientists, and discussion with eminent scientists. Finally, through a critical examination, 80 variables were selected for the use of Q-sort technique. The sample for the study consisted of a cross section of scientists ranging from Fellows of Indian National Science Academy to young agricultural scientists. Mailed questionnaires and personal interview methods were used for collecting data. Out of a total of 912 respondents, reply was obtained from 325. On the basis of Q-sorted data, 26 variables were selected for further analysis and they were subjected to principal component factor analysis. The results indicated eleven factors affecting research productivity of scientists. They were: persistence, resource adequacy, access to literature, initiative, intelligence, creativity, learning capability, stimulative leadership, concern for advancement, external orientation, and professional commitment.

Keywords: Access, Adequacy, Agricultural, Analysis, Commitment, Complex, Examination, Factor Analysis, Interview Methods, Invention, Investigation, Leadership, Learning, Methods, Orientation, Persistence, Productivity, Questionnaires, Research, Research Productivity, Scientific Performance

? Banerjee, P. (1998), Indicators of ‘innovation as a process’. *Scientometrics*, **43** (3), 331-357.

Full Text: [1998\Scientometrics43, 331.pdf](1998/Scientometrics43,%20331.pdf)

Abstract: Innovation as a process is related to the business viewed as a process. A process cannot be captured through the indicators of input/output, which are the most commonly accepted variables. Indicators of technological characteristics also limit the scope of measurement. Moreover, these indicators have often to be constructed upon non-gaussian variables that are not amenable to additive operations. This paper identifies a methodology to identify process innovation variables, some of which are gaussian and some are not. A few simple indicators are then constructed, using additive operations, upon both additive and non-additive variables. The additive variables yield generalisable indicators and the non-additive Variables yield self-assessment type indicators. Bath types can be used as process performance measurement systems. Examples of the values that these indicators take up, have been shown for nine firms. This vindicates the assumption on the applicability of these indicators.

Keywords: Additive, Characteristics, Indicators, Innovation, Measurement, Methodology, Non-Additivity, Paper, Performance, Process, Quantitative-Analysis, Science, Scientific Activities, Self Assessment, Yield

? Bhattacharya, S. and Basu, P.K. (1998), Mapping a research area at the micro level using co-word analysis. *Scientometrics*, **43** (3), 359-372.

Full Text: [1998\Scientometrics43, 359.pdf](1998/Scientometrics43,%20359.pdf)

Abstract: the present study investigates the use of co-word analysis method to understand the micro structure of a research speciality. This study is done in the area of Condensed Matter Physics (CMP) taking two time-periods, 1990 and 1995. Based on concurrent set of journals occurring in the subject heading list of CMP in these two time-periods, a database is created after downloading articles present in these journals from the INSPEC database. Using words extracted from the titles from the created database, suitable co-word pairs are constructed. These words, and co-word pairs are explored further to understand their linkages with each other through network analysis methods. Dynamics, within the CMP across 1990 and 1995, are investigated through the comparison of the words, co-word pairs and structurally equivalent blocks. The results are projected using multi-dimensional scaling. The important conclusions of this study are discussed.

Keywords: Analysis, Co-Word Analysis, Comparison, Methods, Research, Scaling, Scientometrics, Structure

? Chawla, A. and Singh, J.P. (1998), Organizational environment and performance of research groups - A typological analysis. *Scientometrics*, **43** (3), 373-391.

Full Text: [1998\Scientometrics43, 373.pdf](1998/Scientometrics43,%20373.pdf)

Abstract: In this paper an attempt is made to construct a typology of research units according to a set of organizational features and relate the resulting classification to a set of performance measures. The organizational features include (i) Resources and facilities for research; (ii) Communication and transfer of new ideas; (iii) Planning and organization of research; and (iv) Social psychological environment for research. The performance measure include (i) General R&D effectiveness, which essentially connotes the quality dimension of research performance; (ii) Recognition of the work of the research unit by the scientific community; (iii) User-oriented effectiveness; and (iv) Administrative effectiveness (budget and schedule compliance). This study is based on the subset of empirical data on 220 research units collected in India for the third round of the UNESCO International Comparative Study on the Organization and Performance of Research Units (ICSOPRU). Twenty three measures of organizational environment, operationalized by multiple indicators, were chosen as discriminant criteria for the construction of the typology, using a classification computer programme SYSTIT (Systeme’ de Typologie Iterative). The relationship between typology groupings and performance measures was analyzed through multiple correspondence analysis. This study brings out that resources and facilities for research are a necessary but not a sufficient condition of performance. The sufficiency condition implies a positive work environment, effective communication within and outside the research group and a conceptually exciting research programme.

Keywords: Analysis, Budget, Classification, Co-Citations, Communication, Community, Compliance, Condition, Effective, Effectiveness, Environment, Features, Group, Groups, India, Indicators, Made, Organizational, Paper, Performance, Performance Measures, Psychological, Quality, Research, Research Performance, Science, Transfer, Typology

? Chetal, R. and Raj, A. (1998), Sponsored R & D in India: the project sponsoring pattern and main outcome of projects sponsored by major central departments/agencies. *Scientometrics*, **43** (3), 393-421.

Full Text: [1998\Scientometrics43, 393.pdf](1998/Scientometrics43,%20393.pdf)

Abstract: This paper examines the project sponsoring pattern and the outcome of extramural R&D with respect to the projects sponsored by country’s eleven central agencies during the Seventh Five-Year Plan period. The outcome considered are: contribution of R&D support to development of R&D facilities at the recipient institutions, creation of employment through project posts, development of new technologies, quantum and quality of research publications and. generation of doctoral thesis. The paper concludes that sponsored R&D has largely remained one-way flow of funds to a preferred set of institutions (as perceived by each sponsoring agency) and the outcome of the R&D have also remained unexamined by the respective funding agencies. The paper advocates development of a monitoring system which would help in enhancing the utilisation of sponsored R&D and its overall impact on science, society and economy.

Keywords: Creation, Development, Economy, Flow, Funding, Impact, India, Institutions, Monitoring, Outcome, Paper, Publications, Quality, Research, Science, Support, Technologies

Dhawan, S.M. (1998), Comparative study of physics research in India and China based on *INSPEC-Physics* for 1990 and 1995. *Scientometrics*, **43** (3), 423-441.

Full Text: [1998\Scientometrics43, 423.pdf](1998/Scientometrics43,%20423.pdf)

Abstract: the status of physics research in India and China has been examined by using bibliometric indicators. The study is based on publication data drawn from INSPEC-Physics for 1990 and 1995. China is ahead of India in terms of publication output. It ranks 7th in the world, whereas India is placed at 10th position. China is also ahead of India in terms of growth in its publications appearing particularly in the SCI (Science Citation Index) indexed journals. Despite its second position in publication count, India leads China in terms of average impact per paper computed using data on impact factor of the citing journals. It maintains this leading position both in 1990 and 1995. In addition, the study suggests a strategy for identifying leading areas of research in physics.

Keywords: Bibliometric, Bibliometric Indicators, China, Growth, Impact, Impact Factor, India, Indicators, Output, Paper, Position, Publication, Publications, Research, SCI, Science Citation Index, Strategy

Garg, K.C. and Padhi, P. (1998), Scientometric study of laser patent literature. *Scientometrics*, **43** (3), 443-454.

Full Text: [1998\Scientometrics43, 443.pdf](1998/Scientometrics43,%20443.pdf)

Abstract: An analysis of the patents filed and scientific papers published and abstracted in the Journal of Current Laser Abstracts (JCLA) for the period 1967-95 indicates that innovative activity in laser science and technology was at its peak in the early 70s. However, scientific activity surpassed the innovative activity in the early 80s. There was a continuous shift in emphasis from ‘applications of lasers’ to ‘experimental laser research’ and to ‘theoretical laser research’. Further analysis of the 1840 patents filed in 1970- 71, 1975-76, and 1980-85 indicates that most of the firms filing patents were situated in USA and thus USA is the leading country filing patents in this area followed by Japan. ‘Spectroscopy of laser output’ followed by ‘Communication applications of laser’ got the maximum emphasis.

Keywords: Activity, Analysis, Applications, Indicators, Japan, Patents, Science, Statistics, USA

? Kretschmer, H. and Gupta, B.M. (1998), Collaboration patterns in theoretical population genetics. *Scientometrics*, **43** (3), 455-462.

Full Text: [1998\Scientometrics43, 455.pdf](1998/Scientometrics43,%20455.pdf)

Abstract: the paper points out that the characteristic properties of general social networks are reflected in co-authorship patterns of theoretical population genetics as studied from 1900 to 1980. The results are consistent with the analyses of bibliographies where the co-authorship networks in invisible colleges probably have shown the same behavioural patterns as the non-scientific populations. The patterns of behaviour are portrayed in two-dimensional as well as three-dimensional representations of co-authorship data in theoretical population genetics.

Keywords: Co-Authorship, Co-Authorship Networks, General, Genetics, Paper, Parameters, Population, Properties, Social, Social Networks, Three-Dimensional

? Braun, T. (1999), Scientometrics research in India part II. *Scientometrics*, **44** (1), 3.

Full Text: Scientometrics44, 3.pdf

Keywords: India, Research

Notes: TTopic

Gupta, B.M., Sharma, P. and Kumar, S. (1999), Growth of world and Indian physics literature. *Scientometrics*, **44** (1), 5-16.

Full Text: [1999\Scientometrics44, 5.pdf](1999/Scientometrics44,%205.pdf)

Abstract: the paper deals with the nature of growth models currently used in the literature for modeling the growth of publications. It introduces briefly three growth models and explores the applicability of these models in the growth of world and Indian physics literature. The analysis suggests that the growth of Indian physics literature follows a logistic model, while the growth of world physics literature is explained by a combination of logistic and power models. The criteria for selection of growth models based on the new growth rate functions suggested by Egghe and Ravichandra Rao are given. The methodology suggested by Egghe and Ravichandra Rao is shown to work satisfactorily, except for longer time series growth data, when we may have to restore to data splitting approach, if suggested by the plots of new growth rate functions. This approach helped us to use a combination of two growth models instead of one, to explain the growth of world physics literature.

Keywords: Analysis, Growth, Growth Rate, Methodology, Model, Modeling, Models, Paper, Publications, Selection, Time-Series

? Gupta, V.K. (1999), Technological trends in the area of fullerenes using bibliometric analysis of patents. *Scientometrics*, **44** (1), 17-31.

Full Text: [1999\Scientometrics44, 17.pdf](1999/Scientometrics44,%2017.pdf)

Abstract: Patents are a useful source of scientific and technological information. The bibliometrics analysis of patents has been made to identify technological trends in the area of fullerenes and study other parameters like growth of the patenting activity, active players in the field from industry, academia and government research institutions. It indicates that firms and R&D organisations in developing countries could undertake similar study on specific topics of their interests and obtain relevant insights.

Keywords: Activity, Analysis, Bibliometric, Bibliometric Analysis, Bibliometrics, Developing Countries, Fullerenes, Growth, Information, Institutions, Made, Parameters, Patents, Research, Source, Trends

? Sangam, S.L. (1999), Obsolescence of literature in the field of psychology. *Scientometrics*, **44** (1), 33-46.

Full Text: [1999\Scientometrics44, 33.pdf](1999/Scientometrics44,%2033.pdf)

Abstract: Bibliometric technique of citation analysis was applied to the data of five psychological periodical literature. The distribution of citations frequencies was statistically tested and the obsolescence factors were determined. The relation between the growth and obsolescence has been studied, and it has been observed that ‘higher the growth of literature, higher the obsolescence as well as higher the half life.’.

Keywords: Age, Analysis, Citation, Citation Analysis, Citations, Distribution, Growth, Psychological, Psychology

? Satyanarayana, K., Srivastava, D. and Sreenivas, V. (1999), The relevance of short communication in scholarly journals: An empirical study. *Scientometrics*, **44** (1), 47-58.

Full Text: [1999\Scientometrics44, 47.pdf](1999/Scientometrics44,%2047.pdf)

Abstract: This study aims to examine whether rapid communications exert more influence/impact on subsequent research. Citation analysis of Short Communications (SCs) and Main Articles (MAs) from 1983 and 1990 for 5 high impact biomedical journals was carried out for a five year period following publication. The mean citations cumulated for the five year period showed no consistent trend. Some journals showed more citations for SCs while some showed more for MAs. The mean citations (range) for SCs and MAs for the 1983 and 1990 papers respectively were as follows: Gene: 14.13 (0-61) and 38.79 (0-677), 9.73 (0-93) and 13.17 (0-44); Journal of Clinical Investigation (JCI): 49.77 (3-202) and 27.52 (0-86), 50.52 (0-254) and 33.53 (0-151); Journal of Experimental Medicine (JEM): 39.80 (0-200) and 49.20 (0-403), 47.26 (0-258) and 50.27 (0-173); and Journal of Biological Chemistry (JBC): 36.21 (0-380) and 19.67 (0-53), 37.19 (0-273) and 26.84 (0-185). SCs of Journal of Cell Biology (JCB) had a mean citation of 25.84 per article with a range of 0-98, while the MAs had a mean citation of 33.13 with the range 4-122 during 1983-87. The citation peak was seen about three years after publication for all the journals during both the periods. The mean cumulative citations showed a progressive increase over the five years for both types of papers, in all journals and for both the 5 year periods. The initial differences observed persisted even four years after the year of publication. No significant differences were observed in the distribution of the cumulative 5 year citations between the SCs and MAs. An index of speed of citation per article showed no substantial differences between SCs and MAs with MAs showing an edge over SCs. Both MAs and SCs of all the journals showed nearly same average time per citation per article further confirming that the SCs do not enjoy the advantage of speedier citation. The results show that the generally perceived feeling of SCs getting cited more frequently and faster does not appear to be valid. Hence, the practice of publishing SCs on a priority basis is perhaps not warranted.

Keywords: Analysis, Biomedical Journals, Citations, Communication, Distribution, Impact, Index, Practice, Publication, Publishing, Range, Research, Speed, Trend

Notes: TTopic

Seetharam, G. and Rao, I.K.R. (1999), Growth of food science and technology literature: A comparison of CFTRI, India and the world. *Scientometrics*, **44** (1), 59-79.

Full Text: [1999\Scientometrics44, 59.pdf](1999/Scientometrics44,%2059.pdf)

Abstract: An attempt has been made to trace and compare the trends in growth of Food Science and Technology (FST) literature (periodical articles, patents, standards, theses and dissertations) produced by CFTRI scientists, by food scientists in India and by food scientsts of the world, covering a period between 1950 and 1990; to identify the best fitting growth models for actual and cumulative growth of data through regression analysis; and alpha(t) and alpha(2t) analysis; and to compute and compare the growth rates of FST documnets.

Keywords: Analysis, Comparison, Fitting, Food, Growth, Growth Rates, India, Law, Made, Models, Patents, Regression, Regression Analysis, Science, Standards, Trends

Srinivasan, R., Raman, V., Meyyappan, N. and Pichappan, P. (1999), Assessment of the impact of the journal literature produced by Indian CSIR laboratories using subfield corrected impact. *Scientometrics*, **44** (1), 81-92.

Full Text: [1999\Scientometrics44, 81.pdf](1999/Scientometrics44,%2081.pdf)

Abstract: Comparative assessment of the journal literature produced by laboratories, institutions working in different fields is a difficult exercise. The impact factor of the journals is not a suitable indicator since citation practices vary with fields. The variation is corrected in this study using a measure, the ‘subfield corrected impact factor’ and it is applied to the journal papers produced by the Indian Council of Scientific and Industrial Research Laboratories. This measure helped to compare the impact of journal literature in different fields

Keywords: Assessment, Bibliometric Indicators, Citation, Exercise, Impact, Impact Factor, Indicator, Journal

Tapaswi, M.P. and Maheswarappa, B.S. (1999), Ranking serials in oceanography: An analysis based on the Indian contributions and their citations. *Scientometrics*, **44** (1), 93-127.

Full Text: [1999\Scientometrics44, 93.pdf](1999/Scientometrics44,%2093.pdf)

Abstract: An analysis of serials preferred and cited in various communications by the Indian oceanographers during 1963 to 1992 is presented. A shift in preference of serials from general sciences to oceanography (interdisciplinary) and to core subject in oceanography is noticed. The contributions to Indian serials showed a decrease. The implications of this trend are discussed. The rank list of serials cited by Indian oceanographers was correlated with the rank list of serials cited at international level. A negative correlation with a marginal difference of -0.214 is observed between these two rank lists. This difference is attributed to studies from different geographical areas in these two rank sets. Bradford graphs for all datasets, but one, showed typical Bradford-Leimkuhler curves with or without clear Groos droops. Further research is required to explain this exceptional curve. A country-wise analysis of the serials preferred as well as cited in communications give a clear picture on the shift during the period of study. English is considered as the lingua franca by Indian oceanographers.

Keywords: Analysis, Citations, Core, Correlation, General, Interdisciplinary, Oceanography, Preference, Rank, Research, Sciences, Serials, Trend

? Gupta, B.M. and Karisiddippa, C.R. (1999), Collaboration and author productivity: A study with a new variable in Lotka’s law. *Scientometrics*, **44** (1), 129-134.

Full Text: [1999\Scientometrics44, 129.pdf](1999/Scientometrics44,%20129.pdf)

Abstract: the paper explores the possibility of using a new variable represented by the number of collaborators per author as a substitute for the number of papers in Lotka’s distribution to predict the productivity strata. On the basis of a case study in theoretical population genetics it is concluded that the number of collaborators per author has not proved to be a good substitute in the Lotka’s distribution, which is in contrast to Qin’s results.

Keywords: Case Study, Distribution, Genetics, Law, Lotka’s Law, Paper, Population, Predict, Productivity

? Saam, N.J. and Reiter, L. (1999), Lotka’s law reconsidered: the evolution of publication and citation distributions in scientific fields. *Scientometrics*, **44** (2), 135-155.

Full Text: [1999\Scientometrics44, 135.pdf](1999/Scientometrics44,%20135.pdf)

Abstract: This paper reports early steps in research that seeks to clarify how publications of scientists interact dynamically with citations and reputation in shaping the evolution of scientific fields. We assume that Lotka’s modified law holds for scientific fields. A primary approach to model publication productivity was published by Yablonsky. In contrast to Yablonsky’s unfinished mathematical approach, our simulation approach is not predominantly driven by insight into the formal generation mechanisms of certain processes but more theory driven. It considers the evolution of publication and citation distributions over the histories of scientific fields using both simulated and real historical data.

Keywords: Ambiguity, Citation, Citations, Distributions, Evolution, Historical, Indicators, Informetric Distributions, Law, Lotka’s Law, Mechanisms, Model, Modified, Paper, Productivity, Publication, Publications, Research, Simulation, Theory

Notes: TTopic, CCountry

Nunes, E.D. (1999), A review of research studies conducted on scientific production in collective health in Brazil. *Scientometrics*, **44** (2), 157-167.

Full Text: [1999\Scientometrics44, 157.pdf](1999/Scientometrics44,%20157.pdf)

Abstract: This paper presents a review of the principal studies conducted on scientific production in Brazil related to Public Health/Collective Health. Some of the findings highlighted in this study, show the progress of this area in terms of production of articles, doctorate theses, dissertations and publications.

Keywords: Brazil, Health, Paper, Production, Publications, Research, Review, Scientific Production

Leydesdorff, L. and Wouters, P. (1999), Between texts and contexts: Advances in theories of citation? (a rejoinder). *Scientometrics*, **44** (2), 169-182.

Full Text: [1999\Scientometrics44, 169.pdf](1999/Scientometrics44,%20169.pdf)

Abstract: Scientific literature is expected to contain a body of knowledge that can be indexed and retrieved using references and citations. References are subtexts which refer to a supertext, that is, the body of scientific literature. The Science Citation Index has provided an electronic representation of science at the supertextual level by aggregating the subtextual citations. As the supertext, however, becomes independently available in virtual reality (as a ‘hypertext’), subtext and supertext become increasingly different contexts. The dynamics of hyperlinks are expected to feedback on the system of indexing, referencing, and retrieval at the level of research practices. References can be considered as part of the retention mechanism of this evolving system of scientific communication, and citations are a codified form of referencing.

Keywords: Citation, Citations, Co-Words, Communication, Dynamics, Feedback, Hyperlinks, Indicators, Knowledge, Mechanism, Referencing, Representation, Research, Retention, Retention Mechanism, Science, Science Citation Index, Scientific Communication, Scientometrics, Virtual Reality

Lewison, G. and Igic, R. (1999), Yugoslav politics, ‘ethnic cleansing’ and co-authorship in science. *Scientometrics*, **44** (2), 183-192.

Full Text: [1999\Scientometrics44, 183.pdf](1999/Scientometrics44,%20183.pdf)

Abstract: Scientific outputs from Serbia, Croatia and Slovenia, and the patterns of co-authorship between them and five western countries and with each other have been determined from the Science Citation Index. They reflect accurately the political situation underlying the recent breakup of the former Yugoslavia, and long-term international alliances and friendships, but also take account of geographical proximity, which assists scientific co-operation. There is no evidence of changes in the ethnic composition of Serbian and Croatian scientists overall, as revealed by the names of their researchers before and after the civil war. However some changes appear to have taken place in Serbia outwith Belgrade, which are consistent with the reports of the expulsion of Croats living in Vojvodina.

Keywords: Co-Authorship, Composition, Croatia, Long-Term, Politics, Recent, Science, Science Citation Index, War

Hicks, D. (1999), The difficulty of achieving full coverage of international social science literature and the bibliometric consequences. *Scientometrics*, **44** (2), 193-215.

Full Text: [1999\Scientometrics44, 193.pdf](1999/Scientometrics44,%20193.pdf)

Abstract: This review of social science bibliometric literature seeks to establish characteristics of the social science literature and to understand their consequences for the coverage of literature databases and for interpretation of bibliometric social science indicators based on such databases. The paper reviews what we know about social science publishing and database coverage of it. It examines the main reasons why social science bibliometrics are problematic, namely: the centrality of books in social science literature and their high citation rate; and the national orientation of social science literatures. The paper then looks at reasons why social science bibliometrics holds increasing promise, namely: increasing internationalization; and good coverage of scholarly journals.

Keywords: Behavioral-Sciences, Bibliometric, Bibliometrics, Characteristics, Citation, Consequences, Databases, Economics, Humanities, Indicators, Knowledge, Orientation, Paper, Philosophy, Publishing, Research Performance, Review, Reviews, Science, Social, Sociology, Universities

? Ruiz-Baños, R., Bailón-Moreno, R., Jimenez-Contreras, E. and Courtial, J.P. (1999), Structure and dynamics of scientific networks. Part I: Fundamentals of the quantitative model of translation. *Scientometrics*, **44** (2), 217-234.

Full Text: [1999\Scientometrics44, 217.pdf](1999/Scientometrics44,%20217.pdf)

Abstract: the fundamentals have been developed for a quantitative theory on the structure and dynamics of scientific networks. These fundamentals were conceived through a new vision of translation, defined mathematically as the derivative or gradient of the quality of the actors as a function of the coordinates for the space in which they perform. If we begin with the existence of a translation barrier, or an obstacle that must be overcome by the actors in order to translate, and if we accept the Maxwell-Boltzmann distribution as representative of the translating capacity of the actors, it becomes possible to demonstrate the known principle of ‘success breeds success. We also propose two types of elemental translations: those which are irreversible and those which are in equilibrium. In addition, we introduce the principle of composition, which enables, from elemental translations, the quantification of more complex ones.

Keywords: Barrier, Capacity, Complex, Composition, Derivative, Distribution, Dynamics, Equilibrium, Function, Model, Order, Quality, Quantification, Scientific Networks, Structure, Theory, Vision

? Ruiz-Baños, R., Bailón-Moreno, R., Jimenez-Contreras, E. and Courtial, J.P. (1999), Structure and dynamics of scientific networks. Part II: the new Zipf’s Law, the clusters of co-citations and the model of the descriptor presence. *Scientometrics*, **44** (2), 235-265.

Full Text: [1999\Scientometrics44, 235.pdf](1999/Scientometrics44,%20235.pdf)

Abstract: Here, the quantitative theory of translation is shown to be of great utility in describing scientific networks. In fact, we deduce a new Zipf’s Law for the descriptors of a set of documents, based on the concepts of centres of interest and of irreversible parallel translations. This new law can be generalized to other phenomena, such as the distribution of the sizes of cocitation clusters. Finally, we have established the model, for descriptor presence in a network, which closely fits the values recorded.

Keywords: Clusters, Cocitation, Distribution, Dynamics, Law, Model, Scientific Networks, Theory, Utility

Schubert, A. (1999), Scientometrics: A citation based bibliography 1994-1996. *Scientometrics*, **44** (2), 267-291.

Full Text: [1999\Scientometrics44, 267.pdf](1999/Scientometrics44,%20267.pdf)

Keywords: Citation

Notes: CCountry

? Moed, H.F. (1999), Selected proceedings of the Fifth International Conference on Science and Technology Indicators - Hinxton (Cambridge), UK - June 4-6, 1998 - Introduction. *Scientometrics*, **44** (3), 319-321

Full Text: [1999\Scientometrics44, 319.pdf](1999/Scientometrics44,%20319.pdf)

Keywords: UK

? Bassecoulard, E. and Zitt, M. (1999), Indicators in a research institute: A multi-level classification of scientific journals. *Scientometrics*, **44** (3), 323-345.

Full Text: [1999\Scientometrics44, 323.pdf](1999/Scientometrics44,%20323.pdf)

Abstract: Indicators in a research Institute ought to be readable at several decision levels, and particularly with different break-downs of the publication set chosen as reference. Citation transactions between journals have been widely used to structure scientific subfields in ISI databases. We tried a seed-free structuration of SCI/CMCI journals (a) to test convergence of pure citation-built specialties (roughly 150) on SCI/CMCI journals with existing classifications at the subfield level (b) to explore the interest and the limits of this approach for upper levels of aggregation (roughly 30 fields). PI few limits of journal-level classification are addressed. At the subfield level, the convergence is large with some discrepancies worth noticing. At the subdiscipline level, the method is not sufficient to achieve a satisfactory 30-level delineation, but gives a good basis for informed expert validation.

Keywords: Aggregation, Citations, Classification, Databases, ISI, Levels, Matrices, Publication, Reference, Research, Science, Structure, Test, Upper, Validation

Basu, A. (1999), Science publication indicators for India: Questions of interpretation. *Scientometrics*, **44** (3), 347-360.

Full Text: [1999\Scientometrics44, 347.pdf](1999/Scientometrics44,%20347.pdf)

Abstract: We comment on a letter to Nature in 1996 on the long term decline of Indian science pointing out methodological reasons why the (SCI) data used by the authors do not unambiguously lead to their stated conclusions. Our arguments are based on the contention that no valid statement on change in a country’s output may be made for a period in which the journal coverage from that country in SCI has changed significantly. We have suggested that for longitudinal comparisons of country level performance, it should be verified that the journals from that country in SCI remained constant within the period. This could be ensured if the country of publication of journals could be included as a field in the SCI database. We define a Visibility Index as the cumulated impact and derive a relation to estimate change in visibility combining changes in output and average impact. In the period during which Indian journal coverage remained unchanged, a detailed analysis of output for two years (1990-94) leads us to conclude that, with the exception of Agriculture, there has been an increase in publication in virtually every field, with significant increase in the-overall mean Impact Factor. At least 25 subfields have been identified with statistically significant increase in mean Impact Factor and Visibility. The impact of foreign collaboration on visibility has also been considered. In conclusion we touch upon the question of citation as a performance indicator for Third World countries as high citation and relevance may be in conflict as objectives.

Keywords: Analysis, British Science, Citation, Collaboration, Decline, Impact, India, Indicator, Indicators, Journal, Lead, Long-Term, Longitudinal, Made, Output, Performance, Performance Indicator, Publication, SCI, Science, Visibility

? Bonitz, M., Bruckner, E. and Scharnhorst, A. (1999), The Matthew Index - Concentration patterns and Matthew core journals. *Scientometrics*, **44** (3), 361-378.

Full Text: [1999\Scientometrics44, 361.pdf](1999/Scientometrics44,%20361.pdf)

Abstract: In this paper we extend our studies to the micro-structure of the Matthew effect for countries (MEC). The MEC allows the ranking of countries by their Matthew Index. The rank distribution of countries, observable only at a macro-level, has its roots in re-distribution processes of citations in every journal of the database. These re-distributed citations we call Matthew citations. Data for 44 countries and 2712 journals (based on the Science Citation Index) are analyzed. The strength of the contribution of the individual journals to the MEC (their number of Matthew citations) is skewly distributed. Due to this high concentration of the MEC we are able to define a new type of journal: the Matthew core journal: 145 Matthew core journals account for 50% of the MEG. These journals carry a high potential of gaining a surplus of citations over what is expected and the risk of losing a high number of citations as well.

Keywords: Citations, Concentration, Core, Countries, Distribution, Journal, Microstructure, Paper, Rank, Ranking, Risk, Roots, Science, Science Citation Index, Strength

Debackere, K., Luwel, M. and Veugelers, R. (1999), Can technology lead to a competitive advantage? A case study of Flanders using European patent data. *Scientometrics*, **44** (3), 379-400.

Full Text: [1999\Scientometrics44, 379.pdf](1999/Scientometrics44,%20379.pdf)

Abstract: the study tries to analyze regional technological capabilities, linking technological positions to economic strength of the region. To measure this link, we correlate the EPO patent data with trade data to assess the degree to which technological advantages are translated into comparative advantages for the Flemish region in Belgium. The analysis for Flanders provides some interesting insights. Following the skewed distribution of firms, the technological areas in which Flanders is able to build a strong position are very specific: printing technology, weaving technology, photography and recently also telecommunications. Weak positions are outspoken in car technology. Linking these strengths and weaknesses in technological areas to economic activity revealed an important mismatch between both. Most of the Flemish patents are in sectors without any comparative advantage, while most of the sectors where Flanders does hold a comparative advantage, like chemicals and pharmaceuticals, do not show strong technological advantages in terms of patents. Given the mismatch that was detected between technological positions and economic advantages, it is of crucial importance to better understand the (missing) links between the various actors in the regional innovation system. The analysis points out two important issues. The large and growing number of foreign applicants to Belgian/Flemish inventors and the large number of subsidiaries of foreign firms among Belgian/Flemish applicants illustrate the pervasiveness of the foreign dimension in the Belgian/Flemish technological landscape. Also very specific to the Belgian/Flemish situation, is the limited importance of universities or research centers in terms of patenting activities.

Keywords: Activity, Analysis, Belgium, Case Study, Chemicals, Complex, Distribution, Economic, Electronics, Importance, Indicators, Industry, Innovation, Landscape, Lead, Patents, Pharmaceuticals, Position, Regional, Research, Strength, Strengths, Telecommunications, Universities

? De Looze, M.A., Roy, A., Coronini, R., Reinert, M. and Jouve, O. (1999), Two measures for identifying the perception of risk associated with the introduction of transgenic plants. *Scientometrics*, **44** (3), 401-426.

Full Text: [1999\Scientometrics44, 401.pdf](1999/Scientometrics44,%20401.pdf)

Abstract: the interweaving of three different sorts of software based on different algorithms (co-word analysis and downward hierarchical classification) and applied on a file tin the field of risk assessment through the introduction of transgenic plants) extracted from the CAB (Commonwealth Agricultural Bureau) data base, has enable us to provide three types of results: Leximappe provides a synthetic image from clusters of key-words. The main themes were identified. Alceste improves a corpus’ characterization and allows a logical reading of it, thanks to the creation of categories, along with their mutual dependencies, the peculiar meaning of each and their division in time. Moreover, Alceste allows us to perceive the contexts of the contents previously identified under Leximappe. Sampler allows us to go into the derails of the terms association in graphical form and detail the specific orientations of the corpus, especially with the inscription of weak signals. Finally, this software, applied from the categories drawn from Alceste, offers for each category a meaningful graphic representation. We can argue that the different ways of measuring and presenting results are complementary since they highlight different aspects of risk assessment carried by different actors, as it is underlined in social science studies of public controversy. Moreover we can follow these actors through the categories and clusters (socioeconomic, scientific and risk assessment linked to regulation and policy) which are more and more differenciated in time. This methodology allows the study of emerging processes in the social construction of issues within controversies.

Keywords: Algorithms, Analysis, Assessment, Base, Characterization, Classification, Clusters, Co-Word Analysis, Creation, Meaning, Methodology, Perception, Plants, Policy, Regulation, Representation, Risk, Risk Assessment, Science, Science Studies, Social, Software, Synthetic, Tin

? Glänzel, W., Schubert, A. and Czerwon, H.J. (1999), An item-by-item subject classification of papers published in multidisciplinary and general journals using reference analysis. *Scientometrics*, **44** (3), 427-439.

Full Text: [1999\Scientometrics44, 427.pdf](1999/Scientometrics44,%20427.pdf)

Abstract: A serious shortcoming of bibliometric studies based on the (Social) Science(s) Citation Index is the lack of an universally applicable subject classification scheme as individual papers are concerned. Subject classification of papers on the basis of assigning journals to subject categories (like those found in the various supplements of ISI databases) works well in case of highly specialised journals, but fails for multidisciplinary journals such as Nature, Science and PNAS and so far as subfields are taken into consideration - also for ‘general’ journals (e.g. JACS or Angewandte Chemie). This study presents the results of a pilot project attempting to overcome this shortcoming by delimiting the subject of papers published in multidisciplinary and general journals by an item-by-item subject classification scheme, where assignment is based on the analysis of the subject classification of reference literature. The results clearly confirmed the conclusions of earlier studies by the authors in the field of reference analysis. for the really important journals (sufficiently high number of annual publications and high impact with respect to the field), The share of classifiable papers was surprisingly high, and the assignment proved reliable as well. Since papers in the leading general and multidisciplinary journals are frequently citing general and multidisciplinary journals, an iterated application of the procedure is expected to increase the number of classifiable publications. The results of the new methodology may improve the validity of bibliometric studies for research evaluation purposes.

Keywords: Analysis, Bibliometric, Bibliometric Studies, Classification, Databases, Evaluation, General, Impact, ISI, Methodology, Multidisciplinary, PNAS, Publications, Reference, Research, Research Evaluation, Science, Validity

? Gomez, I., Fernandez, M.T. and Sebastian, J. (1999), Analysis of the structure of international scientific cooperation networks through bibliometric indicators. *Scientometrics*, **44** (3), 441-457.

Full Text: [1999\Scientometrics44, 441.pdf](1999/Scientometrics44,%20441.pdf)

Abstract: International scientific cooperation of Latin American countries amongst themselves, with the USA and with the European Union in the period 1991-1995 was studied. The analysis deepens in the differences per subject area and the influence of the regional axis involved. Collaboration patterns differ according to the scientific size of the Latin American countries, the thematic areas and whether a bilateral collaboration or a participation in a multilateral network takes place. Some special characteristics of multi-regional cooperation networks are presented.

Keywords: Analysis, Bibliometric, Bibliometric Indicators, Bilateral, Characteristics, Collaboration, Countries, European Union, Indicators, Participation, Patterns, Regional, Size, Structure, USA

Lange, L.L. and Frensch, P.A. (1999), Gaining scientific recognition by position: Does editorship increase citation rates? *Scientometrics*, **44** (3), 459-486.

Full Text: [1999\Scientometrics44, 459.pdf](1999/Scientometrics44,%20459.pdf)

Abstract: We investigated three rival hypotheses concerning scientific communication and recognition: the performance hypothesis and two alternative assumptions, the reputation hypothesis and the resource hypothesis. The performance hypothesis reflects the norm of universalism in the sense given by Merton, the reputation hypothesis predicts a Matthew Effect (scientists receive communications and recognition on the basis of their reputation), and the resource hypothesis assumes that communication with other scientists is used as a form of asset to defend one’s own research results. Using bibliometric methods, we assessed whether assuming an important scientific position enhances scientific impact and prestige. Specifically, we explored whether a person’s assumption of editorship responsibilities of a psychology journal increases the frequency with which that person is cited in the Social Sciences Citation Index. The data base consisted of ten psychology journals, seven premier American and three German journals, covering the years 1981 to 1995. Citation rates for the years prior to, during, and following periods of editorship were compared for three groups: editors cited in the journal they edited, editors cited in a journal they did not edit, and non-editors. The results showed that during their editorship, editors showed an increased citation rate in the journal edited; this result was found for American journals, but not for German journals. These findings indicate that, for American journals, assuming editorship responsibilities for a major psychology journal increases one’s scientific impact, at least as reflected by a measure of citation rate. A careful examination of ages of the non-editors’ citations reveals that the post-editorship citation rates of editors and comparable non-editors do not differ significantly. The reputation hypothesis (Matthew Effect) is therefore preferred for interpreting the results, because it shows the cumulative nature of prestige-oriented citations. The results contradict the convention of using citation rates as pure performance measures.

Keywords: Alternative, Assumptions, Bibliometric, Bibliometric Methods, Citation, Citations, Communication, Communications, Cumulative, Data, Data Base, Examination, Impact, Journal, Journals, Measure, Methods, Performance, Person, Psychology, Rates, Research, Research Results, Responsibilities, Scientific Communication

? Nederhof, A.J. and Van Vijk, E. (1999), Profiling institutes: Identifying high research performance and social relevance in the social and behavioral sciences. *Scientometrics*, **44** (3), 487-506.

Full Text: [1999\Scientometrics44, 487.pdf](1999/Scientometrics44,%20487.pdf)

Abstract: This study focuses on the identification of high output research and high impact research in the social and behavioral sciences. A second objective is to monitor developments in research that is related to societal needs and problems. for each topic, we identify institutes and authors that have contributed a considerable number of SSCI articles and/or several (relatively) highly cited articles on a topic. To identify papers with a (relatively) high impact, the present study used two citation thresholds, each based upon a combination of a statistically determined minimum number of ‘external’ citations (by others than the authors of a paper), and a statistical comparison with world average citation levels. Topics were categorised according to social relevance. Detailed profiles of bath large and small institutes are obtained, showing strengths and weaknesses in research performance that lend to be obscured by standard indicators focusing on ‘average’ research performance. Socially relevant topics tend to be concentrated in multidisciplinary clusters, whereas clusters dominated by one or two disciplines contain more basic research. The results provide a first insight in the extent to which institutes and authors address socially relevant topics. Use of the results by policy bodies seems dependent upon which organisational level of research they tend to address.

Keywords: Basic Research, Behavioral, Bibliometric Indicators, Books, Citation, Citations, Clusters, Comparison, Countries, Identification, Impact, Indicators, Journals, Lend, Levels, Multidisciplinary, Output, Paper, Performance, Policy, Profiles, Research, Research Performance, Sciences, Social, Standard, Strengths, Thresholds

Roosendaal, H.E. and Geurts, P.A.T.M. (1999), Scientific communication and its relevance to research policy. *Scientometrics*, **44** (3), 507-519.

Full Text: [1999\Scientometrics44, 507.pdf](1999/Scientometrics44,%20507.pdf)

Abstract: This paper addresses the relation between developments in scientific communication and research. The developments in scientific communication are related to developments brought about by opportunities provided by the development and wide-scale introduction of modern information and communication technology. However, this paper does not focus on technological developments, but rather discusses how these new developments in scientific communication enable developments in research and research policy, and vice versa. The role of scientometrics and bibliometrics in this context is briefly discussed.

Keywords: Bibliometrics, Communication, Development, Information, Information and Communication, Information and Communication Technology, Paper, Policy, Research, Role, Scientific Communication, Scientometrics, Vice

? Rousseau, R. (1999), Temporal differences in self-citation rates of scientific journals. *Scientometrics*, **44** (3), 521-531.

Full Text: [1999\Scientometrics44, 521.pdf](1999/Scientometrics44,%20521.pdf)

Abstract: Temporal differences in self-citing and self-cited rates of journals are studied. It is concluded that the citation curve of a journal is composed of two curves with different characteristics: a self citation (or self-cited) curve and a curve representing external citations.

Keywords: Characteristics, Citation, Citations, Indicators, Information-Science, Journal, Library

Rowlands, I. (1999), Patterns of author cogitation in information policy: Evidence of social, collaborative and cognitive structure. *Scientometrics*, **44** (3), 533-546.

Full Text: [1999\Scientometrics44, 533.pdf](1999/Scientometrics44,%20533.pdf)

Abstract: This paper presents the findings of an author cocitation study in the field of information policy. Cocitation frequencies for 21 leading authors over the period 1972-1997 were obtained from the multidisciplinary database Social Sciences Citation Index. The raw cocitation counts were transformed into a matrix of Pearson correlation profiles and subsequently visualised using multidimensional scaling techniques. An initial interpretation of the structure of the field of information policy was attempted, drawing on a range of non-bibliometric evidence. The results of a customised postal questionnaire to the data subjects themselves supports the present writer’s allocation of the authors into thematic clusters. These results suggest that the social, collaborative and intellectual structure of information policy scholarship are highly convergent.

Keywords: Allocation, Cocitation, Correlation, Data, Database, Evidence, Field, Information, Intellectual Structure, Matrix, Multidimensional, Multidimensional Scaling, Multidisciplinary, Policy, Profiles, Questionnaire, Scaling, Scholarship, Social, Structure, Techniques

? Schwechheimer, H. and Winterhager, M. (1999), Highly dynamic specialities in climate research. *Scientometrics*, **44** (3), 547-560.

Full Text: [1999\Scientometrics44, 547.pdf](1999/Scientometrics44,%20547.pdf)

Abstract: In this paper the identification and analysis of highly dynamic, rapidly developing research fronts of climate research are demonstrated. The underlying method based on co-citation analysis is described, and two selected highly dynamic specialities (HDS) are analysed using journal profiles, co-citation maps, and actor profiles as information elements. The two examples demonstrate how co-citation analysis can be used to identify and analyse highly dynamic specialities.

Keywords: Analysis, Atmosphere, Boundary-Layer, Circulation, Climate, Co-Citation, Co-Citation Analysis, Cocitation, Dynamic, Elements, HDS, Identification, Information, Journal, Model, Natural Variability, Paper, Profiles, Research, Sensitivity, Signals, System, Temperature

? Wouters, P. (1999), Beyond the holy grail: From citation theory to indicator theories. *Scientometrics*, **44** (3), 561-580.

Full Text: [1999\Scientometrics44, 561.pdf](1999/Scientometrics44,%20561.pdf)

Abstract: A recurring theme in the use of science and technology indicators, as well as in the construction of new ones, is the interpretation of these indicators. Given the dependence on citation data in the majority of interesting science and technology indicators, a general citation theory would make the meaning of S&T indicators more transparent. Hence the continuing call for a citation theory in scientometrics. So far, such a theory has not yet been accepted by the experts in the field. This paper suggests an explanation for this. It also tries to sketch the outline of a general indicator theory by discussing new implications of an earlier proposal (Wouters, 1998) in relation to existing citation and indicator theories.

Keywords: Citation, Dependence, General, Indicator, Indicators, Meaning, Paper, Science, Scientometrics, Theory, Transparent

Notes: CCountry

? Molas-Gallart, J. (1999), Measuring defence R&D: A note on problems and shortcomings. *Scientometrics*, **45** (1), 3-16.

Full Text: [1999\Scientometrics45, 3.pdf](1999/Scientometrics45,%203.pdf)

Abstract: Defence R&D continues to account for a very substantial share of many countries’ research effort, often retaining or even increasing its role within the national innovation systems. Yet the quantitative analysis of defence research efforts and their impact is impaired by difficulties in defining defence R&D. The article studies these difficulties and focuses on the issue of identifying what constitutes, does not constitute, defence R&D. It finds that the OECD approach of defining defence R&D on the basis of the primary goals of the research is inadequate, particularly in the present context of the growing emphasis on dual-use technologies and research. It then analyses alternative approaches that could provide a more solid grounding for any systematic effort to collect international defence R&D data.

Keywords: Analysis, Defence, Impact, Innovation, Quantitative Analysis, Research, Role, Technologies

Lee, M., Om, K. and Koh, J. (1999), Blind review of research proposals in Korea: Its effectiveness and factors affecting applicant detection. *Scientometrics*, **45** (1), 17-31.

Full Text: [1999\Scientometrics45, 17.pdf](1999/Scientometrics45,%2017.pdf)

Abstract: This article addresses the potential effectiveness of blind review in selecting and funding research proposals in a ‘scientifically small’ country. By analyzing 474 responses of the blinded reviewers ever worked for Korea Science and Engineering Fund, it was found that blind review is fairly effective. About two thirds of the blinded reviewers were unable to recognize the applicants accurately the applicant detection was affected by (1) physical age, (2) professional experience, and (3) geographical location of doctoral education of the applicants, (4) review experience, (5) rank of employing universities of the reviewers, and (6) similarity of research interest between an applicant and a reviewer. It was also found that blind review was more strongly advocated by those who had made a wrong guess or who had given up guessing. Implications of the findings and future research directions were discussed.

Keywords: Age, Consensus, Education, Effective, Effectiveness, Funding, Korea, Location, Made, Peer, Physical, Rank, Research, Review, Similarity, Universities

? Huber, J.C. (1999), Inventive productivity and the statistics of exceedances. *Scientometrics*, **45** (1), 33-53.

Full Text: [1999\Scientometrics45, 33.pdf](1999/Scientometrics45,%2033.pdf)

Abstract: We show that inventive productivity can be described by two variables, Frequency and Lifetime. for several samples of inventors, we show that the Exponential and Generalized Pareto distributions provide excellent goodness-of-fit to these variables. Furthermore, good fits to these distributions arises naturally from the statistics of exceedances. Thus, a better theoretical foundation and connection to environmental variables is shown for Frequency and Lifetime than has been shown for Lotka’s Law.

Keywords: Creativity, Cumulative Advantage, Distributions, Environmental, Environmental Variables, Generalized Pareto Distribution, Goodness, Model, Of-Fit Tests, Participation, Precision, Productivity, Publication, Scientific Productivity, Statistics

? Coronini, R. and Mangematin, V. (1999), From individual scientific visibility to collective competencies: the example of an academic department in the social sciences. *Scientometrics*, **45** (1), 55-80.

Full Text: [1999\Scientometrics45, 55.pdf](1999/Scientometrics45,%2055.pdf)

Abstract: the article discusses the role of university departments in the social sciences. It studies how to describe the three missions of university departments: education, research and consultancy services for public and private organisations. It also proposes some tools to evaluate to what extent these missions are connected. Until now, evaluation in this domain has focused primarily on research activities and far too few indicators have been developed for the other two missions. Moreover, evaluation is often performed on an individual basis, so that the synergy generated by work collectives is rarely evaluated. The purpose of this article is to propose a method for identifying and describing the competencies of a social science research and teaching department. This method can be used to study the articulation between the department’s different activities - research, expertise and teaching. Maps of activity are generated, which can serve as a basis for strategic planning of future trends. The approach is based on an analysis of ‘traces’ (articles, contracts, research reports, postgraduate training modules) of the activity of the different components of the Social Science Department, using lexicographic analysis tools. With keywords, titles, summaries and synopses of lectures, it is possible to draw up ‘maps’ representing the department’s main competencies.

Keywords: Academic, Activity, Analysis, Core, Economics, Education, Evaluation, Indicators, Planning, Profile, Research, Role, Science, Science Research, Sciences, Social, Social Sciences, Strategic Planning, Teaching, Tools, Training, Trends, Visibility

Ojasoo, T. and Doré, J.C. (1999), Citation bias in medical journals. *Scientometrics*, **45** (1), 81-94.

Full Text: [1999\Scientometrics45, 81.pdf](1999/Scientometrics45,%2081.pdf)

Abstract: Multivariate statistical analysis of the citation profiles of urology and related journals (i.e. The relative extent to which each journal cites itself and other journals within a set) has highlighted hidden correlations. We reveal the existence of a ‘transatlantic’ rift in citation practice and of a confined discipline-oriented world which interfaces weakly with many other disciplines. We also interpret the results of our analyses in terms of basic and clinical research and examine whether there is a time-related selectivity in citation. Taken together, our results call for a serious appraisal of present-day research trends and of their evaluation. The open question is how to create a terrain that will foster original, possibly interdisciplinary, research in developed nations whilst maintaining cultural individuality.

Keywords: Analysis, Bias, Citation, Clinical, Correlations, Evaluation, Interdisciplinary, Interfaces, Journal, Medical, Medical Journals, Practice, Profiles, Publication, Research, Research Trends, Selectivity, Statistical Analysis, Trends, Urology

Notes: TTopic, CCountry

Pereira, J.C.R. and Escuder, M.M.L. (1999), The scenario of Brazilian health sciences in the period of 1981 to 1995. *Scientometrics*, **45** (1), 95-105.

Full Text: [1999\Scientometrics45, 95.pdf](1999/Scientometrics45,%2095.pdf)

Abstract: Ensuing a previous study of Brazilian sciences production for the period 1981-95, health sciences were taken apart for scrutiny. ISI data was obtained in an aggregate format comprising 40 health research fields recording their yearly number of papers, proportion out of the country, proportion out of the field, and impact relative to field.

Simple linear regression was used to examine time trends in production and impact of research fields. A complementary variable representing growth trend was computed as the regression slope. Data were then analysed by means of Factor and Correspondence Analysis. Results allowed the production of location maps of research fields so that hierarchy and relationships among them could be examined in the form of geometric distances.

It was found that health sciences represent 42% of the Brazilian scientific production and that their trends in both production and impact do not differ from other sciences taken altogether. Measurements of production were found negatively correlated with impact and factor analysis revealed that the major distinction between fields is attributable to production (64% of measurement variations against 19% due to impact). Experimental Biology & Medicine largely exceeds other fields in production, though at ordinary levels of impact. Correspondence analysis refined the study of impact allowing the identification of the best performers as Clinical Immunology & Infectious Diseases, Environmental & Social Medicine, and Radiology & Nuclear Medicine.

The information provided can advise national policy makers on science & technology about priorities concerning the improvement of the country’s competitiveness.

Keywords: Aggregate, Analysis, Factor Analysis, Growth, Health, Health Sciences, Identification, Impact, Information, ISI, Levels, Linear, Linear Regression, Location, Measurement, Policy, Production, Profile, Regression, Research, Science, Sciences, Scientific Production, Time Trends, Trend, Trends

Notes: TTopic; CCountry

Karki, M.M.S. and Garg, K.C. (1999), Scientometrics of Indian organic chemistry research. *Scientometrics*, **45** (1), 107-116.

Full Text: [1999\Scientometrics45, 107.pdf](1999/Scientometrics45,%20107.pdf)

Abstract: Making use of scientometric techniques, the paper attempts to assess the performance of Indian organic chemistry research during the 70s and 80s. Identifies the significant work and its impact using mainstream connectivity, surrogate measures of quality and relative impact indicators. It is observed that the organic chemistry research performed in India during the later period (80s) has improved slightly as compared to the previous period (70s).

Keywords: Basic Research, Bibliometrics, Connectivity, Impact, India, Indicators, Organic, Organic Chemistry, Paper, Performance, Quality, Research, Research Performance, Techniques

Phelan, T.J. (1999), A compendium of issues for citation analysis. *Scientometrics*, **45** (1), 117-136.

Full Text: [1999\Scientometrics45, 117.pdf](1999/Scientometrics45,%20117.pdf)

Abstract: This paper examines a number of the criticisms that citation analysis has been subjected to over the years. It is argued that many of these criticisms have been based on only limited examinations of data in particular contexts and it remains unclear how broadly applicable these problems are to research conducted at different levels of analysis, in specific fields, and among various national data sets. Relevant evidence is provided from analysis of Australian and international data. Citation analysis is likely to be most reliable when data is aggregated and at the highly-cited end of the distribution. It is possible to make valid inferences about individual cases, although considerable caution should be used. Bibliometric measures should be viewed as a useful supplement to other research evaluation measures rather than as a replacement.

Keywords: Analysis, Basic Research, Citation, Citation Analysis, Distribution, Evaluation, Indicators, Levels, Paper, Replacement, Research, Research Evaluation, Science

? Kozlowski, J., Radosevic, S. and Ircha, D. (1999), History matters: the inherited disciplinary structure of the post-communist science in countries of Central and Eastern Europe and its restructuring. *Scientometrics*, **45** (1), 137-166.

Full Text: [1999\Scientometrics45, 137.pdf](1999/Scientometrics45,%20137.pdf)

Abstract: the inherited disciplinary structure of the science of post-communist countries of CEE carries a strong common features of its past. The communist heritage is present in: a) a relatively homogeneous research profile among post-communist countries; b) the similar structure of disciplinary comparative advantages of post-communist countries; c) the unbalanced and concentrated disciplinary structure of comparative advantages. The analysis is based on ISI databases and uses statistics on papers and citations for the 1992-1997 period for all central and eastern European countries as well as for other world regions. In the conclusions we discuss the relevance of the results for the restructuring of science in the countries of Central and Eastern Europe.

Keywords: Analysis, Citations, Databases, Eastern Europe, Europe, Features, Homogeneous, ISI, Profile, Research, Science, Statistics, Structure

Eto, H. (1999), The interest of scientific communities in sea-related research topics. *Scientometrics*, **45** (2), 167-183.

Full Text: [1999\Scientometrics45, 167.pdf](1999/Scientometrics45,%20167.pdf)

Abstract: Articles on sea-related topics such as ocean, fishery, crimes at sea, law of the sea, distress at sea and others were counted for journals in the fields supposedly comprising sea-related specialties such as policy/political science, law and its enforcement, agriculture, transportation, and operational research. The number of such articles was found very few in all the surveyed journals. The follow-up search was made for other journals of the same specialties, obtaining the same result. Further, the same result was found to hold for other issues of the journals published in different years: That is, this phenomenon was found stable for years. Its reasons were discussed, and some interpretation and their policy implications were presented.

Keywords: 1990s, Agriculture, Authorship Patterns, Collaboration, Communities, Distress, Enforcement, Fishery, Follow up, Follow-up, Journals, Law, Made, Policy, Policy Implications, Quantitative Criminology, Research, Science, Transportation

Glänzel, W., Schubert, A. and Czerwon, H.J. (1999), A bibliometric analysis of international scientific cooperation of the European Union (1985-1995). *Scientometrics*, **45** (2), 185-202.

Full Text: [1999\Scientometrics45, 185.pdf](1999/Scientometrics45,%20185.pdf)

Abstract: Scientific cooperation of the EU countries with other developed regions, with Economies in Transition and with Developing Countries is analysed as it is reflected in the bibliometric indicators of internationally co-authored publications. The citation attractivity of these publications shows that international scientific collaboration is particularly advantageous for less advanced countries, but also highly industrialised countries benefit from it.

Keywords: Analysis, Benefit, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Citation, Collaboration, Countries, EU, European Union, Indicators, Publications, Sciences, Scientific Collaboration, Subfields

Rey-Rocha, J. and Martin-Sempere, M. (1999), The role of domestic journals in geographically-oriented disciplines: the case of Spanish journals on earth sciences. *Scientometrics*, **45** (2), 203-216.

Full Text: [1999\Scientometrics45, 203.pdf](1999/Scientometrics45,%20203.pdf)

Abstract: the role of domestic journals in disseminating research results in the field of Earth Sciences in Spain is discussed. The analysis is based on bibliometric indicators of Spanish scientific production, as well as on the opinion of Spanish researchers in this field, obtained through a specially designed survey. A reasonable correspondence has been found between the results of bibliometric analysis and scientists’ judgements. Results show that 69% of Spanish articles in Earth Sciences were published in Spanish journals during the period 1990-1994. Scientists use both national and international journals to communicate their research results, although due to the nature of the discipline, geographically oriented and therefore mostly devoted to local problems, they use basically domestic journals. In terms of international visibility, although none of the Spanish journals in this field is covered by the SCI, most of them are covered by some of the most representative international databases in the field concerned. The study points out the importance of domestic journals in the field of Earth Sciences in Spain.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Databases, Earth, Importance, Indicators, Local, Production, Research, Research Results, Role, SCI, Sciences, Scientific Literature, Scientific Production, Spain, Survey, Visibility

Egghe, L., Rousseau, R. and Yitzhaki, M. (1999), The ‘own-language preference’: Measures of relative language self-citation. *Scientometrics*, **45** (2), 217-232.

Full Text: [1999\Scientometrics45, 217.pdf](1999/Scientometrics45,%20217.pdf)

Abstract: It has already been pointed out that the foreign language barrier is probably the greatest impediment to the free flow and transfer of information. This barrier is even growing as scientists of more and more countries publish in their own languages. Almost all studies addressing the language barrier problem were conducted from an Anglo-Saxon perspective, limiting their scope to English-language sources or English speakers. Little research has been devoted to studying and measuring language preference among non-English-speaking scholars.

This article reviews measures proposed in former studies such as the ‘relative own-language preference’ indicator, and the ‘straight odds ratio’, pointing out their advantages and drawbacks. Two new refined measures (in both ‘raw’ and normalised versions) are offered, claiming to be free of these drawbacks, and thus enabling a better and more reliable comparison between journals of different languages. Practical use of the proposed measures is illustrated by applying them to findings of a former language-citation study done on nine sociology journals.

Keywords: Barrier, Comparison, Flow, Indicator, Information, Language, Languages, Preference, Research, Reviews, Sources, Transfer

Kademani, B.S., Kalyane, V.L. and Jange, S. (1999), Scientometric portrait of Nobel laureate Dorothy Crowfoot Hodgkin. *Scientometrics*, **45** (2), 233-250.

Full Text: [1999\Scientometrics45, 233.pdf](1999/Scientometrics45,%20233.pdf)

Abstract: Dorothy Crowfoot Hodgkin (1910-1994), The renowned crystallographer and the Nobel prize winner in Chemistry (1964) was responsible for developing the X-ray diffraction method of finding the exact structure of large and complicated molecules, such as Penicillin, Vitamin B-12, Insulin, etc. Her 180 publications during 1932-1988 were analyzed by domains, authorship pattern, publication productivity, scattering of publications and the keywords used in the titles of her papers.

Keywords: Authorship, Complicated, Productivity, Publication, Publications, Structure, X-Ray Diffraction

Garg, K.C. and Padhi, P. (1999), Scientometrics of laser research literature as viewed through the journal of current laser abstracts. *Scientometrics*, **45** (2), 251-268.

Full Text: [1999\Scientometrics45, 251.pdf](1999/Scientometrics45,%20251.pdf)

Abstract: An analysis of 4650 publications abstracted in Journal of Current Laser Abstracts Vol. 27 (April 1990-March 1991) indicates that 14 countries contributed about 94% of the research output with USA toping the list followed by Japan and the erstwhile USSR, Technical reports and patents, besides articles in scientific journals constitute an important source of information on laser science and technology. ‘Spectroscopy of laser output’ is the sub-speciality which has received maximum emphasis. USA has paid almost equal emphasis for theoretical, experimental and applications of laser research, while such pattern is not applicable for other countries. for USSR, China, and India, the impact of research did not commensurate with the publication effort.

Keywords: Analysis, Applications, Areas, China, Current, Datafiles, Experimental, Fields, Impact, India, Indicators, Information, Japan, Journal, Output, Patents, Physics, Publication, Publications, Research, Science, Source, Subfields, USA, USSR, World Science

Gupta, B.M., Kumar, S. and Aggarwal, B.S. (1999), A comparision of productivity of male and female scientists of CSIR. *Scientometrics*, **45** (2), 269-289.

Full Text: [1999\Scientometrics45, 269.pdf](1999/Scientometrics45,%20269.pdf)

Abstract: the paper examines the scientific productivity of male and female scientists working in the Council of Scientific and Industrial Research (CSIR), India at the overall agency level and at the group of laboratories level, characterized by three broad subjects of physical, biological, and engineering sciences. The productivity of scientists is evaluated on the basis of three parameters: the extent of scientists not publishing any paper, the average number of papers per scientist, and using Lotka’s approach. In order to find out whether there is any significant difference between male and female productivity distributions, a Chi-square test is used. Studies the applicability of Lotka’s inverse power law and some other statistical models in the distribution of scientific productivity of male and female scientists. Concludes that no significant difference exists between productivity distributions of male and female scientists.

Keywords: Chi-Square, Chi-Square Test, Distribution, Distributions, Duration, Engineering, Female, Frequency-Distribution, Group, India, Law, Lotka Law, Male, Models, Order, Paper, Parameters, Participation, Physical, Productivity, Publication, Publishing, Sciences, Scientific Productivity, Speed, Test

? Egghe, L. (1999), An explanation of the relation between the fraction of multinational publications and the fractional score of a country. *Scientometrics*, **45** (2), 291-310.

Full Text: [1999\Scientometrics45, 291.pdf](1999/Scientometrics45,%20291.pdf)

Abstract: Consider a country’s national output, measured by counting the number of authors from country c that collaborate in every paper in a bibliography. Depending on whether country c appears at least once in every paper, we are able to deduce the corresponding relationship between c’s fractional score and its fraction of multinational papers to which c belongs. One of these models, a slowly decreasing concave function is similar to the relation observed by Nederhof and Moed(1) between the fractionated score of a country c and its fraction of multinational papers. The proof of the models developed here uses a stochastic property of weighting schemes, namely that the average fractional score of a country equals its total score.

Keywords: Fraction, Function, Models, Output, Paper, Publications, Stochastic, Weighting

? Eto, H. (1999), Relationship of mathematical programming with mathematics, economic regional planning and other specialties. *Scientometrics*, **45** (2), 311-324.

Full Text: [1999\Scientometrics45, 311.pdf](1999/Scientometrics45,%20311.pdf)

Abstract: the references cited by papers in the four volumes of international journal titled Mathematical Programming (Math. Frog.) published in 1997 were surveyed. The most frequently cited journal was found to be Math. Frog. itself. Generally, the cited references were found to be heavily concentrated on particular journals or books by particular publishers specialised in particular specialties. Despite the historical background having originated from mathematics and economics and having developed together with the development of business administration, works in these specialties were found to be rarely cited. The research field of mathematical programming was hereby judged to have formed its own closed specialty, having rather isolated itself from others in a self-sufficient way. Its shift from economic, regional or business planning to the experiment design or the engineering design was observed.

Keywords: Administration, Background, Business Administration, Design, Development, Economic, Economics, Engineering, Experiment, Field, Historical, Journal, Management, Planning, Programming, Regional, Regional Planning, Research

Jin, B.H. and Wang, B. (1999), Chinese science citation database: Its construction and application. *Scientometrics*, **45** (2), 325-332.

Full Text: [1999\Scientometrics45, 325.pdf](1999/Scientometrics45,%20325.pdf)

Abstract: the important role of the Institute for Scientific Information’s Science Citation Index (SCI) as an international retrieval and evaluation tool is briefly discussed. The role of Chinese Science Citation Database (CSCD), The counterpart of SCI in China, in improving the application of citation retrieval method in China, is summarized. The construction process and status quo of CSCD are explained.

Keywords: China, Chinese, Citation, Evaluation, Process, Role, SCI, Science, Science Citation Index

? Bundschuh, E. (1999), Science and the academic system in transition - An International Expert Meeting on Evaluation - 3-5 July, 1998 - Vienna, Austria - Welcoming and opening remarks. *Scientometrics*, **45** (3), 335-336.

Full Text: [1999\Scientometrics45, 335.pdf](1999/Scientometrics45,%20335.pdf)

Keywords: Academic

? Escritt, R. (1999), Welcoming and opening remarks: Science and the academic system in transition - the role of evaluation. *Scientometrics*, **45** (3), 337.

Full Text: [1999\Scientometrics45, 337.pdf](1999/Scientometrics45,%20337.pdf)

Keywords: Academic, Evaluation, Role

? Scapagnini, U. (1999), Science and the academic system in transition - An International Expert Meeting on Evaluation - 3-5 July, 1998 - Vienna, Austria - Welcoming and opening remarks. *Scientometrics*, **45** (3), 339-341.

Full Text: [1999\Scientometrics45, 339.pdf](1999/Scientometrics45,%20339.pdf)

Keywords: Academic

? Einem, C. (1999), Science and the academic system in transition - An International Expert Meeting on Evaluation - 3-5 July, 1998 - Vienna, Austria - Welcoming and opening remarks. *Scientometrics*, **45** (3), 343-346

Full Text: [1999\Scientometrics45, 343.pdf](1999/Scientometrics45,%20343.pdf)

Keywords: Academic

? Davignon, E. (1999), Evaluation in management and policy making at European level. *Scientometrics*, **45** (3), 347-354

Full Text: [1999\Scientometrics45, 347.pdf](1999/Scientometrics45,%20347.pdf)

Keywords: Management, Policy, Policy Making, Policy-Making

? Kneucker, R.F. (1999), Evaluation in management and policy making at European level. *Scientometrics*, **45** (3), 355-357

Full Text: [1999\Scientometrics45, 355.pdf](1999/Scientometrics45,%20355.pdf)

Keywords: Management, Policy, Policy Making, Policy-Making

Bundschuh, E. (1999), Quality assessment and structural change in universities. *Scientometrics*, **45** (3), 359-365.

Full Text: [1999\Scientometrics45, 359.pdf](1999/Scientometrics45,%20359.pdf)

Keywords: Assessment, Universities

Lindqvist, O.V. (1999), Quality assessment and structural change in universities. *Scientometrics*, **45** (3), 367-370.

Full Text: [1999\Scientometrics45, 367.pdf](1999/Scientometrics45,%20367.pdf)

Keywords: Assessment, Universities

Nybom, T. (1999), Quality assessment and structural change in universities. *Scientometrics*, **45** (3), 371-377.

Full Text: [1999\Scientometrics45, 371.pdf](1999/Scientometrics45,%20371.pdf)

Keywords: Assessment, Universities

Pompidou, A. (1999), Quality assessment and structural change in universities. *Scientometrics*, **45** (3), 379-379.

Full Text: [1999\Scientometrics45, 379.pdf](1999/Scientometrics45,%20379.pdf)

Keywords: Assessment, Universities

? Meyer, V. (1999), The role of advisory bodies in evaluation. *Scientometrics*, **45** (3), 381-385

Full Text: [1999\Scientometrics45, 381.pdf](1999/Scientometrics45,%20381.pdf)

Keywords: Evaluation, Role

? Van Heeringen, A. (1999), The role of advisory bodies in evaluation. *Scientometrics*, **45** (3), 387-389

Full Text: [1999\Scientometrics45, 387.pdf](1999/Scientometrics45,%20387.pdf)

Keywords: Evaluation, Role

Papon, P. (1999), The role of national agencies in evaluation. *Scientometrics*, **45** (3), 391-399.

Full Text: [1999\Scientometrics45, 391.pdf](1999/Scientometrics45,%20391.pdf)

Keywords: Evaluation, Role

Seidel, H. (1999), The role of national agencies in evaluation. *Scientometrics*, **45** (3), 401-403.

Full Text: [1999\Scientometrics45, 401.pdf](1999/Scientometrics45,%20401.pdf)

Keywords: Evaluation, Role

? Fasella, P.M. (1999), Interdependencies and interactions between evaluation and decision making processes. *Scientometrics*, **45** (3), 405-408.

Full Text: [1999\Scientometrics45, 405.pdf](1999/Scientometrics45,%20405.pdf)

Keywords: Decision Making, Decision-Making, Evaluation, Interactions

? Tuppy, H. (1999), Interdependencies and interactions between evaluation and decision making processes. *Scientometrics*, **45** (3), 409-412.

Full Text: [1999\Scientometrics45, 409.pdf](1999/Scientometrics45,%20409.pdf)

Keywords: Decision Making, Decision-Making, Evaluation, Interactions

? Meyer-Krahmer, F. (1999), Quantitative approaches - Strengths and weaknesses. *Scientometrics*, **45** (3), 413-415.

Full Text: [1999\Scientometrics45, 413.pdf](1999/Scientometrics45,%20413.pdf)

Notes: UUniversity

Van Raan, A. (1999), Advanced bibliometric methods for the evaluation of universities. *Scientometrics*, **45** (3), 417-423.

Full Text: [1999\Scientometrics45, 417.pdf](1999/Scientometrics45,%20417.pdf)

Keywords: Bibliometric, Bibliometric Methods, Evaluation, Methods, Universities

Notes: UUniversity

Braun, T. (1999), Bibliometric indicators for the evaluation of universities - Intelligence from the quantitation of the scientific literature. *Scientometrics*, **45** (3), 425-432.

Full Text: [1999\Scientometrics45, 425.pdf](1999/Scientometrics45,%20425.pdf)

Keywords: Evaluation, Indicators, Quantitation, Universities

? Skoie, H. (1999), Bibliometrics - Some warnings from the North. *Scientometrics*, **45** (3), 433-437

Full Text: [1999\Scientometrics45, 433.pdf](1999/Scientometrics45,%20433.pdf)

Sirilli, G. (1999), Innovation indicators in science and technology evaluation. *Scientometrics*, **45** (3), 439-443.

Full Text: [1999\Scientometrics45, 439.pdf](1999/Scientometrics45,%20439.pdf)

Keywords: Evaluation, Indicators, Science

Westerheijden, D.F. (1999), Innovation indicators in science and technology evaluation: Comments from a higher education point of view. *Scientometrics*, **45** (3), 445-453.

Full Text: [1999\Scientometrics45, 445.pdf](1999/Scientometrics45,%20445.pdf)

Keywords: Education, Evaluation, Higher Education, Indicators, Science

Airaghi, A. (1999), Quantitative methods in industrial research and development. *Scientometrics*, **45** (3), 455-457.

Full Text: [1999\Scientometrics45, 455.pdf](1999/Scientometrics45,%20455.pdf)

Keywords: Development, Industrial, Methods, Research, Research and Development

Veltkamp, E. (1999), Quantitative methods in industrial R&D. *Scientometrics*, **45** (3), 459-462.

Full Text: [1999\Scientometrics45, 459.pdf](1999/Scientometrics45,%20459.pdf)

Keywords: Industrial, Methods

Farge, Y. (1999), Quantitative methods in industrial research and development. *Scientometrics*, **45** (3), 463-465.

Full Text: [1999\Scientometrics45, 463.pdf](1999/Scientometrics45,%20463.pdf)

Keywords: Development, Industrial, Methods, Research, Research and Development

? Curien, H. (1999), Role of experts in political consultancy processes. *Scientometrics*, **45** (3), 467-471.

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Keywords: Review

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Keywords: Review

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Keywords: Evaluation, Measurement, Output, Programme Evaluation, Science

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Keywords: EU, Impact

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Keywords: EU, Impact

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Full Text: [1999\Scientometrics45, 509.pdf](1999/Scientometrics45,%20509.pdf)

Keywords: Regional, Structural Funds

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Full Text: [1999\Scientometrics45, 517.pdf](1999/Scientometrics45,%20517.pdf)

Keywords: Science, Structural Funds

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Full Text: [1999\Scientometrics45, 531.pdf](1999/Scientometrics45,%20531.pdf)

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Full Text: [1999\Scientometrics45, 533.pdf](1999/Scientometrics45,%20533.pdf)

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Keywords: Information, Innovation

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Full Text: [1999\Scientometrics45, 547.pdf](1999/Scientometrics45,%20547.pdf)

Keywords: Information, Innovation

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Full Text: [1999\Scientometrics45, 551.pdf](1999/Scientometrics45,%20551.pdf)

Keywords: Information, Innovation

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Full Text: [1999\Scientometrics45, 557.pdf](1999/Scientometrics45,%20557.pdf)

Keywords: Information, Innovation

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Keywords: Global, Landscape

? Skalicky, P. (1999), Universities - Engines of innovation in the information society. *Scientometrics*, **45** (3), 565-566.

Full Text: [1999\Scientometrics45, 565.pdf](1999/Scientometrics45,%20565.pdf)

Keywords: Information, Innovation

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Full Text: [1999\Scientometrics45, 567.pdf](1999/Scientometrics45,%20567.pdf)

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Full Text: [1999\Scientometrics45, 569.pdf](1999/Scientometrics45,%20569.pdf)

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Full Text: [1999\Scientometrics45, 571.pdf](1999/Scientometrics45,%20571.pdf)

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Full Text: [1999\Scientometrics46, 5.pdf](1999/Scientometrics46,%205.pdf)

Keywords: Mexico

Notes: CCountry

Dahoun, A.M. (1999), Black Africa in the Science Citation Index. *Scientometrics*, **46** (1), 11-18.

Full Text: [1999\Scientometrics46, 11.pdf](1999/Scientometrics46,%2011.pdf)

Abstract: According to a quantitative analysis of the publications of the Black African Countries indexed in the SCI between 1992 to 1998, Nigeria seems to be the leader in scientific production on the black continent during that period (the term ‘Black Africa’ refers to all African countries excluding South Africa, Maghrebi, and Egypt). However, an analysis that only takes into account the number of publications does not necessarily disclose very much about neither the dynamics of the respective scientific community nor about the representativity of the country’s production with respect to its total population. Therefore, the number of publications per country is compared with the respective total population. According to this method, Kenya turns out to be the leader in scientific-publication production and several other countries get higher ranks. Additionally, any evaluation of scientific production in that part of the world should also take into account the specific features of these countries, e.g. The difficulties in publication and the existence of a large number of unpublished texts.

Keywords: Africa, Analysis, Citation, Community, Dynamics, Egypt, Evaluation, Features, Index, Kenya, Nigeria, Population, Production, Publication, Publications, Quantitative Analysis, SCI, Science, Science Citation Index, Scientific Production, South Africa

Garg, K.C. and Padhi, P. (1999), Scientometrics of institutional productivity of laser science and technology. *Scientometrics*, **46** (1), 19-38.

Full Text: [1999\Scientometrics46, 19.pdf](1999/Scientometrics46,%2019.pdf)

Abstract: An analysis of 4650 publications abstracted in Journal of Current Laser Abstracts (JCLA) during April 1990 - March 1991 indicates that 50 institutions located in 14 countries contributed about 39% of the S&T output. Twenty two of these institutions were from the USA, four each from Japan and the former USSR. Academic and research institutions were mainly concentrating their research efforts either in theoretical or experimental laser research. However, the industrial houses pursued their research in applications of the lasers. Most of these institutions published their output in scientific journals, but a few institutions had large amounts of technical reports and patents to their credit. Most of the institutions resembled in their activity and attractivity profiles. The values of normalized impact per paper, publication effectivity index and proportion of high quality papers for 12 institutions were less than average.

Keywords: Activity, Analysis, Applications, Experimental, Impact, Index, Indicators, Industrial, Institutions, Japan, Output, Paper, Patents, Productivity, Profiles, Publication, Publications, Quality, Research, Science, USA, USSR

de Marchi, M. and Rocchi, M. (1999), Summing up approaches to the study of science and technology indicators. *Scientometrics*, **46** (1), 39-49.

Full Text: [1999\Scientometrics46, 39.pdf](1999/Scientometrics46,%2039.pdf)

Abstract: Attempts to reduce the multiplicity and variety of the range of indicators presently used to measure science and technology to lean patterns have so far proved unsuccessful.

The reason for this is the ongoing lack of an all-comprehensive theory to rationalise every aspect of intricate and as yet obscure processes such as scientific discovery and technological innovation. We ought to expect from a theory of scientific and technological progress satisfactory not only in abstract terms but also as an empirical analysis is a composition of two aspects - static and dynamic - in a few homogeneous variables.

Keywords: Analysis, Bibliometric Analysis, Citations, Composition, Dynamic, Homogeneous, Impact, Indicators, Industrial-Innovation, Innovation, Patents, Range, Research Performance, Science, Static, Technological Innovation, Theory

Notes: JJournal

Arkhipov, D.B. (1999), Scientometric analysis of *Nature*, the journal. *Scientometrics*, **46** (1), 51-72.

Full Text: [1999\Scientometrics46, 51.pdf](1999/Scientometrics46,%2051.pdf)

Abstract: 300,000 reports in Nature during the 1869-1998 period have been reviewed. The distribution of articles by subfields was determined. Additional sources of information were several journals on analytical chemistry and papers at the Pittsburg conference series during 1950-1999. The methodology used is based on the analysis of the average age of employed instruments. The agreement between scientometric data from various sources of information depends on the development stage of the field of science. Calculated and measured scientometric curves were compared. One of the key trends in the development of basic sciences, namely, the increase of articles dealing with instrumental analytical chemistry, in Nature is revealed.

Keywords: Age, Analysis, Analytical Chemistry, Development, Distribution, Evolution, Indicators, Information, Journal, Key, Methodology, Physics, Science, Sciences, Sources, Sources of Information, Trends

? Hayashi, T. and Fujigaki, Y. (1999), Differences in knowledge production between disciplines based on analysis of paper styles and citation patterns. *Scientometrics*, **46** (1), 73-86.

Full Text: [1999\Scientometrics46, 73.pdf](1999/Scientometrics46,%2073.pdf)

Abstract: To identify the differences in the knowledge production between disciplines, we analyzed the. relation between the average paper length and impact factor of 100 journals from 5 disciplines. We found negative correlation between the average length and the impact factor in the natural sciences, but not in the social sciences. We also analyzed the structures of paper and the citation patterns. These analyses are expanded to the comparison between Mode 1 and Mode 2. All results showed the natural sciences articles could emphasize the differences from previous studies and be diffused effectively by the short standardized style of paper.

Keywords: Analysis, Citation, Comparison, Correlation, Impact, Impact Factor, Knowledge, Natural, Paper, Production, Research Performance, Sciences, Social, Social Sciences

Andersen, H. (1999), Political attitudes and cognitive convictions among Danish social science researchers. *Scientometrics*, **46** (1), 87-108.

Full Text: [1999\Scientometrics46, 87.pdf](1999/Scientometrics46,%2087.pdf)

Abstract: Interview data from a survey among Danish researchers, mainly from social sciences (all disciplines, about on third of all) are used to examine connections between researcher political attitudes and their disciplinary cognitive paradigms. Included are researchers’ convictions concerning world view hypotheses, their basic assumptions regarding the subject matter in their fields of study, e.g., individuals, social action, and society as a whole, and their epistemic ideals and goals. Political attitude is indicated by researchers’ voting in the 1994 general election of the Danish Parliament. The results show big differences between social science disciplines regarding voting pattern. The analysis also clearly demonstrates connections between disciplinary cognitive convictions and political attitudes. The connections are interpreted as expressions of hermeneutic, historical links between political discourse formations and disciplinary paradigms.

Keywords: Analysis, Attitude, Attitudes, General, Historical, Matter, Science, Sciences, Social, Social Sciences, Survey

? Nagpaul, P.S. (1999), Transnational linkages of Indian science: A structural analysis. *Scientometrics*, **46** (1), 109-140.

Full Text: [1999\Scientometrics46, 109.pdf](1999/Scientometrics46,%20109.pdf)

Abstract: This study analyzes the pattern of transnational linkages of Indian science in eleven scientific fields (Mathematics, Physics, Chemistry, Biology, Earth & Space Science, Agriculture, Clinical Medicine, Biomedical Research, Engineering & Technology, Computer Science, and Materials Science) during the five-year period: 1990-1994. The following indicators are constructed to examine inter-field and inter-country differences in India’s transnational linkages: Internationalization index, Cooperation index, Cooperation extensiveness index and Affinity index. A four-category typology is proposed to classify the fields according to their propensities for attracting bilateral and multilateral cooperation with foreign countries. The structure of multidimensional system of relationships between India’s thirty-five most significant partner countries and eleven scientific fields is analyzed through correspondence analysis. A series of correspondence analyses are carried out on subsets of the multidimensional data to reveal the fine-grained structure of India’s cooperation links in clusters of specific fields and with clusters of specific countries.

Keywords: Analysis, Bilateral, Clusters, Index, Indicators, International Scientific Collaboration, Science, Structural Analysis, Structure, Typology

Notes: TTopic

Souza, G.D., Alves, E. and Ávila, A.F.D. (1999), Technical efficiency of production in agricultural research. *Scientometrics*, **46** (1), 141-160.

Full Text: [1999\Scientometrics46, 141.pdf](1999/Scientometrics46,%20141.pdf)

Abstract: We define and model research production at Embrapa, the major Brazilian institution responsible for applied agricultural research. The main theoretical framework used is Data Envelopment Analysis - DEA. The economic interpretation of these models is explored to assess scale, congestion and cost efficiencies. Efficiency results are used to test for differences among types of research units and for the scale of operation. A further analysis of agricultural research in Brazil is carried out with the inclusion of three research centers in Argentina. Finally, DEA estimates are compared with the fit of a stochastic frontier.

Keywords: Agricultural, Analysis, Argentina, Brazil, Cost, Data Envelopment Analysis, Economic, Efficiency, Inclusion, Model, Models, Operation, Production, Research, Scale, Stochastic, Test

Notes: CCountry

Melin, G. (1999), Impact of national size on research collaboration: A comparison between Northern European and American universities. *Scientometrics*, **46** (1), 161-170.

Full Text: [1999\Scientometrics46, 161.pdf](1999/Scientometrics46,%20161.pdf)

Abstract: It is generally assumed that there is a negative correlation between national scientific size and amount of international research collaboration: the larger the size is of the national scientific arena, the lesser the amount of international research collaboration. In this study, the collaboration pattern of 49 universities is analysed and a comparison is made between the Northern European and American universities in our sample. It was found that the American universities have more national and less international collaboration than the European ones. However, for the European universities there are no impact of national size although the countries differ much in scientific size. This deviation from the general trend indicates that the above-mentioned explanation is too simple and that national scientific size does not correlate negatively with the amount of international research collaboration without exceptions.

Keywords: Collaboration, Comparison, Correlation, General, Impact, International Collaboration, Made, Research, Research Collaboration, Size, Trend, Universities

Notes: JJournal

Schubert, A. (1999), On science journals in science journals 1980-1998. *Scientometrics*, **46** (1), 171-212.

Full Text: [1999\Scientometrics46, 171.pdf](1999/Scientometrics46,%20171.pdf)

Keywords: Science

Notes: JJournal, MModel

Wagner-Dobler, R. and Berg, J. (1999), Physics 1800-1900: A quantitative outline. *Scientometrics*, **46** (2), 213-285.

Full Text: [1999\Scientometrics46, 213.pdf](1999/Scientometrics46,%20213.pdf)

Abstract: the authors utilize the index of the Catalogue of Scientific papers of the Royal Society of London dealing with the physics journal literature of the 19th century. Graphs of the publication activity of the entire 19th-century physics and of about 50 of its most important subareas are displayed, both the number of active contributors in each area, the number of papers and its share of publications of the entire 19th century physics are exhibited. Typical scientometric regularities such as ‘Lotka’s law’ (with regard to the number of papers and the number of areas treated by physicists) are confirmed. In addition, the shares of the leading countries of important physical discoveries in the 19th century are studied.

Keywords: Activity, Index, Journal, London, Physical, Publication, Publications

? Bird, J.E. and Bird, M.D. (1999), Do peer-reviewed journal papers result from meeting abstracts of the biennial conference on the biology of marine mammals? *Scientometrics*, **46** (2), 287-297.

Full Text: [1999\Scientometrics46, 287.pdf](1999/Scientometrics46,%20287.pdf)

Abstract: Peer-reviewed publication is at the core of scientific communication. However, with the exception of biomedicine, there has been little analysis of the rate of peer-reviewed publication resulting from conference abstracts. This study examined a random sample of abstracts from the 1989 and 1991 Biennial Conferences on the Biology of Marine Mammals to determine how many were published as peer-reviewed papers. Publication rates were 51.4% (±4.7%) and 51.2% (±4.6%) respectively. This low abstract-to-publication rate, coupled with editorial policies prohibiting citation of conference abstracts in some journals, limits access to recent research, and thus affects the vibrance of the discipline.

Keywords: Access, Analysis, Biology, Biomedicine, Citation, Communication, Core, Editorial Policies, Fate, Journal, Low, Mammals, Marine, Marine Mammals, Publication, Random Sample, Recent, Research, Scientific Communication

de Moya-Anegón, F. and Herrero-Solana, V. (1999), Science in America Latina: A comparison of bibliometric and scientific-technical indicators. *Scientometrics*, **46** (2), 299-320.

Full Text: [1999\Scientometrics46, 299.pdf](1999/Scientometrics46,%20299.pdf)

Abstract: Latin-American scientific achievement is generally under-represented in databases for a number of reasons pointed out in our study. In this paper we analyze Latin-American scientific production in terms of input (resources) and output (publications). The indicators used were: Gross Domestic Product (GDP), economically active population (EAP), percentage of GNP destined to R+D, and total number of researchers dedicated to R+D. These indicators were subjected to bivariant analysis to determine the degree of correlation with the number of ISI publications.

Keywords: Achievement, Analysis, Bibliometric, Citation Analysis, Comparison, Correlation, Databases, Developing-Countries, GDP, Impact, Indicators, International Collaboration, ISI, Mathematics, Output, Paper, Population, Production, Publications, Scientific Production, World Science

Notes: CCountry

Yurtsever, E. and Gülgöz, S. (1999), The increase in the rate of publications originating from Turkey. *Scientometrics*, **46** (2), 321-336.

Full Text: [1999\Scientometrics46, 321.pdf](1999/Scientometrics46,%20321.pdf)

Abstract: the scientific publications of 231 chemistry professors employed at Turkish Universities are studied for a period of 10 years. The quantitative as well as the qualitative aspects of the trends in the scientific information output of this group are analyzed in order to evaluate the underlying facts of the recent increase in the number of publications coming from Turkey. The selected group is a fairly good representative of the Turkish scientific community and our observations could be generalized to describe the development of basic sciences in Turkey. We conclude that even though there exists a serious increase in the scientific output from Turkey, a rather small portion of the studied group is responsible both for high number of publications and for higher quality.

Keywords: Citation Analysis, Community, Countries, Development, Group, Information, Journal Impact, Order, Output, Publications, Qualitative, Quality, Recent, Science, Sciences, Scientific Information, Scientific Output, Scientific Publications, Trends, Turkey, World

Bookstein, A. and Yitzhaki, M. (1999), Own-language preference: A new measure of ‘relative language self-citation’. *Scientometrics*, **46** (2), 337-348.

Full Text: [1999\Scientometrics46, 337.pdf](1999/Scientometrics46,%20337.pdf)

Abstract: A significant portion of scientometrics research involves studies of relative citation rates to groups of citable items. This paper examines the relative citation rates to own-language as compared to foreign language materials. A simple probabilistic model of citation behavior is defined, which suggests a natural measure of relative citation rate. Unlike earlier indicators, our measure is independent of the size of the base population.

Keywords: Base, Behavior, Citation, Groups, Indicators, Language, Materials, Model, Natural, Paper, Population, Preference, Research, Scientometrics, Size

Fernández-Cano, A. and Bueno, A. (1999), Synthesizing scientometric patterns in Spanish educational research. *Scientometrics*, **46** (2), 349-367.

Full Text: [1999\Scientometrics46, 349.pdf](1999/Scientometrics46,%20349.pdf)

Abstract: Educational research systems as the Spanish one can be studied using scientometric tools. Here 41 secondary-bibliometric studies are synthesized in a tertiary study, which could illuminate the nature of this research system, revealing at the same time its underlying framework. A clustering procedure reveals how this system has been scientometrically approached through the time.

Keywords: Clustering, Research, Tools

Bar-Ilan, J. and Peritz, B.C. (1999), The life span of a specific topic on the Web: the case of ‘informetrics’: A quantitative analysis. *Scientometrics*, **46** (3), 371-382.

Full Text: [1999\Scientometrics46, 371.pdf](1999/Scientometrics46,%20371.pdf)

Abstract: In this case study a first attempt was made to explore data on the Web for a certain period of time by using bibliometric methods for analysis. The period under investigation was between January 3, 1998 and June 7, 1998. An additional search was carried out on June 20, 1999. The terms used were ‘informetrics or informetric’. The results show that substantial changes occurred to the ‘literature on the Web’ on informetrics during this period. Three specific trends were observed: some documents disappeared, new ones were added and some underwent changes.

Keywords: Analysis, Bibliometric, Bibliometric Methods, Case Study, Informetrics, Investigation, Life, Made, Methods, Overlap, Quantitative Analysis, Search Engines, Trends

? Bordons, M., Zulueta, M.A., Romero, F. and Barrigon, S. (1999), Measuring interdisciplinary collaboration within a university: the effects of the Multidisciplinary Research Programme. *Scientometrics*, **46** (3), 383-398.

Full Text: [1999\Scientometrics46, 383.pdf](1999/Scientometrics46,%20383.pdf)

Abstract: A Multidisciplinary Research Programme (MRP) is being developed since 1989 in the Universidad Complutense de Madrid (UCM), Spain, to support cross-disciplinary research projects. This paper analyses the incidence of interdisciplinarity in the UCM scientific publications over the period 1990-96 and tries to determine the success of the Programme at fostering cross-disciplinary research. Interdisciplinary in the UCM is measured through the collaboration of authors from different institutional addresses within the UCM, both in scientific publications and in research projects. Publications jointly signed by the different teams that collaborate in the projects were identified as an indicator of the success of the Programme in integrating disciplines, interdisciplinary collaboration within the UCM showed an upward trend over time. Publications of MRP groups showed a higher interdisciplinary collaboration rate than the rest of the UCM (17% vs. 9%). Dramatic repercussions of the Programme were not expected due to its limited magnitude, but it worked as a catalyst, enhancing interdisciplinary relations within the UCM. The interest of such a programme is supported by its effects, both direct effects on granted teams and indirect on the whole UCM community.

Keywords: Catalyst, Collaboration, Community, Effects, Groups, Incidence, Indicator, Interdisciplinary, Interdisciplinary Collaboration, Madrid, MRP, Paper, Publications, Research, Research Projects, Science, Scientific Publications, Spain, Support, Trend

Davis, M., Wilson, C.S. and Hood, W.W. (1999), Ophthalmology and optics: An informetric study of Australia’s contribution to fields in the vision science domain, 1991-95. *Scientometrics*, **46** (3), 399-416.

Full Text: [1999\Scientometrics46, 399.pdf](1999/Scientometrics46,%20399.pdf)

Abstract: the paper provides data from a first exploration of the literature of Vision Science as seen bibliometrically through the ISI’s three citation indexes, SCI, SSCI, & AHCI. The main focus of analysis is on the major fields of Ophthalmology and Optics (SC = OPTICS and SC = OPHTHALMOLOGY) with a focus on Australia’s contribution to those literatures. Australia’s publication frequency vis-a-vis the world, its collaboration with authors from other nations, and the journals in which Australians most frequently publish are shown. Comparison of productivity is made for countries of similar scientific stature, or of language and Commonwealth status.

Keywords: Analysis, Citation, Citation Indexes, Collaboration, Exploration, Language, Made, Optics, Paper, Productivity, Publication, SCI, Science, Vision

? Egghe, L. (1999), A model for measuring the congestion in library shelves. *Scientometrics*, **46** (3), 417-430.

Full Text: [1999\Scientometrics46, 417.pdf](1999/Scientometrics46,%20417.pdf)

Abstract: A model for measuring the congestion in library shelves after j years (j is an element of N) is obtained by taking j-fold convolutions of the distributions that describe the yearly growth of literature (e.g., periodicals, books on a certain topic,...) From this one can estimate the expected number of critical points in the shelf, after j years. One can also calculate the probability that there will be m (m is an element of N) critical points after j years. The paper closes by examining two concrete cases.

Keywords: Concrete, Distributions, Growth, Law, Model, Paper, Periodicals, Probability

? Glänzel, W., Schubert, A., Schoepflin, U. and Czerwon, H.J. (1999), An item-by-item subject classification of papers published in journals covered by the SSCI database using reference analysis. *Scientometrics*, **46** (3), 431-441.

Full Text: [1999\Scientometrics46, 431.pdf](1999/Scientometrics46,%20431.pdf)

Abstract: A serious shortcoming of bibliometric studies based on the Social Sciences Citation Index is the lack of a universally applicable subject classification scheme as individual papers are concerned. Moreover, the selective coverage of more than thoUSAnd scientific journals per annum proved to be an insuperable obstacle in the delimitation of social science subject areas. Subject classification of papers on the basis of assigning journals to subject categories (like those found in the various supplements of ISI databases) works well in case of fully covered and highly specialised journals in the social sciences, too, but fails for multidisciplinary and selectively covered journals. This study presents the results of an item-by-item subject classification approach, where assignment is based on the analysis of the subject categories of reference literature This analysis extends the results of an earlier study by the authors on the possibility of delimiting subfields in the hard and life sciences based on reference analysis. The assignment proved also reliable for a considerable share of literature in the social sciences. Due to the peculiarities of the database this share is lower in the SSCI than that in the SCI. Although an iterated application of the procedure is expected to increase the number of classifiable publications, it is suggested that in the social sciences the method should be used in combination with other means of subject assignment.

Keywords: Analysis, Application, Approach, Bibliometric, Bibliometric Studies, Classification, Coverage, Database, Databases, ISI, Journals, Life, Life Sciences, Literature, Multidisciplinary, Papers, Procedure, Publications, SCI, Science, Sciences, Scientific Journals, Social, Social Sciences, SSCI

Gómez, I., Sancho, R., Moreno, L. and Fernández, M.T. (1999), Influence of Latin American journals coverage by international databases. *Scientometrics*, **46** (3), 443-456.

Full Text: [1999\Scientometrics46, 443.pdf](1999/Scientometrics46,%20443.pdf)

Abstract: the coverage of Latin American journals by international databases influences the visibility of these countries’ scientific output, and has a direct effect in their activity index per scientific discipline. Local, regional and international character of the most visible Latin American journals in SCI expanded and restricted databases is analysed, as well as its influence in the percentage share of each country in certain disciplines. Suggestions to enhance visibility of local journals are presented.

Keywords: Activity, Databases, Index, Local, Output, Regional, SCI, Scientific Output, Visibility

? Hinze, S. (1999), Collaboration and cross-disciplinarity in autoimmune diseases. *Scientometrics*, **46** (3), 457-471.

Full Text: [1999\Scientometrics46, 457.pdf](1999/Scientometrics46,%20457.pdf)

Abstract: Collaboration and cross-disciplinarity are important features in autoimmune disease research. Taking co-authorship as an indicator for research collaboration, for selected European countries it was found that 91% to 99% of all publications are based on collaboration. International collaboration affects about 27% of all publications. Small countries like Sweden and Finland pursue international collaboration more intensively than larger countries like Germany or the UK. Different collaboration strategies were found for nationally co-authored papers, for instance, Germany seems to focus more on intra-departmental collaboration, while France and Italy have stronger inter-institutional links. About 54% of all publications are based on cross-disciplinary collaboration, which was found to be even more important in international collaboration.

Keywords: Co-Authorship, Collaboration, Disease, Diseases, Features, Finland, France, Germany, Indicator, International Collaboration, Italy, Publications, Research, Research Collaboration, Strategies, Sweden, UK

? Hood, W.W. and Wilson, C.S. (1999), The distribution of bibliographic records in databases using different counting methods for duplicate records. *Scientometrics*, **46** (3), 473-486.

Full Text: [1999\Scientometrics46, 473.pdf](1999/Scientometrics46,%20473.pdf)

Abstract: Knowing how records on a particular topic are distributed over databases is useful for both practical and theoretical reasons; however little work in this area appears to have been done. This paper examines the distribution of records on the topic of ‘Fuzzy Set Theory’ in over 100 bibliographic databases and determines whether the distribution of records over databases is similar to the traditional Bradford hyperbolic distribution of records over journals. Different methods for counting duplicate records between and within databases have been developed. A comparison of the various distributions based on these counting methods is presented; and the distributions are compared to results of earlier studies. The results also give an indication of the number of databases necessary to search for coverage of a literature to specified percentages using the different counting techniques developed in this study.

Keywords: Bibliographic Databases, Comparison, Databases, Distribution, Distributions, Hyperbolic, Issues, Methods, Paper, Techniques

Ingwersen, P. and Wormell, I. (1999), Publication behaviour and international impact: Scandinavian clinical and social medicine, 1988-96. *Scientometrics*, **46** (3), 487-499.

Full Text: [1999\Scientometrics46, 487.pdf](1999/Scientometrics46,%20487.pdf)

Abstract: the paper presents the results of an empirical study of the Danish and Nordic publication behaviour and international impact in Clinical and Social Medicine covering the period 1988-96. As indicators are applied the international visibility of Scandinavian research output, the publication activity per capita in SCI journals, the development over time of the national citation impact in an OECD and World context, and the ratio of cited papers relative to the World. Compared to May’s analysis (1997), covering 1981-94, the analysis shows that a certain reshuffle of national positions among the OECD countries in citation impact has occurred. UK and New Zealand as well as Denmark and Sweden have lost in ranking to Finland and Belgium, both countries coming up from behind. The most interesting results concern the opposite research policy strategies displayed by Finland and Denmark which result in similar impact patterns relative to the World impact. The implications are discussed.

Keywords: Activity, Analysis, Belgium, Citation, Clinical, Denmark, Development, Finland, Impact, Indicators, New Zealand, Output, Paper, Policy, Publication, Ranking, Research, SCI, Social, Strategies, Sweden, UK, Visibility

? Kretschmer, H. (1999), A new model of scientific collaboration Part 1. Theoretical approach. *Scientometrics*, **46** (3), 501-518.

Full Text: [1999\Scientometrics46, 501.pdf](1999/Scientometrics46,%20501.pdf)

Abstract: This study deals with the uniformity of the collaboration process within the scientist’s system by describing all two-dimensional and three-dimensional referential patterns with only one nonlinear function. The variety of these patterns is expressed in dependence upon the conditions or environment that induced them by means of varying the parameters of this non-linear function. Based on their similarity these various patterns can be divided into different types.

Keywords: Collaboration, Dependence, Environment, Function, Model, New Model, Non-Linear, Nonlinear, Parameters, Process, Scientific Collaboration, Similarity, Three-Dimensional, Uniformity

? Kundra, R. and Kretschmer, H. (1999), A new model of scientific collaboration Part 2. Collaboration patterns in Indian medicine. *Scientometrics*, **46** (3), 519-528.

Full Text: [1999\Scientometrics46, 519.pdf](1999/Scientometrics46,%20519.pdf)

Abstract: Collaboration in science has become a prevailing trend and it will be worthwhile to study the patterns of co-authorships in scientific research. In this study a three-dimensional behavioural pattern of Indian medicinal co-authorship network is presented. The high evenness of this pattern has caused us to carry out a non-linear regression analysis. The pattern of Indian medicinal co-authorships can be described by the same non-linear mathematical function that describes the behavioural patterns of international medicine co-authorship networks and networks of other scientific disciplines. The following question has arise: Is there a general validity of this function in co-authorship networks?

Keywords: Analysis, Co-Authorship, Co-Authorship Networks, Collaboration, Function, General, Model, New Model, Non-Linear, Non-Linear Regression, Nonlinear, Nonlinear Regression, Regression, Regression Analysis, Research, Science, Scientific Collaboration, Three-Dimensional, Trend, Validity

Lewison, G. (1999), The definition and calibration of biomedical subfields. *Scientometrics*, **46** (3), 529-537.

Full Text: [1999\Scientometrics46, 529.pdf](1999/Scientometrics46,%20529.pdf)

Abstract: This paper first explains the need to define subfields of science by means of ‘filters’ that selectively retrieve papers from a database, and then describes how such filters are constructed and calibrated. Good filters should have precision and recall of the order of 90% so as to be representative of a subfield; they are created by an interactive partnership between an expert in the subject and a bibliometrician. They are based primarily on the use of title keywords, often in combination rather than singly, and specialist journals. Their calibration depends on experts marking lists of papers extracted by the filter as relevant, don’t know or not relevant. This allows the actual size of a subfield to be estimated and hence the relative importance accorded to it within a major field of science. It permits organisations and countries to see their contributions to individual scientific subfields in detail

Keywords: Calibration, Fields, Filter, Impact, Importance, Interactive, Order, Paper, Precision, Science, Sciences, Scientific Publications, Size

Notes: TTopic

De Arenas, J.L., Valles, J. and Arenas, M. (1999), Profile of the Mexican health sciences elite: A bibliometric analysis of research performance. *Scientometrics*, **46** (3), 539-547.

Full Text: [1999\Scientometrics46, 539.pdf](1999/Scientometrics46,%20539.pdf)

Abstract: the most prestigious award in Mexico, the ‘National Prize for Science and Art’ has been awarded to 33 health scientists. An exercise was carried out to assess their performance to answer the question: why them? the laureates’ profile was based on data retrieved from MEDLINE and Science Citation Index Expanded available on the WWW as well as the ISI’s 15-year (1981-1995) cumulative impact factor lists. The laureates published 2,049 papers and were cited 50,834 times. Our results showed the scientific pre-eminence of laureates. We concluded that bibliometric data could complement other indicators of research performance. Bibliometrics could insure the Prize committee against error and the operationalization of the Matthew Effect could be minimized to honor only the most creative researchers.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Cumulative Impact, Exercise, Health, Health Sciences, Impact, Impact Factor, Indicators, MEDLINE, Mexico, Performance, Prizes, Profile, Research, Research Performance, Science Citation Index, Sciences

Luwel, M. (1999), Is the science citation index US-biased? *Scientometrics*, **46** (3), 549-562.

Full Text: [1999\Scientometrics46, 549.pdf](1999/Scientometrics46,%20549.pdf)

Abstract: the Western European science policy establishment often claims that US articles are more Frequently cited than articles of the European Union’s scientists because they are published in journals with a large number of US publications and that these journals are forming the ‘core’ of the SCI.

For the disciplines covered by the SCI, no significant correlation has been found between the ratio of the average number of citations per publication for publications with at least one EU address and at least one US address, respectively, on the one hand, and, on the other hand, the ratio of the corresponding number of publications per journal.

Keywords: Citation, Citations, Core, Correlation, Eu, Hand, Index, Journal, Journals, Performance, Policy, Publication, Publications, SCI, Science, Science Citation Index, Science Policy, Science-Policy, US

Notes: TTopic

Macias-Chapula, C.A., Sotolongo-Aguilar, G.R., Magde, B. and Solorio-Lagunas, J. (1999), Subject content analysis of AIDS literature, as produced in Latin America and the Caribbean. *Scientometrics*, **46** (3), 563-574.

Full Text: [1999\Scientometrics46, 563.pdf](1999/Scientometrics46,%20563.pdf)

Abstract: the purpose of this paper is to present the preliminary results of a research in progress regarding the subject content analysis of AIDS literature, as produced in or about the Latin American and Caribbean (LAC) region. An AIDSLINE/OVID literature search was conducted to obtain only the Medical Subject Headings (MeSH) -geographic- terms related to the LAC region. The period of study was from 1982 to June, 1998

Indicators regarding the distribution of records throughout the years of study, as well as the subject, check tags, and subject/subheadings distribution patterns were analysed. This was done through rile application of a modular bibliometric information system, as well as the applications of Biblio-Link for Windows, Version 1.2 1994-1997, Research Information Systems; Pro-Cite for Windows, Version 4.0.1 1995-1998, Research Information Systems; and Microsoft EXCEL 97, of 1985-1998, Microsoft Corporation.

A total of 4124 records were obtained and analysed. In descending order, Brazil, Mexico, Haiti, Argentina and Puerto Rico, generated the highest number of citations. Highly ranked MeSH subject headings were Risk Factors; Acquired Immunodeficiency Syndrome; Sex Behavior; Support, Non US. Govt. HIV Infections; and Developing Countries.

Results demonstrate that major research concerns centred on the epidemiological aspects and transmission of AIDS; and more recently, on the prevention and control of the disease. A switch of the studies from male to female, and from middle age to adolescence was also observed. The authors provide further lines of research.

Keywords: Adolescence, Age, AID, AIDS, Analysis, Applications, Argentina, Bibliometric, Brazil, Caribbean, Citations, Content Analysis, Control, Disease, Distribution, Distribution Patterns, Female, HIV, Immunodeficiency-Syndrome AIDS, Information, Information System, Latin America, Male, Mexico, Order, Paper, Prevention, Puerto Rico, Research, US

Moed, H.F., Van Leeuwen, T.N. and Reedijk, J. (1999), Towards appropriate indicators of journal impact. *Scientometrics*, **46** (3), 575-589.

Full Text: [1999\Scientometrics46, 575.pdf](1999/Scientometrics46,%20575.pdf)

Abstract: This paper reviews a range of studies conducted by the authors on indicators reflecting scholarly journal impact. A critical examination of the journal impact data in the Journal Citation Reports (JCR), published by the Institute for Scientific Information (ISI) has shown that the JCR impact factor is inaccurate and biased towards journals revealing a rapid maturing or decline in impact. In addition, it was found that the JCR cited half life is an inappropriate measure of decline of journal impact. More appropriate impact measures of scholarly journals are proposed. A new classification system is explored, describing both maturing and decline of journal impact as measured through citations. Suggestions for future research are made, analysing in more detail the distribution of citations among papers in a journal.

Keywords: Citations, Classification, Distribution, Examination, Half-Life, Impact, Impact Factor, Indicators, Institute, Institute for Scientific Information, ISI, Journal, Journal Citation Reports, Life, Made, Obsolescence, Paper, Range, Research, Reviews, Scientific Literature

Noyons, E., Moed, H. and Van Raan, A. (1999), Integrating research performance analysis and science mapping. *Scientometrics*, **46** (3), 591-604.

Full Text: [1999\Scientometrics46, 591.pdf](1999/Scientometrics46,%20591.pdf)

Abstract: In this paper we present the explorations of combining the two main pillars of evaluative bibliometrics. These two pillars, performance analysis and science mapping, both have their strengths and imperfections. In this study we show how these imperfections are dealt with by an integrated analysis.

Keywords: Analysis, Bibliometrics, Indicators, Mapping, Paper, Performance, Research, Research Performance, Science, Strengths, Subfields

? Rao, I.K.R. and Suma, M.P. (1999), A quantitative study of Indian engineering literature. *Scientometrics*, **46** (3), 605-619.

Full Text: [1999\Scientometrics46, 605.pdf](1999/Scientometrics46,%20605.pdf)

Abstract: In recent years, several projects were sponsored by NISSAT of the Goverment of India to map Indian Science. As a part of it, a database (COMPENDEX) in engineering field was analysed. It has been found that engineers in India publish their articles mostly in journals; almost all of them publish in English language. They publish in a selected few journals. Only a few of the institutions are concentrated in engineering research. It has been observed that research output in applied physics, light & optics, bioengineering and information science are increasing both at the world and India level. In the area of energy technology metallurgical engineering and food technology, research output is decreasing at both levels.

Keywords: Energy, Engineering, Food, India, Information, Information Science, Institutions, Language, Levels, Light, Optics, Output, Recent, Research, Science

Vinkler, P. (1999), Ratio of short term and long term impact factors and similarities of chemistry journals represented by references. *Scientometrics*, **46** (3), 621-633.

Full Text: [S\Scientometrics46, 621.pdf](S/Scientometrics46,%20621.pdf)

Abstract: Some important bibliometric characteristics of chemistry journals were studied. Contrary to expectations, calculations of impact factors asynchronized for shorter and longer periods yield similar values. A new overlap measure for journals is suggested which is based on frequency distribution of references by journals.

Keywords: Bibliometric, Characteristics, Distribution, Impact, Impact Factors, Long-Term, Scientometric Indicators, Subfields, Yield

? Wagner-Döbler, R. (1999), William Goffman’s ‘Mathematical Approach to the Prediction of Scientific Discovery’ and its application to logic, revisited. *Scientometrics*, **46** (3), 635-645.

Full Text: [1999\Scientometrics46, 635.pdf](1999/Scientometrics46,%20635.pdf)

Abstract: Based on the observation of regular ‘epidemic’ recurrence of activity in the history of symbolic logic, a new wave of logic activity was predicted by Goffman in 1971 for the coming years. This prediction is examined and confirmed to some extent. It is shown, however, that the whole mathematics came in a wave-like fashion in the last 200 years, that the main fluctuations of logic were isochronic with the main fluctuations of mathematics, and, in addition, that fundamental logic contributions appeared on the top of the waves. After considering some problems of time-series analysis, relationships to business cycles of the Kondratiev, Kuznets, and Juglar types are discussed.

Keywords: Activity, Analysis, History, Observation, Prediction, Recurrence, Time Series Analysis, Time-Series, Waves

Wilson, C.S. (1999), Using online databases to form subject collections for informetric analyses. *Scientometrics*, **46** (3), 647-667.

Full Text: [1999\Scientometrics46, 647.pdf](1999/Scientometrics46,%20647.pdf)

Abstract: the online databases of the Dialog System retrieve only 26% of documents in an exhaustively compiled collection on the subject of Bradford’s Law of Scattering, with some documents being retrieved from many databases. However, when the Exhaustive Collection is more stringently defined to include only those documents more about the subject, the retrieval rate of Dialog improves to 61%, while its most productive database, LISA, alone retrieves 37%. Both of these ‘samples’ give good estimates of the size-invariant properties of the Exhaustive Collection which are typically studied in Bradford and Growth Analyses - vindicating this use of online searching. However, without additional information, online searches are of little use in determining size-related properties of subject literature collections. Whether the analysis reported here - which relies on identical interpretations of a ‘subject’ - has secure foundations is briefly considered.

Keywords: Analysis, Databases, Information, Models, Properties, Searching

? Zitt, M. and Bassecoulard, E. (1999), Internationalization of communication - A view on the evolution of scientific journals. *Scientometrics*, **46** (3), 669-685.

Full Text: [1999\Scientometrics46, 669.pdf](1999/Scientometrics46,%20669.pdf)

Abstract: Starting from a characterization of the level of internationalization of SCI journals, based on their authoring scope, the process of internationalization of scientific communication throughout the period 1981-97 is described. The growth of the classes of international journals at the expense of national-oriented ones, appears as a general trend in all disciplines. A kindred measure of internationalization at the country-level is proposed, based on the balance of country-authored publications between national-oriented and international-oriented journals. A typology of countries is sketched. The general trend towards internalionalization is also clear at the country level. It can be generally interpreted as a positive evolution, with some exceptions as Russia in the recent period, where it appears together with the output decline, a counterpart of the disappearance of many journals from SCI. Some other examples of shocks with a covariation of internationalization and output are given. Country internationalization indexes also express the sensitivity of the country output indicators to the possible restriction of SCI sample to the international fraction. Considering evolutions of internationalization may be helpful for a comprehensive study of scientific long-term evolutions at the country level.

Keywords: Balance, Characterization, Citation, Communication, Countries, Evolution, Fraction, General, Growth, Impact, Indicators, Long-Term, Output, Process, Publication, Publications, Recent, Restriction, Russia, SCI, Scientific Communication, Sensitivity, Set, Trend, Typology

? Ramirez, A.M., Garcia, E.O. and Del Rio, J.A. (2000), Renormalized impact factor. *Scientometrics*, **47** (1), 3-9.

Full Text: [2000\Scientometrics47, 3.pdf](2000/Scientometrics47,%203.pdf)

Abstract: Many aspects determine the quality of scientific journals. The impact factor is one of these quantitative parameters. However, the impact factor has a strong dependence on the journal discipline. This dependence forbids a direct comparison between different journals without introducing external considerations. In this paper, a renormalized impact factor, F-r, inspired in the definition of dimensionless physical parameters, is proposed. F-r allows a direct comparison among journals classified into different categories and, furthermore, the time evolution analysis of the journal’s role in its field.

Keywords: Analysis, Citation Analysis, Comparison, Dependence, Evolution, Impact, Impact Factor, Journal, Journals, Paper, Parameters, Physical, Quality, Role

Clavería, L.E., Guallar, E., Camí, J., Conde, J., Pastor, R., Ricoy, J.R., Rodríguez-Farré, E., Ruiz-Palomo, F. and Muñoz, E. (2000), Does peer review predict the performance of research projects in health sciences? *Scientometrics*, **47** (1), 11-13.

Full Text: [2000\Scientometrics47, 11.pdf](2000/Scientometrics47,%2011.pdf)

Abstract: Peer review is a basic component of the scientific process, but its performance has seldom been evaluated systematically. To determine whether pre-approval characteristics of research projects predicted the performance of projects, we conducted a retrospective cohort study of all 2744 single-centre research projects financed by the Spanish Health Research Fund since 1988 and completed before 1996. Peer review scores of grant applications were significant predictors of performance of funded projects, and the likelihood of production was also higher for projects with a basic research component, longer duration, higher budget or a financed research fellow. Funding agencies should monitor their selection process and assess the performance of funded projects to design future strategies in supporting health sciences research.

? Eto, H. (2000), Authorship and citation patterns in operational research journals in relation to competition and reform. *Scientometrics*, **47** (1), 25-42.

Full Text: [2000\Scientometrics47, 25.pdf](2000/Scientometrics47,%2025.pdf)

Abstract: Authorship and citation patterns in major journals in operational research (OR) are analysed. As a forerunner of interdisciplinary specialties applying mathematical or quantitative methods to social problems, OR has recently been in severe competition with new challengers with respect to applicable methods and real implementation. Through the analyses of authorship and citation patterns, this paper discusses behaviours of the journal editors and contributors with regard to the competition and reform policy of OR journals.

Keywords: Authorship, Citation, Competition, Flagship Journals, Implementation, Interdisciplinary, Journal, Methods, Model, OR, MS, Paper, Policy, Research, Research Journals, Research Perspective, Social, Social Problems, Systems

? Pollmann, T. (2000), Forgetting and the ageing of scientific publications. *Scientometrics*, **47** (1), 43-54.

Full Text: [2000\Scientometrics47, 43.pdf](2000/Scientometrics47,%2043.pdf)

Abstract: In this paper, I will argue that the process of ageing in scientific publications on the one hand, and the process of obsolescence and forgetting to which all kinds of phenomena, people and events are exposed on the other, develop with the same speed. Whereas in the literature on the subject it is stared that the speed of the ageing of scientific literature is exponential, it is shown that the decay from ‘age 4’ is best described by an inverse function, as was already brought to light in reference to forgetting of people and events as measured by the frequencies of calendar years in large text corpora. The empirical bases are SCI data as presented by Nakamoto and various files of reference data collected by the author. It is shown that the decay curve of the reference frequencies from ‘age 4’ backwards is independent of time.

Keywords: Age, Ageing, Backwards, Citation, Decay, Function, Hand, Light, Obsolescence, Paper, Process, Publications, Reference, SCI, Scientific Publications, Speed

Ding, Y., Chowdhury, G.G. and Foo, S. (2000), Journal as markers of intellectual space: Journal co-citation analysis of information Retrieval area, 1987-1997. *Scientometrics*, **47** (1), 55-73.

Full Text: [2000\Scientometrics47, 55.pdf](2000/Scientometrics47,%2055.pdf)

Abstract: A journal co-citation analysis of fifty journals and other publications in the information retrieval (IR) discipline was conducted over three periods spanning the years of 1987 to 1997. Relevant data retrieved from the Science Citation Index (SCI) and Social Science Citation Index (SSCI) are analysed according to the highly cited journals in various disciplines, especially in the Library gi Information Science area. The results are compared with previous research that covered the data only from the Social Science Citation Index (SSCI). The analysis reveals that there is no distinct difference between these two sets of results. The results of current study show that IR speciality is multi-disciplinary with broad relations with other specialities. The field of IR is a mature field, as the journals used for research communication remained quite stable during the study period.

Keywords: Cocitation Analysis, Science

Notes: CCountry

Jacobs, D. and Ingwersen, P. (2000), A bibliometric study of the publication patterns in the sciences of South African scholars 1981-96. *Scientometrics*, **47** (1), 75-93.

Full Text: [2000\Scientometrics47, 75.pdf](2000/Scientometrics47,%2075.pdf)

Abstract: the paper is a bibliometric study of the publication patterns and impact of South African scientists 1981-96, with special emphasis on the period 1992-96. The subject fields surveyed are Physics; Chemistry, Plant and Animal Sciences; and Biochemistry/Microbiology. Scientists were selected from the ten universities of the Eastern Cape, Western Cape and KwaZulu Natal, which vary considerably, with respect to standards of education, quantity of publications, development and overall progress. The general purpose is two-fold: 1) to observe the publication and citation trends during 1981-96, a period which covers significant policy changes in the country, in particular the end of apartheid 1994; within this context 2) to investigate the patterns used by scientists 1992-96 from these different institutions in publishing the results of their research in the form of conference papers or (inter)national journals. The study collected two sets of data through a scientometric analysis of Science Citation Index and a questionnaire. With the exception of Physics, the results demonstrate a decreasing South African world share, in particular for Plant & Animal Sc. publications, and a similar decline of citations starting in 1986/87. Further, the citation impact relative to the world, after a substantial drop 1985-93 probably representing the international embargo period, in 1994-96 reaches the same level as observed in 1985-89. Also, the study shows that there is a direct relation between academic position, research experience and productivity among South African Scientists in the four scientific disciplines.

? Banerjee, P., Gupta, B.M. and Garg, K.C. (2000), Patent statistics as indicators of competition an analysis of patenting in biotechnology. *Scientometrics*, **47** (1), 95-116.

Full Text: [2000\Scientometrics47, 95.pdf](2000/Scientometrics47,%2095.pdf)

Abstract: Numbers of patents cannot indicate the state of research or the contents of patent documentation cannot indicate the true technological features achieved. Patent statistics though so used, is not a good indicator of the economic returns to investments in research. Use of this statistics for understanding the degree of competition and the competition-driven research strategy is attractive. A patent document is part of the public knowledge in such a way as to restrict the growth of the future public knowledge. This portent on the future content of research and on the number and areas of research, by a current application is a competition-defining aspect. This effect on the lagged future applications and accepting patent disclosure as an intentional strategic data - are the most significant characteristics of patent statistics. The present paper applied this understanding, and generated a number of indices derived from data bases on patenting. These are indicators on Competition, Technology Pool, Language Technology Pool, Modified Competition, Market Attractiveness and on the Strength of Patent Market. Values of these indicators for biotechnological research and for several countries have been derived as example.

Keywords: Analysis, Applications, Biotechnology, Characteristics, Competition, Current, Economic, Features, Growth, Indicator, Indicators, Innovative Activities, Knowledge, Paper, Patents, R-and-D, Research, Restrict, Statistics, Strategy

? Shirabe, M. and Fujigaki, Y. (2000), The introduction of economic methods to scientometrics: the citing-cited table and the autopoietic systems of citations. *Scientometrics*, **47** (1), 117-130.

Full Text: [2000\Scientometrics47, 117.pdf](2000/Scientometrics47,%20117.pdf)

Abstract: the paper is introducing an economic method (interindustry relations analysis) into studies of autopoietic systems and shows its application to scientometrics, which can also be regarded as the analysis of autopoietic systems. The merit of the application is discussed, and the outline of the proof of a related theorem is suggested in the appendix.

Keywords: Analysis, Citations, Economic, Knowledge, Methods, Paper, Science, Scientometrics

? Bhattacharya, S., Pal, C. and Arora, J. (2000), Inside the frontier areas of research in physics: A micro level analysis. *Scientometrics*, **47** (1), 131-142.

Full Text: [2000\Scientometrics47, 131.pdf](2000/Scientometrics47,%20131.pdf)

Abstract: In an earlier study,(1) a methodology was described for identifying Frontier Areas in a research field, i.e., areas which experienced in a particular time period significant increase in research output in comparison to a preceding time period. The application of this methodology was shown by identifying Frontier Areas of research in Physics in 1995. Comparison was done with respect to the outputs in different areas in 1990, Profiles of countries active in the identified Frontier Areas were then constructed. In this paper, attempt is made to reveal the active research topics/themes within these Frontier Areas in 1990 and 1995. The active research topics, which are uncovered, are classified as Frontier Topics. Countries active in these frontier topics are distinguished in each time period. Association among countries and Frontier Topics are observed using the multivariate technique of correspondence analysis. Dynamics are observed by analysing the changes in the profiles of the countries in the two time periods. Results and implications of this study for decision-making and as a policy tool are highlighted.

Keywords: Analysis, Comparison, Decision Making, Decision-Making, Made, Methodology, Multivariate, Output, Paper, Policy, Profiles, Research

? Lin, Y. and Kaid, L.L. (2000), Fragmentation of the intellectual structure of political communication study: Some empirical evidence. *Scientometrics*, **47** (1), 143-164.

Full Text: [2000\Scientometrics47, 143.pdf](2000/Scientometrics47,%20143.pdf)

Abstract: This study applies a method of author co-citation analysis to examine the intellectual structure of political communication study. Fifty one influential authors were selected from active members of the Political Communication Divisions of the International Communication Association (ICA) the National Communication Association (NCA), and the American Political Science Association (APSA). The results of the multidimensional scaling analysis and cluster analysis of these 51 selected authors’ co-citation patterns show that intellectual fragmentation exists in political communication research; scholars with different academic backgrounds exhibit specialties using particular research approaches to study certain subjects in the field: scholars do not have much information exchange, and thus they are intellectually separate and confined within the boundaries of each fragment. The findings of this quantitative study complements and cross-validates the assessment made by other traditional qualitative reviews about the field.

Keywords: Academic, Analysis, Assessment, Citation Networks, Cluster, Cluster Analysis, Co-Citation, Co-Citation Analysis, Cocitation, Communication, Fragmentation, Information, Information Exchange, Intellectual Structure, Journals, Made, Qualitative, Research, Reviews, Scaling, Structure

? Sangam, S.L. (2000), Emerging trends in scientometrics: Essays in honour of Dr. Ashok Jain. *Scientometrics*, **47** (1), 165-166

Full Text: [2000\Scientometrics47, 165.pdf](2000/Scientometrics47,%20165.pdf)

Keywords: Scientometrics, Trends

van den Besselaar, P. (2000), Communication between science and technology studies journals: A case study in differentiation and integration in scientific fields. *Scientometrics*, **47** (2), 169-193.

Full Text: [2000\Scientometrics47, 169.pdf](2000/Scientometrics47,%20169.pdf)

Abstract: This paper analyzes the communication between science and technology journals (STS), to illustrate patterns of differentiation and integration within scientific fields. First the STS field is delineated, using journal-journal citations as the empirical base. A strong and increasing differentiation is found, between ‘qualitative STS’, ‘quantitative STS’ (scientometrics), and ‘S&T policy studies’. Given this process of differentiation. The relations between the three sub-fields of STS are analyzed, in terms of mutual flows of information, the joint information base, and research topics. Is differentiation and codification of sub-fields visible? the findings suggest that the relations between qualitative and quantitative STS are one-sided, and that integration between the sub-fields is almost completely lacking. However, the relations between scientometrics and S&T policy studies are much stronger and more substantial, and the same is the case for scientometrics and information science.

Keywords: Journals, Research, Scientometrics

Bogaert, J., Rousseau, R. and Van Hecke, P. (2000), Percolation as a model for informetric distributions: Fragment size distribution characterised by Bradford curves. *Scientometrics*, **47** (2), 195-206.

Full Text: [2000\Scientometrics47, 195.pdf](2000/Scientometrics47,%20195.pdf)

Abstract: It is shown how Bradford curves, i.e. cumulative rank-frequency functions, as used in informetrics, can describe the fragment size distribution of percolation models. This interesting fact is explained by arguing that some aspects of percolation can be interpreted as a model for the success-breeds-success or cumulative advantage phenomenon. We claim, moreover, that the percolation model can be used as a model to study (generalised) bibliographies. This article shows how ideas and techniques studied and developed in informetrics and scientometrics can successfully be applied in other fields of science, and vice versa.

? Van Borm, J., Corthouts, J. and Philips, R. (2000), Performance measurement in the Belgian document ordering and delivery system Impala. *Scientometrics*, **47** (2), 207-225.

Full Text: [2000\Scientometrics47, 207.pdf](2000/Scientometrics47,%20207.pdf)

Abstract: This paper deals with performance measures and performance indicators in the Impala electronic document ordering and delivery system for research libraries in Belgium and compares these with some international standards as, e.g., the ProLib/Pi study commissioned by the European Commission. Performance measures: Costs(clearinghouse principle) Number of ILL requests made to other libraries Number of ILL requests made to other libraries without success Number of ILL requests made to other libraries with success Number of ILL requests received from other libraries Number of ILL requests received from other libraries and not satisfied Number of ILL requests received from other libraries that were satisfied Frequently asked titles Performance indicators: Success rate Borrowing-lending ratio per library Response times, split into several segments of the ILL-procedure the article concludes with some indications for quality measurement in electronic document delivery where Impala will be able to measure the real supply times as perceived by the end user.

Keywords: Belgium, Document Delivery, European Commission, Ill, Indicators, International Standards, Libraries, Made, Measurement, Opinion Paper, Paper, Performance, Performance Indicators, Performance Measures, Quality, Research, Standards

? Bra, P. (2000), Using hypertext metrics to measure research output levels. *Scientometrics*, **47** (2), 227-236.

Full Text: [2000\Scientometrics47, 227.pdf](2000/Scientometrics47,%20227.pdf)

Abstract: Two common ways to measure the ‘output’ of a researcher (or research group) are to count numbers of publications and to count the citations (references to these publications in publications of others). These simple methods are flawed because they cannot easily take into account the differences in publication and citation habits in different scientific communities. An alternative approach is to view citations as hypertext links. and to use or adapt hypertext metrics to compare the scientific output of researchers, in comparison to that of others in areas with similar publication and citation patterns. We show how hypertext metrics, introduced by Botafogo, Rivlin and Shneiderman, can be modified in order to identify comparable research fields based on their publication and citation pattern. An author’s performance can then be compared to that of others in research fields with a similar pattern.

Keywords: Citation, Citations, Communities, Comparison, Group, Levels, Methods, Metrics, Modified, Order, Output, Performance, Publication, Publications, Research, Scientific Output

? Egghe, L. (2000), The distribution of N-grams. *Scientometrics*, **47** (2), 237-252.

Full Text: [2000\Scientometrics47, 237.pdf](2000/Scientometrics47,%20237.pdf)

Abstract: N-grams are generalized words consisting of N consecutive symbols, as they are used in a text. This paper determines the rank-frequency distribution for redundant N-grams. for entire texts this is known to be Zipf’s law (i.e., an inverse power law). for N-grams, however, we show that the rank (r)-frequency distribution is P-N(r)=C/(psi(N)(r))(beta), where psi(N) is the inverse function of f(N)(x)=x ln(N-1)x. Here we assume that the rank-frequency distribution of the symbols follows Zipf’s law with exponent beta.

Keywords: Central-Limit-Theorem, Distribution, Function, Information-Retrieval, Law, Paper, Rank, Similarity, Zipfs Law

? Jansz, M.C.N. (2000), Some thoughts on the interaction between scientometrics and science and technology policy. *Scientometrics*, **47** (2), 253-264.

Full Text: [2000\Scientometrics47, 253.pdf](2000/Scientometrics47,%20253.pdf)

Abstract: In 1988 Le Pair postulated the existence of a citation gap for technological research. Several cases were studied, which confirmed his hypothesis. In the same period the use of bibliometric indicators for policy purposes increased. Here we saw the citation gap causing a disadvantage for application-oriented research groups. This is not merely an injustice, it also leads to suboptimum use of available funds, to the detriment of science as a whole. In addition, it may, in the long term, undermine the reputation of scientometrics as a science ih its own right.

Keywords: Bibliometric, Bibliometric Indicators, Citation, Groups, Indicators, Interaction, Long-Term, Policy, Research, Science, Scientometrics, Technology Policy

? Leydesdorff, L. (2000), Is the European Union becoming a single publication system? *Scientometrics*, **47** (2), 265-280.

Full Text: [2000\Scientometrics47, 265.pdf](2000/Scientometrics47,%20265.pdf)

Abstract: Using percentage performance shares of individual member states, the European Union can be assessed as if it were a network publication system. The prediction of systemness (based on the Markov property of the distribution) can be tested against the predictions of trend lines for individual nations. The publication performance of the EU can also be compared to that of the USA and Japan. The results suggest that a comparison with (global) world trade is important for understanding developments between the various R&D systems. Predictions for the 1999 indicator values are also provided.

Keywords: Citation, Comparison, Distribution, Eu, European Union, Global, Indicator, Japan, Networks, Performance, Prediction, Predictions, Publication, Science, Trend, USA

? Luwel, M. (2000), A bibliometric profile of Flemish research in natural, life and technical sciences. *Scientometrics*, **47** (2), 281-302.

Full Text: [2000\Scientometrics47, 281.pdf](2000/Scientometrics47,%20281.pdf)

Abstract: This paper presents an overview of recent R&D policy developments in Flanders and Belgium. Special attention is paid to evaluation and monitoring, which are seen as central elements of the Flemish Government’s more dynamic science and technology policy. The paper describes the process of setting up the necessary instruments to perform bibliometric studies and the application of these instruments for drawing a profile of the natural, life and technical sciences research carried out in Flanders. Although the total publication output weighted by population or regional wealth, is still lower than that of other small, highly industrialised countries, the international visibility of this research is comparable, if not slightly higher.

Keywords: Attention, Belgium, Bibliometric, Bibliometric Studies, Dynamic, Elements, Evaluation, Flanders, Life, Monitoring, Natural, Output, Paper, Policy, Population, Process, Profile, Publication, Recent, Regional, Research, Research Performance, Science, Sciences, Technology Policy, Visibility

? Malo, S. and Geuna, A. (2000), Science-technology linkages in an emerging research platform: the case of combinatorial chemistry and biology. *Scientometrics*, **47** (2), 303-321.

Full Text: [2000\Scientometrics47, 303.pdf](2000/Scientometrics47,%20303.pdf)

Abstract: This article focuses on issues concerning science and technology relationships posed by the emergence of a new drug discovery method, namely, combinatorial chemistry and biology. We assess the scientific content of combinatorial chemistry and biology using citations in patents to scientific journals and compare this research platform with biotechnology. We also identify the institutional affiliation of all the authors of the cited papers, which leads us to an analysis of knowledge spillovers between the main participants in the research network. Finally, we examine the relevance of localisation in the process of knowledge exchange with regard to EU countries and the US. The result of the analysis provides evidence to support the view that the inventive capacity of a country is dependent upon the basic research which is carried out, especially in universities and public research centres located in the inventor’s country.

Keywords: Analysis, Antigens, Basic Research, Biology, Biotechnology, Capacity, Citations, Combinatorial Chemistry, Drug, Drug Discovery, Emergence, EU, General-Method, Innovation, Knowledge, Libraries, Patents, Process, Research, Science, Solid-Phase Synthesis, Support, Universities, US

? Moed, H.F. (2000), Bibliometric indicators reflect publication and management strategies. *Scientometrics*, **47** (2), 323-346.

Full Text: [2000\Scientometrics47, 323.pdf](2000/Scientometrics47,%20323.pdf)

Abstract: In a bibliometric study of nine research departments in the field of biotechnology and molecular biology, indicators of research capacity, output and productivity were calculated, taking into account the researchers’ participation in scientific collaboration as expressed in co-publications. In a quantitative approach, rankings of departments based on a number of different research performance indicators were compared with one another. The results were discussed with members from all nine departments involved. Two publication strategies were identified, denoted as a quantity of publication and a quality of publication strategy, and two strategies with respect to scientific collaboration were outlined, one focusing on multi-lateral and a second on bi-lateral collaborations. Our findings suggest that rankings of departments may be influenced by specific publication and management strategies, which in turn may depend upon the phase of development of the departments or their personnel structure. As a consequence, differences in rankings cannot be interpreted merely in terms of quality or significance of research. It is suggested that the problem of assigning papers resulting from multi-lateral collaboration to the contributing research groups has not yet been solved properly, and that more research is needed into the influence of a department’s state of development and personnel structure upon the values of bibliometric indicators. A possible implication at the science policy level is that different requirements should hold for departments of different age or personnel structure.

Keywords: Age, Authorship, Basic Research, Bibliometric, Bibliometric Indicators, Bibliometric Study, Bilateral, Biology, Biotechnology, Capacity, Collaboration, Development, Groups, Impact, Indicators, Management, Model, Molecular Biology, Molecular-Biology, Output, Participation, Performance, Performance Indicators, Policy, Productivity, Publication, Quality, Quantity, Rankings, Requirements, Research, Research Performance, Science, Science Policy, Science-Policy, Scientific Collaboration, Strategies, Strategy, Structure

? van Raan, A.F.J. (2000), On growth, ageing, and fractal differentiation of science. *Scientometrics*, **47** (2), 347-362.

Full Text: [2000\Scientometrics47, 347.pdf](2000/Scientometrics47,%20347.pdf)

Abstract: On the basis of the measured time-dependent distribution of references in recent scientific publications, we formulate a novel model on the ageing of recent scientific literature. The framework of this model is given by a basic set of mathematical expressions that allows us to understand and describe large-scale growth and ageing processes in science over a long period of time. In addition, a further and striking consequence results in a self- consistent way from our model. After the Scientific Revolution in 16th century Europe, the ‘Scientific Evolution’ begins, and the driving processes growth and ageing unavoidably lead - just as in our biological evolution - to a fractal differentiation of science. A fractal structure means a system build up with subsystems characterised by a power-law size distribution. Such a distribution implies that there is no preference of size or scale. Often this phenomenon is regarded as a fingerprint of self-organisation. These findings are in agreement with earlier empirical findings concerning the clustering of scientific literature. Our observations reinforce the idea of science as a complex, largely self-organising ‘cognitive eco-system’. They also refute Kuhn’s paradigm model of scientific development.

Keywords: Ageing, Clustering, Complex, Development, Differentiation, Distribution, Driving, Dynamics, Ecosystem, Europe, Evolution, Fingerprint, Fractal Structure, Growth, Law, Lead, Model, Models, Obsolescence, Preference, Publications, Recent, Scale, Science, Scientific Publications, Size, Size Distribution, Structure

Notes: CCountry

? Rinia, E.J. (2000), Scientometric studies and their role in research policy of two research councils in the Netherlands. *Scientometrics*, **47** (2), 363-378.

Full Text: [2000\Scientometrics47, 363.pdf](2000/Scientometrics47,%20363.pdf)

Abstract: In the past 30 years various scientometric analyses have provided input data for research policy objectives of research institutions in the Netherlands. In this article we discuss several pioneering studies performed on behalf of the research councils for physics (FOM) and technical sciences (STW), which have played an important role in the early development of scientometrics in this country. The motives for these studies, the results and the influence on research policy are discussed. Relations to present themes in scientometric investigations are drawn.

Keywords: Development, Indicators, Institutions, Investigations, Motives, Policy, Research, Role, Sciences, Scientometrics

Rousseau, R. and Smyers, M. (2000), Output-financing at LUC. *Scientometrics*, **47** (2), 379-387.

Full Text: [2000\Scientometrics47, 379.pdf](2000/Scientometrics47,%20379.pdf)

Abstract: LUC’s research council stimulates research by allocating a part of its funds based on results. The output-financing scheme is presented and its role in the university’s research policy is explained. It is shown how this works in practice. An important aspect is that not only articles in JCR-covered journals are included but also other publications. This scheme together with a full-scale scientometric study forms two important aspects (short term versus medium term) of the university’s research evaluation exercise. Its success is largely due to a general acceptance by the: scientists.

Keywords: Evaluation, Journals, Publications, Research, Research Performance, Scientometric

? Tijssen, R.J.W., Buter, R.K. and van Leeuwen, T.N. (2000), Technological relevance of science: An assessment of citation linkages between patents and research papers. *Scientometrics*, **47** (2), 389-412.

Full Text: [2000\Scientometrics47, 389.pdf](2000/Scientometrics47,%20389.pdf)

Abstract: Patent citations to the research literature offer a way for identifying and comparing contributions of scientific and technical knowledge to technological development. This case study applies this approach through a series of analyses of citations to Dutch research papers listed on Dutch-invented and foreign patents granted in the US during the years 1987-1996. First. we examined the general validity and utility of these data as input for quantitative analyses of science-technology interactions. The findings provide new empirical evidence in support of the general view that these citations reflect genuine links between science and technology. The results of the various analyses reveal several important features of industrially relevant Dutch science: (1) the international scientific impact of research papers that are also highly cited by patents, (2) the marked rise in citations to Dutch papers on foreign-invented patents; (3) the large share of author-inventor self-citations in Dutch-invented patents; (4) the growing relevance of the life sciences, (5) an increase in the importance of scientific co-operation. We also find significant differences between industrial sectors as well as major contributions of large science-based multinational enterprises, such as Philips, in domestic science-technology linkages. The paper concludes by discussing general benefits and limitations of this bibliometric approach for macro-level analysis of science bases in advanced industrialised countries like the Netherlands.

Keywords: Academic Research, Analysis, Assessment, Bibliometric, Case Study, Citation, Citations, Development, Enterprises, Features, General, Impact, Importance, Indicators, Industrial, Industrial-Innovation, Interactions, Interface, Knowledge, Life, Limitations, Paper, Patents, Research, Science, Sciences, Statistics, Support, US, Utility, Validity

Notes: CCitation, CCountry

Torricella-Morales, R.G., Van Hooydonk, G. and Araujo-Ruiz, J.A. (2000), Citation analysis of Cuban research. Part 1. A case study: the Cuban Journal of Agricultural Science. *Scientometrics*, **47** (2), 413-426.

Full Text: [2000\Scientometrics47, 413.pdf](2000/Scientometrics47,%20413.pdf)

Abstract: Bibliometric analyses of research in developing countries are interesting for various reasons. The situation of Cuba is rather exceptional. The Cuban Journal of Agricultural Science (CJAS) is the only Cuban research journal, indexed by the Institute of Scientific information’s Web of Science (WoS). We explore the possibilities of a citation analysis for Cuban research publications in general and for those in CJAS in particular. for the period 1988-1999, we find that this journal represents 14% of Cuban research publications. cited in the WoS. We remark that the number of self citations is relatively high and even increases since 1995, the results are classified by disciplines and we use a co-citation matrix to discuss the different observed citation patterns

Keywords: Citation, Citations, Countries, Impact Factors, Latin-America, Publication, Research, Retrieval, Scientists, Scientometrics, Strategies

? Verspagen, B. (2000), The role of large multinationals in the Dutch technology infrastructure. A patent citation analysis. *Scientometrics*, **47** (2), 427-448.

Full Text: [2000\Scientometrics47, 427.pdf](2000/Scientometrics47,%20427.pdf)

Abstract: This paper investigates the impact of large multinational firms on the Dutch technology infrastructure. More specifically, it asks how the structure of the knowledge flows network matters for diffusion of technological knowledge in the Dutch economy. Patent citation analysis based on European Patent applications is used to quantify this network. The paper finds that there are large differences between firms in terms of the density of their ‘ego-network’, and the amount of knowledge spillovers to the Dutch economy that they generate.

Keywords: Analysis, Applications, Citation, Citation Analysis, Density, Diffusion, Economy, Enterprises, Flows, Impact, Knowledge, Paper, Research-and-Development, Role, Spillovers, Structure

? Moed, H.F. (2000), Speech delivered at the 7th International Conference on Scientometric and Informetrics in Colima (1999) in the honour of Dr. Cornelius Le Pair on the occasion of his retirement. *Scientometrics*, **47** (2), 449-450.

Full Text: [2000\Scientometrics47, 449.pdf](2000/Scientometrics47,%20449.pdf)

Notes: CCountry

Okubo, Y. (2000), An introduction to scientometrics research in France. *Scientometrics*, **47** (3), 451-455.

Full Text: [2000\Scientometrics47, 451.pdf](2000/Scientometrics47,%20451.pdf)

Keywords: France, Research, Scientometrics

Notes: CCountry

Arvanitis, R., Waast, R. and Gaillard, J. (2000), Science in Africa: A bibliometric panorama using PASCAL database. *Scientometrics*, **47** (3), 457-473.

Full Text: [2000\Scientometrics47, 457.pdf](2000/Scientometrics47,%20457.pdf)

Abstract: PASCAL, whose troublesome artefacts we highlight, also has its strong points (multidisciplinarity, codification of the topic of each article, better coverage of some countries). As other sources, it shows that the current decade is one of crisis in African research. However, developments are highly contrasted, depending on the discipline and the regions. To the north of Africa, the Maghreb is witnessing an unprecedented gain in power. Nigerian science is in quite the contrary situation, imploding. In the rest of Africa, classification of countries brings to evidence very striking changes in order. Basic science declines. The Agricultural and the Medical sciences are stagnating. Conversely, the Engineering sciences are growing, in particular to the North of the Sahara.

Keywords: Africa, Bibliometric, Classification, Crisis, Current, Order, Research, Science, Sciences, Sources

? Dore, J.C., Dutheuil, C. and Miquel, J.F. (2000), Multidimensional analysis of trends in patent activity. *Scientometrics*, **47** (3), 475-492.

Full Text: [2000\Scientometrics47, 475.pdf](2000/Scientometrics47,%20475.pdf)

Abstract: Only multidimensional analyses can provide overviews of complex relationships among many variables. We have previously illustrated the use of Correspondence Factor Analysis (CFA) in the analysis of publication profiles. In this article, we retrace our activity in patent analysis from the late 1970s to the present day and show how CFA is a particularly useful tool not only for describing the correlations between countries and technological Fields but also for highlighting non-linear patenting time trends.

Keywords: Activity, Analysis, Citation Analysis, Complex, Correlations, Countries, Indicators, Information, Non-Linear, Nonlinear, Patent Analysis, Profiles, Publication, Science, Statistics, Technology, Time Trends, Trends

? Gusmao, R. (2000), Developing and using indicators of multilateral S&T cooperation for policy making: the experience from European research programmes. *Scientometrics*, **47** (3), 493-514.

Full Text: [2000\Scientometrics47, 493.pdf](2000/Scientometrics47,%20493.pdf)

Abstract: As European Union research programmes play an increasingly important role within the research and innovation systems of Member States, the need for appropriate indicators to grasp and analyze this collaborative phenomenon has in recent years become obvious. Such indicators are becoming essential decision-making tools for science policy makers at the national level. EU science policy responds to not one but a number of objectives, while one country or one laboratory’s participation in European S&T cooperation is likely to manifest a number of particularities, and be quite different from another’s. Such a complex system makes it possible to elaborate a large variety of indicators. This article proposes several possible types of indicators and shows how they could be useful for weighing research policy strategies at the national and European levels.

Keywords: Complex, Decision Making, Decision-Making, EU, European Union, Indicators, Innovation, Levels, Participation, Policy, Policy Making, Policy-Making, Recent, Research, Role, Science, Science Policy, Science-Policy, Strategies, Tools

? Laredo, P. and Mustar, P. (2000), Laboratory activity profiles: An exploratory approach. *Scientometrics*, **47** (3), 515-539.

Full Text: [2000\Scientometrics47, 515.pdf](2000/Scientometrics47,%20515.pdf)

Abstract: This article proposes a method for characterizing the ‘activity profiles’ of research laboratories. It is based on the ‘research compass card model’ derived from the sociology of science, and which highlights the five complementary contexts in which research activities develop. A test was conducted in a regional setting on 75 labs. It demonstrates that simple indicators are enough to measure levels of involvement in each activity. Seven ‘activity profiles’ based upon the mix by labs of their marked involvement were identified, crossing both institutional and disciplinary barriers.

Keywords: Activity, Barriers, Crossing, Indicators, Levels, Profiles, Regional, Research, Science, Sociology of Science, Test

? Lemarie, S., de Looze, M.A. and Mangematin, V. (2000), Strategies of European SMEs in biotechnology: the role of size, technology and market. *Scientometrics*, **47** (3), 541-560.

Full Text: [2000\Scientometrics47, 541.pdf](2000/Scientometrics47,%20541.pdf)

Abstract: Both the technological and market focus of 228 European biotechnology SMEs are analysed in this paper. Data from the Genetic Engineering catalogue provide a complementary representation compared to the patent publications that are most commonly used. Results of the analysis produce a new view of the development of biotech SMEs. First, no pattern of specialisation by country is observed, even though three types of company with different technological focus can be distinguished in the sample. Second, it is argued that the rapid technological evolution in this domain can hardly be explained by a rapid evolution of the technological basis of the companies, and should consequently be explained primarily by the creation of new SMEs. Third, four different patterns of linkage between technology and market focus are observed, by means of co-word analysis.

Keywords: Analysis, Biotechnology, Co-Word Analysis, Creation, Development, Evolution, Innovation, Paper, Patterns, Publications, Representation, Role, Size, Technological Evolution

Salaun, J.M., Lafouge, T. and Boukacem, C. (2000), Demand for scientific articles and citations: An example from the Institut de l’information scientifique et technique (France). *Scientometrics*, **47** (3), 561-588.

Full Text: [2000\Scientometrics47, 561.pdf](2000/Scientometrics47,%20561.pdf)

Abstract: the patterns that appear in exchanges between researchers, scientific journal publications and the demand for scientific articles often intersect, but the logic behind each type of activity is not necessarily the same. Analyses of requests for scientific articles from document suppliers may help to interpret current developments in electronic publishing. This study of article requests to the Institut de I’information scientifique et technique (INIST) shows that, in France, document supply customers fall into three main categories: business, academic libraries and public research organisations, in descending order. Demand focuses mainly on medicine, pharmacology, biology and chemistry, and the distribution of articles is entirely in accordance with the laws of bibliometrics. A further comparative analysis shows a high reciprocal correlation (except in the physical sciences) between the 50 journals most Frequently requested from INIST, and the 50 most frequently cited journals according to ISI (Institute for Scientific Information). The titles which did not appear in either one list or the other show that the most frequently cited physics journals are not necessarily requested from the document supplier, and that, conversely, some frequently requested journals are not often cited. It may therefore be assumed that a trade in electronic articles is likely to develop quite rapidly in disciplines which are common to both lists, although this would focus on reputed titles only, but that a different pattern of electronic document exchange would emerge for scientific literature in other disciplines.

Keywords: Academic, Activity, Analysis, Bibliometrics, Biology, Citations, Comparative Analysis, Correlation, Current, Distribution, Fall, France, Institute for Scientific Information, ISI, Journal, Libraries, Order, Pharmacology, Physical, Publications, Publishing, Research, Sciences, Serials, Stationary Scientometric Distributions

Notes: TTopic, CPP

Sigogneau, A. (2000), An analysis of document types published in journals related to physics: Proceeding papers recorded in the Science Citation Index database. *Scientometrics*, **47** (3), 589-604.

Full Text: [2000\Scientometrics47, 589.pdf](2000/Scientometrics47,%20589.pdf)

Abstract: the introduction of bibliometric indicators to compare the scientific performance of countries soon raised questions about what document types should be counted for comparison. The present study deals with the development of different document types published in journals related to Physics and recorded in the Science Citation Index. We first take a look at the evolution of the production and citation of papers by document type as well as at the specialization of countries in different document types. We then highlight some characteristics of the ISI document type category ‘Proceedings’ followed by an analysis of publishers and average number of ‘Proceedings’ pages.

Keywords: Analysis, Bibliometric, Bibliometric Indicators, Characteristics, Citation, Comparison, Development, Evolution, Indicators, ISI, Performance, Production, Science Citation Index

? Solari, A. and Magri, M.H. (2000), A new approach to the SCI Journal Citation Reports, a system for evaluating scientific journals. *Scientometrics*, **47** (3), 605-625.

Full Text: [2000\Scientometrics47, 605.pdf](2000/Scientometrics47,%20605.pdf)

Abstract: the Science Citation Index, Journal Citation Reports (JCR), published by the Institute for Scientific Information (ISI) and designed to rank, evaluate, categorize and compare journals, is used in a wide scientific context as a tool for evaluating researchers and research work, through the use of just one of its indicators, the impact factor. With the aim of obtaining an overall and synthetic perspective of impact factor values, we studied the frequency distributions of this indicator using the box-plot method. Using this method we divided the journals listed in the JCR into five groups (low, lower central, upper central, high and extreme). These groups position the journal in relation to its competitors. Thus, the group designated as extreme contains the journals with high impact factors which are deemed to be prestigious by the scientific community. We used the JCR data from 1996 to determine these groups, firstly for all subject categories combined (all 4779 journals) and then for each of the 183 ISI subject categories. We then substituted the indicator value for each journal by the name of the group in which it was classified. The journal group may differ from one subject category to another. In this article, we present a guide for evaluating journals constructed as described above. It provides a comprehensive and synthetic view of two of the most used sections of the JCR, It makes it possible to make more accurate and complete judgements on and through the journals, and avoids an oversimplified view of the complex reality of the world of journals. It immediately reveals the scientific subject category where the journal is best positioned. Also, whereas it used to be difficult to make intra- and interdisciplinary comparisons, this is now possible without having to consult the different sections of the JCR. We construct this guide each year using indicators published in the JCR by the ISI.

Keywords: Community, Complex, Distributions, Group, Groups, Impact, Impact Factor, Impact Factors, Indicator, Indicators, Institute for Scientific Information, Interdisciplinary, ISI, Journal, Journal Citation Reports, Low, Position, Rank, Research, Research Work, SCI, Science Citation Index, Synthetic, Upper

? Zitt, M., Bassecoulard, E. and Okubo, Y. (2000), Shadows of the past in international cooperation: Collaboration profiles of the top five producers of science. *Scientometrics*, **47** (3), 627-657.

Full Text: [2000\Scientometrics47, 627.pdf](2000/Scientometrics47,%20627.pdf)

Abstract: This article aims at a characterization of the cooperation behavior among five large scientific countries (France, Germany, Japan, United Kingdom and United States of America) from 1986 to 1996. It looks at the cooperation profiles of these countries using classical measures such as the Probabilistic Affinity. The results show the major influence which historical, cultural and linguistic proximities may have on patterns of cooperation, with few changes over the period of time studied. A lack of specific affinities among the three largest European countries is revealed, and this contrasts with the strong linkage demonstrated between United States and Japan. The ensuing discussion raises some questions as to the process of Europeanization in science. The intensity of bilateral cooperation linkages is then studied with regard to field specialization by country, and this analysis yields no general patterns at the scale studied. Specific bilateral behaviors are also analyzed.

Keywords: Analysis, Authorship, Behavior, Bilateral, Characterization, Countries, France, General, Germany, Historical, Intensity, Japan, Link Indicator, Process, Profiles, Scale, Science, Scientific Collaboration, United Kingdom, United States

Anduckia, J.C., Gómez, J. and Gómez, Y.J. (2000), Bibliometric output from Colombian researchers with approved projects by COLCIENCIAS between 1983 and 1994. *Scientometrics*, **48** (1), 3-25.

Full Text: [2000\Scientometrics48, 3.pdf](2000/Scientometrics48,%203.pdf)

Abstract: We present a characterization of bibliometric output in Colombia resulting from research projects financed by COLCIENCIAS between 1983 and 1994 in the following programs: Health Sciences; Basic Science; Energy and Mining; Agricultural Sciences; Technological, Industrial and Quality Development; Marine Sciences; Social Sciences; Education; Environment and Habitat; Electronics, Telecommunications and Information Systems. In the case of periodicals, we establish: patterns of production by author; patterns of publication in national journals vs. international journals; the effect of international collaboration in projects over publication in international journals; patterns of bibliometric production by fields of research using UNESCO classifications; a list of the most frequently used journals by Colombian researchers as vehicles to communicate their results; patterns of bibliometric production from Colombian institutions; geographical distribution of bibliometric output; and finally, a review on the mean number of authors of articles for some fields of science and technology. We present also theses production patterns for books and B.Sc., MSc. and PhD. Theses using UNESCO codes of the projects. We comment on the human resources formation. It is found as a dominant behavior of the so commented patterns a low index of publication per project and a high tendency in the distribution of publications to concentrate on few actors (researchers, institutions, origin of the publication, journals, human resources). It is also found that there exists a strong concentration of bibliometric output in the program of Basic Sciences, in fields such as phytochemistry and solid state physics (super and semiconductors).

Keywords: Behavior, Bibliometric, Characterization, Collaboration, Colombia, Concentration, Countries, Distribution, Formation, Human, Index, Institutions, International Collaboration, Latin-America, Low, Output, Periodical Publications, Periodicals, Production, Program, Publication, Publications, Research, Research Projects, Review, Science

Prasad, A. and Visalakshi, S. (2000), Trends and profile in enzyme engineering research during 1971-98. *Scientometrics*, **48** (1), 27-44.

Full Text: [2000\Scientometrics48, 27.pdf](2000/Scientometrics48,%2027.pdf)

Abstract: There is sufficient evidence to prove the potential of immobilized enzymes to be commercially successful in many industries, but a survey of products in biotechnology and some reports indicate its limited success. To visualize the factual status, the present study looks into trends and profiles of this field using scientometric methods. The salient results show a steady decline in outputs in the form of patents and publications since 1993 along with a decline in the number of groups from academics and industries. Among the countries involved, there is also a decline, though USA and Japan show some strength in basic and applied research, respectively.

Keywords: Biotechnology, Engineering, Enzyme, Enzymes, Groups, Immobilized, Indicators, Japan, Laser Research, Methods, Patents, Products, Profile, Profiles, Publications, Research, Science, Strength, Survey, Trends, USA

? Nanda, S.K., Rivas, A.L., Trochim, W.M. and Deshler, J.D. (2000), Emphasis on validation in research: A meta-analysis. *Scientometrics*, **48** (1), 45-64.

Full Text: [2000\Scientometrics48, 45.pdf](2000/Scientometrics48,%2045.pdf)

Abstract: the emphasis of validity as a publication content was investigated in dissertations and journal articles. The time of first publication, longitudinal publication profile, ratio of articles to dissertations, and time lag between dissertations and articles emphasizing validity were compared within and among various fields. A three-decade gap separated the first field adopting validity-related contents in its dissertations from the latest fields that did so. The longitudinal data suggested three groups of fields (Agricultural Sciences, Applied Sciences and Social Sciences) which showed consistent differences among groups and consistent similarities within groups in their emphasis on validity-related content. Adoption of validity-related content in dissertations always preceded adoption of validity-related content in journal articles. On average, less than 4% of journal articles included validity-related content across fields. These findings support the hypothesis that validity has been introduced and disseminated within fields following patterns predicted by diffusion of innovations theory. It is argued that this pattern is inconsistent with an efficient and interdisciplinary utilization of available knowledge. Policy recommendations are made for developing strategic communication and education programs for academicians and journal reviewers.

Keywords: Communication, Diffusion, Education, Groups, Interdisciplinary, Journal, Knowledge, Longitudinal, Made, Meta-Analysis, Profile, Publication, Recommendations, Research, Support, Theory, Time Lag, Time-Lag, Utilization, Validation, Validity

Abt, H.A. (2000), Do important papers produce high citation counts? *Scientometrics*, **48** (1), 65-70.

Full Text: [2000\Scientometrics48, 65.pdf](2000/Scientometrics48,%2065.pdf)

Abstract: In honor of the centennial of the American Astronomical Society, we asked 53 senior astronomers to select what they thought were the most important papers published in the Astronomical Journal or Astrophysical Journal during this century. This selection of important papers gives us the opportunity to determine whether important papers invariably produce high citation counts. We compared those papers with control papers that appeared immediately before and after the important papers. We found that the important papers published before 1950 produced 11 times as many citations on the average as the controls and after 1950, 5.1 times as many citations. of the important papers, 92% produced more citations than the average for the control papers. Therefore important papers almost invariably produce many more citations than others, and citation counts are good measures of importance or usefulness. An appraisal of the 53 papers is that three are primarily useful collections of data or descriptions, 46 are fundamental studies giving important results, and four are both useful and fundamental. The lifetimes of all 53 important papers average 2.5 times longer than for the controls. The ages of the authors of these important papers ranged from 23 to 70, with a mean of 39±11 years, indicating that astronomers can write important papers at any age.

Keywords: Age, Citation, Citations, Control, Importance, Selection

Notes: CCountry

Tonta, Y. (2000), Contribution of Turkish researchers to the world’s biomedical literature (1988-1997). *Scientometrics*, **48** (1), 71-84.

Full Text: [2000\Scientometrics48, 71.pdf](2000/Scientometrics48,%2071.pdf)

Abstract: the contribution of Turkish researchers to positive sciences is increasing. Turkish scientists published more than 5100 articles in 1998 in scientific journals indexed by the Institute for Scientific Information’s Science Citation Index, which elevated Turkey to the 25(th) place in the world rankings in terms of total contribution to science. In this paper, we report the preliminary findings of the bibliometric characteristics (authors and affiliations, medical journals and their impact factors, among others) of a total of 8442 articles published between 1988 and 1997 by scientists affiliated with Turkish institutions and indexed in the MEDLINE database.

Keywords: Bibliometric, Characteristics, Impact, Impact Factors, Institutions, Medical, Medical Journals, MEDLINE, Paper, Rankings, Science, Science Citation Index, Sciences, Turkey

Eto, H. (2000), Bibliometric distance between methodology and application in statistics. *Scientometrics*, **48** (1), 85-97.

Full Text: [2000\Scientometrics48, 85.pdf](2000/Scientometrics48,%2085.pdf)

Abstract: This paper analyses communications between statistical methodology and applied statistics in terms of the similarity and dissimilarity in their authorship and citation patterns, and further the communication distance between them in terms of mutual citation and the time lag therein. Hypotheses are presented on their difference and distance and are verified for data from the Journal of the Royal Statistical Society, the oldest statistical society in the world. The data analysis reveals that they are indeed different and distant each other to a certain extent but less distinctly than initially conjectured in the hypotheses

Keywords: Analysis, Authorship, Citation, Communication, Dissimilarity, Methodology, Paper, Similarity, Statistics, Time Lag, Time-Lag

Lee, M., Om, K. and Koh, J. (2000), The bias of sighted reviewers in research proposal evaluation: A comparative analysis of blind and open review in Korea. *Scientometrics*, **48** (1), 99-116.

Full Text: [2000\Scientometrics48, 99.pdf](2000/Scientometrics48,%2099.pdf)

Abstract: This article compares empirically the major factors affecting blinded and sighted reviewers in the selection of research proposals to be funded in a ‘scientifically small’ country. Fisher’s Z-test shows that the applicant characteristics (rank of undergraduate school where the applicant studied, professional age of the applicant, and academic recognition of the applicant) are the major factors leading to the significantly different evaluation scores between blinded and sighted reviewers. This means that ‘open’ evaluation of research proposals is obviously biased. Policy implications of the findings and future research directions are discussed.

Keywords: Academic, Age, Analysis, Bias, Characteristics, Comparative Analysis, Evaluation, Korea, Peer, Rank, Research, Review, School, Selection, Undergraduate

? Wormell, I. (2000), Proceedings of the 4th Nordic Workshop in Bibliometrics Copenhagen (Denmark), August 27-28, 1999 - Foreword. *Scientometrics*, **48** (2), 117-120.

Full Text: [2000\Scientometrics48, 117.pdf](2000/Scientometrics48,%20117.pdf)

Keywords: Denmark

? Glänzel, W. (2000), Science in Scandinavia: A bibliometric approach. *Scientometrics*, **48** (2), 121-150.

Full Text: [2000\Scientometrics48, 121.pdf](2000/Scientometrics48,%20121.pdf)

Abstract: the development of publication activity and citation impact in Scandinavian countries is studied for the 1980-1997 period. Besides the analysis of trends in publication and citation patterns and of national publication profiles, an attempt is made to find statistical evidences of the relation between international co-authorship and both research profile and citation impact in the Nordic countries. A coherent Scandinavian cluster has been found, and the Nordic countries have strong co-authorship links with highly developed countries in West Europe and North America. It was found that international co-authorship, in general, results in publications with higher citation rates than purely domestic papers. International collaboration has, however, not the same influence on publication profiles and citation impact of each analysed countries.

Keywords: Activity, Analysis, Bibliometric, Citation, Cluster, Co-Authorship, Collaboration, Development, Europe, General, Impact, Indicators, Made, North America, Profile, Profiles, Publication, Publications, Research, Trends

? Meyer, M. (2000), Patent citations in a novel field of technology - What can they tell about interactions between emerging communities of science and technology? *Scientometrics*, **48** (2), 151-178.

Full Text: [2000\Scientometrics48, 151.pdf](2000/Scientometrics48,%20151.pdf)

Abstract: This paper aims to contribute to a better understanding of patent citation analysis in general and its application to novel fields of science and technology in particular. It introduces into the subject-matter by discussing an empirical problem, the relationship of nano-publications and nano-patents as representations of nano-science and nano-technology. Drawing on a variety of sources, different interpretations of patent citations are presented. Then, the nature of patent citations is further investigated by comparing them to citations in the scientific literature. After characterizing the citation linkage as indicators of reciprocal relationships between science and technology, patent citations in nano-science and technology are analyzed in terms of interfield and organizational knowledge-flows.

Keywords: Analysis, Citation, Citation Analysis, Citations, Communities, General, Indicators, Interactions, Nanotechnology, Organizational, Paper, Patent Citations, Science, Sources

? Sandstrom, A., Pettersson, I. and Nilsson, A. (2000), Knowledge production and knowledge flows in the Swedish biotechnology innovation system. *Scientometrics*, **48** (2), 179-201.

Full Text: [2000\Scientometrics48, 179.pdf](2000/Scientometrics48,%20179.pdf)

Abstract: As a basis for policy decisions, governments are increasingly using analysis of systems of innovation. Fundamental to the systems of innovation approach is the recognition that innovation processes essentially are interactive activities. The present paper illustrates the use and limitations of bibliometries in analysing the knowledge production and knowledge flows in a section of an innovation system focusing on life science subject fields relevant to innovation processes in biotechnology. Bibliometrics can in this context be used to identify the actors in a research intensive innovation system, the scientific profiles of actors as well as identifying networks and collaboration patterns.

Keywords: Analysis, Biotechnology, Collaboration, Combined Cocitation, Flows, Innovation, Interactive, Knowledge, Life, Limitations, Paper, Policy, Policy Decisions, Production, Profiles, Research, Science, Word Analysis

Wormell, I. (2000), Bibliometric analysis of the welfare topic. *Scientometrics*, **48** (2), 203-236.

Full Text: [2000\Scientometrics48, 203.pdf](2000/Scientometrics48,%20203.pdf)

Abstract: the article is reporting the results of the first part of an extensive informetric analysis of the Welfare topic, carried out in 1998–1999. The aim was to analyse the structure of the literature of international Welfare research, to provide a detailed picture of its basic theoretical and empirical concepts and the mutual relations existing between these concepts.

The approach is novel in that through the application of quantitative (i.e., bibliometric) techniques it tries to reduce subjectivity in domain analysis and in the mapping of the developments and segmentation in special topical areas.

The analysis used the technique of co-ordinated online searches in a cluster of international bibliographic databases in DIALOG. The identified 13 sub-topics have been in detail analysed, in three time intervals. By measuring trends and developments in the number of publications, term occurrences, similarity between the subject terms and formation of clusters among the subject segments the analysis provides a comprehensive review of such a complex research field as the Welfare State is. The study, which primary aim is to improve the methodology of quantitative analysis in the so called ‘soft’ sciences, will increase the interest among social scientists, scholars of the humanities and library and information science to use databases as analytical tools and to apply the modern text mining techniques for the extraction of knowledge from bibliographic data.

Keywords: Analysis, Analytical Tools, Bibliographic Databases, Bibliometric, Cluster, Clusters, Complex, Databases, Domain Analysis, Extraction, Formation, Information, Information Science, Knowledge, Library and Information Science, Mapping, Methodology, Mining, Publications, Quantitative Analysis, Reporting, Research, Review, Science, Sciences, Segmentation, Similarity, Social, Structure, Techniques, Tools, Trends

? Wormell, I. (2000), Critical aspects of the Danish Welfare State - as revealed by issue tracking. *Scientometrics*, **48** (2), 237-250.

Full Text: [2000\Scientometrics48, 237.pdf](2000/Scientometrics48,%20237.pdf)

Abstract: the paper examines the applicability of informetric methods to trace the pattern of debate about the three main critical issues of the modem Welfare State in Denmark: economic aspects, legitimacy and functionality. The methodology of issue tracking is used to follow the developments of these issues in periods through national databases of various types covering information about the research, implementation, press and legislation aspects. The approach taken is novel in that it implements and tests issue tracking in this area of social sciences, and tries to reduce subjectivity in the analysis of trends influencing social policy and public opinion. The study aims to show how the emerging data and text mining techniques can be applied to integrate downloaded bibliographic data with other types of information in a strategic mix.

Keywords: Analysis, Databases, Denmark, Economic, Implementation, Information, Methodology, Methods, Mining, Paper, Policy, Research, Sciences, Social, Social Sciences, Techniques, Tests, Tracking, Trends

Schubert, A. (2000), Scientometrics in medicine-related fields 1990–1999. *Scientometrics*, **48** (2), 251-284.

Full Text: [2000\Scientometrics48, 251.pdf](2000/Scientometrics48,%20251.pdf)

Anduckia, J.C., Gomez, J. and Gomez, Y.J. (2000), Some features of Colombian research population (1983-1994). *Scientometrics*, **48** (3), 285-305.

Full Text: [2000\Scientometrics48, 285.pdf](2000/Scientometrics48,%20285.pdf)

Abstract: We present some features that characterise the mobility and interaction of researchers within a given S&T environment. The variable of interest is the number of research proposals submitted for funding. The model is applied to the case of Colombia and the following results are exhibited: a) a ‘flux matrix’ that characterises the ‘interactions’ as a function of rime between researchers and COLCIENCIAS (national S&T funding agency). Some properties of the matrix are established and a ‘probability’ for a researcher who has previously submitted a proposal to reenter is calculated as a function of time. It is found that this probability is approximately time-independent, at least for the next 7 years after first researcher’s appearance; b) patterns of interaction between researchers/institutions and COLCIENCIAS, seen through the number of presented proposals. The interaction assumes the will-known form encountered in these kinds of distributions: a small set of actors (researchers/institutions) is responsible for most of the interaction; c) a temporal pattern for mean researcher’s age is established and it is found that by the end of the observed period researchers start to interact in ages that are significantly greater than those observed at the beginning.

Keywords: Age, Appearance, Colombia, Distributions, Environment, Features, Function, Funding, Interaction, Mobility, Model, Population, Probability, Properties, Research, Temporal

? Saetnan, A.R. (2000), To screen or not to screen? Science discourse in two health policy controversies, as seen through three approaches to the citation evidence. *Scientometrics*, **48** (3), 307-344.

Full Text: [2000\Scientometrics48, 307.pdf](2000/Scientometrics48,%20307.pdf)

Abstract: This article is an empirical study of two science and health policy controversies - ‘to screen or not to screen’ with ultrasound in pregnancy and with mammography for breast cancer. In each case, conflicting experimental results have been published. Which of the results have been accepted within the medical science community? the article is also a theoretical and methodological study of three views of science - an institutional view, an interests view, and a semiotic view. How might each approach scientific publications as evidence? Could they be eclectically combined in a more complex view of science discourse?

Keywords: Breast Cancer, Breast-Cancer Detection, Cancer, Citation, Community, Complex, Controlled Trial, Death Rates, Experimental, Health, Health Policy, Mammography, Medical, Mortality, Policy, Pregnancy, Prenatal Ultrasound, Publications, Randomized Trial, Routine, Science, Scientific Publications, Ultrasound, Women

Notes: MModel

Egghe, L. (2000), A heuristic study of the first-citation distribution. *Scientometrics*, **48** (3), 345-359.

Full Text: [2000\Scientometrics48, 345.pdf](2000/Scientometrics48,%20345.pdf)

Abstract: the first-citation distribution, i.e. The cumulative distribution of the time period between publication of an article and the time it receives its first citation, has never been modelled by using well-known informetric distributions. An attempt to this is given in this paper. for the diachronous aging distribution we use a simple decreasing exponential model. for the distribution of the total number of received citations we use a classical Lotka function. The combination of these two tools yield new first-citation distributions.

The model is then tested by applying nonlinear regression techniques. The obtained fits are very good and comparable with older experimental results of Rousseau and of Gupta and Rousseau. However our single model is capable of fitting all first-citation graphs, concave as well as S-shaped; in the older results one needed two different models for it.

Our model is the function

(t1) = (1at1)1

Here γ is the fraction of the papers that eventually get cited, t1 is the time of the first citation, a is the aging rate and α is Lotka’s exponent. The combination of a and α in one formula is, to the best of our knowledge, new. The model hence provides estimates for these two important parameters.

Keywords: Aging, Bean, Citation, Citations, Distribution, Distributions, Experimental, Fitting, Fraction, Function, Knowledge, Model, Models, Nonlinear, Nonlinear Regression, Older, Paper, Parameters, Publication, Regression, Techniques, Tools, Yield

? Zelman, A. and Leydesdorff, L. (2000), Threaded email messages in Self-Organization and Science & Technology Studies oriented mailing lists. *Scientometrics*, **48** (3), 361-380.

Full Text: [2000\Scientometrics48, 361.pdf](2000/Scientometrics48,%20361.pdf)

Abstract: the paper addresses the potential of Internet mailing lists to enhance academic research with respect to Gibbons’ distinction between Mode I and Mode II knowledge production (Gibbons et al., 1994). We examine threaded email messages in a selection of Self-Organization and Science & Technology Studies oriented Internet mailing lists to illustrate the internal dynamics involved in the electronic production of knowledge. of particular interest is the EuroCon-Knowflow mailing list which houses the electronic communication of the Self-Organization of the European Information Society (SOEIS) research group. The research focuses upon the discussion threads of mailing lists. The use of threaded messages as our hermeneutic units of analysis provides the basis for a reflection upon three key theoretical positions: Medium Theory, Actor-Network Theory, and Self-Organization Theory. With respect to the latter, we measure for self-organized criticality by comparing the frequency and size of threaded messages. Using this and other methods as operationalized modes of theorizing we reveal network dynamics particular to the Internet mailing list.

Keywords: Academic, Analysis, Communication, Dynamics, Group, Internet, Key, Knowledge, Methods, Paper, Production, Research, Selection, Size

Basu, A. and Kumar, B.S.V. (2000), International collaboration in Indian scientific papers. *Scientometrics*, **48** (3), 381-402.

Full Text: [2000\Scientometrics48, 381.pdf](2000/Scientometrics48,%20381.pdf)

Abstract: Internationally co-authored publications may be regarded as an indicator of scientific co-operation between countries and is of interest in science policy. In this study, the extent of international collaboration in Indian science has been estimated from SCI data in 1990 and 1994. We find an increase in collaboration both in terms of output and the extent of the network and significantly higher impact (IF) associated with internationally co-authored papers in several disciplines. However, there was no significant increase in IF of collaborative papers over time, whereas Indian papers in general showed a statistically significant, though small, increase in average impact from 1990 to 1994. The bulk of Indian scientific co-operation was with the developed Western nations and Japan, but it was often the smaller countries with a few co-authored papers which showed higher average impact. Co-operation with South Asian countries, initially low, has doubled in four years. By a combination of multivariate data analysis techniques the relative positions of India’s partners in scientific collaboration have been mapped with respect to the fields of co-operation.

Keywords: Analysis, Asian, Bean, Collaboration, General, Impact, Indicator, International Collaboration, Japan, Low, Multivariate, Output, Policy, Publications, SCI, Science, Science Policy, Science-Policy, Scientific Collaboration, Techniques

? Trimble, V. (2000), Some characteristics of young vs. established American astronomers: Entering the new century. *Scientometrics*, **48** (3), 403-411.

Full Text: [2000\Scientometrics48, 403.pdf](2000/Scientometrics48,%20403.pdf)

Abstract: A third cohort of(mostly) young astronomers, who earned their PhDs around a median date of 1994 and who have recently applied for election to membership in the International Astronomical Union from the USA or for tenure-track faculty positions has been added to earlier samples (median years of PhD 1982 and 1962.5), and the samples examined for demographic trends. The three groups are of similar size (304, 269, and 268 astronomers from earliest to latest). The third, youngest, cohort includes more foreign-born and/or trained scientists than either of the earlier ones (about 1/2 vs. about 1/4) and more women (about 15% vs. about 10% for the two earlier groups). The median length of time From BS or BS to PhD, which had lengthened from 4 to 6 years, has apparently leveled off at 6 years. And, compared to the previous ‘young’ sample, the present one includes many more job seekers and many fewer IAU aspirants.

Keywords: Characteristics, Cohort, Faculty, Groups, Size, Trends, USA, Women

? Choung, J.Y. and Hwang, H.R. (2000), National systems of innovation: Institutional linkages and performances in the case of Korea and Taiwan. *Scientometrics*, **48** (3), 413-426.

Full Text: [2000\Scientometrics48, 413.pdf](2000/Scientometrics48,%20413.pdf)

Abstract: This paper focuses on the measurement of scientific and technological performance of Korea and Taiwan in what has been the most successful technology catch-up within developing economies context. The performance measures are based on the publication data for scientific knowledge production and patent data for technological capabilities. In addition, this analysis also reveals on the features of innovation system of these two countries, focusing on the linkages between public and private sector in the scientific and technological knowledge: creation. By examining the scientific and technological performance and the changing structure of innovation system, it provides empirical evidence on the positive interaction between scientific and technological activities.

Keywords: Analysis, Creation, Features, Innovation, Interaction, Knowledge, Korea, Measurement, Paper, Performance, Performance Measures, Production, Publication, Structure, Taiwan

Notes: CCountry

Osareh, F. and Wilson, C.S. (2000), A comparison of Iranian scientific publications in the Science Citation Index: 1985–1989 and 1990–1994. *Scientometrics*, **48** (3), 427-442.

Full Text: [2000\Scientometrics48, 427.pdf](2000/Scientometrics48,%20427.pdf)

Abstract: Iranian scientific publications in the Science Citation Index for two five-year periods, 1985–1989 and 1990–1994, were compared. Distributions of various attributes of the publication output for the two periods were obtained primarily through the Rank command of the Dialog Online System. Results include: productivity by publication year and by ranked order of the most productive Iranian authors; influence or impact of the most productive Iranian authors by ranking them as cited authors; collaboration of Iranian scientists with scientists from other countries; and the journals Iranian scientists published in and the journals they cite in their papers. The subject areas of Iran’s scientific publications were examined vis-à-vis the world’s publication output and that of the Third World Countries (TWC).

Keywords: Collaboration, Comparison, Impact, Order, Output, Productivity, Publication, Publications, Ranking, Science Citation Index, Scientific Publications

? Kyvik, S. and Persson, O. (2000), Scientometric research in the Nordic countries - Introduction. *Scientometrics*, **49** (1), 3-6

Full Text: Scientometrics49, 3.pdf

Keywords: Research

Aksnes, D.W., Olsen, T.B. and Seglen, P.O. (2000), Validation of bibliometric indicators in the field of microbiology: A Norwegian case study. *Scientometrics*, **49** (1), 7-22.

Full Text: [2000\Scientometrics49, 7.pdf](2000/Scientometrics49,%207.pdf)

Abstract: This paper addresses two related issues regarding the validity of bibliometric indicators for the assessment of national performance within a particular scientific field. Firstly, the representativeness of a journal-based subject classification; and secondly, the completeness of the database coverage. Norwegian publishing in microbiology was chosen as a case, using the standard ISI-product National Science Indicators on Diskette (NSIOD) as a source database. By applying an ‘author-gated’ retrieval procedure, we found that only 41 percent of all publications in NSIOD-indexed journals, expert-classified as microbiology, were included under the NSIOD-category Microbiology. Thus, the set of defining core journals only is clearly not sufficient to delineate this complex biomedical field. Furthermore, a subclassification of the articles into different subdisciplines of microbiology revealed systematic differences with respect to representation in NSIOD’s Microbiology field; fish microbiology and medical microbiology are particularly underrepresented.

In a second step, the individual publication lists from a sample of Norwegian microbiologists were collected and compared with the publications by the same authors, retrieved bibliometrically. The results showed that a large majority (94%) of the international scientific production in Norwegian microbiology was covered by the database NSIOD. Thus, insufficient subfield delineation, and not lack of coverage, appeared to be the main methodological problem in the bibliometric analysis of microbiology.

Keywords: Analysis, Areas, Assessment, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Case Study, Classification, Complex, Core, Delimitation, Fish, Indicators, Medical, Microbiology, Paper, Performance, Physics, Production, Publication, Publications, Publishing, Representation, Science, Scientific Production, Source, Standard, Subfields, Validity

Danell, R. (2000), Stratification among journals in management research: A bibliometric study of interaction between European and American journals. *Scientometrics*, **49** (1), 23-38.

Full Text: [2000\Scientometrics49, 23.pdf](2000/Scientometrics49,%2023.pdf)

Abstract: Two key features of science are its rapid growth and its continuous differentiation. The establishment of new journals can be seen as an expression of both growth and differentiation. In this study of the network among management journals, the focus is on forms of differentiation, i.e., the relationship between stratification and specialization in a network of journals. The question asked in this study is whether the different position of American and European journals corresponds with different levels of specialization. A tendency toward such a structuration of the journal network would indicate an interregional integration of management research. Articles published in six of the most influential American and European journals covering the period from 1981 to 1998 have been downloaded. The findings in this study indicate that even though European journals formed a periphery in relation to the American journals in terms of clearly asymmetrical exchange relations, it was the European journals that seemed to be more comprehensive in scope. The tendency during the investigated period indicated differentiation in terms of segmentation rather than specialization

Keywords: Bibliometric, Bibliometric Study, Differentiation, Features, Growth, Integration, Interaction, Journal, Key, Levels, Management, Network, Position, Research, Science, Segmentation, Stratification, Structural-Equivalence

Notes: CCountry

Ingwersen, P. (2000), The international visibility and citation impact of Scandinavian research articles in selected Social Science fields: the decay of a myth. *Scientometrics*, **49** (1), 39-61.

Full Text: [2000\Scientometrics49, 39.pdf](2000/Scientometrics49,%2039.pdf)

Abstract: the article covers the period 1989-1998. It investigates the results and meaningfulness of applying the Social Science Citation Index (SSCI, ISI, USA) to publication and citation studies of nine selected Social Science research areas in Scandinavia by analysing the international visibility, the research profiles, and relative citation impact. The study demonstrates that the areas Economics, Political Science, Sociology & Anthropology, Social Policy, Language & Linguistics, and, for Denmark and Finland, Information & Library Science as well as, for Sweden, Management studies, are well anchored internationally with a visibility in line with common S&T domains. The journal article world share of the region is increasing rapidly. Other small European countries, like the Netherlands, are even more substantially represented as regards citation analyses. The conclusion is that SSCI, although biased towards Angle-American publications, actually makes room for valid bibliometric and scientometric analyses of research published by Scandinavian and other smaller countries with English as the second language in journals regarded international by ISI.

Keywords: Bibliometric, Citation, Decay, Denmark, Finland, Impact, In-Line, ISI, Journal, Language, Profiles, Publication, Publications, Research, Research Articles, Science Citation Index, Second Language, Social Science Citation Index, Sweden, USA, Visibility

? Iversen, E.J. (2000), An excursion into the patent-bibliometrics of Norwegian patenting. *Scientometrics*, **49** (1), 63-80.

Full Text: [2000\Scientometrics49, 63.pdf](2000/Scientometrics49,%2063.pdf)

Abstract: This paper makes the assumption that Norwegian patenting in the US reflects a quasi-universe of Norwegian technological capabilities. Based on this assumption, the paper combines a ‘patent-bibliometrics’ and a ‘technometrics’ approach to study other relevant bodies of knowledge these capabilities build upon. In order to study interactions at the ‘science-technology-innovation interface’, the paper maps the citation patterns that radiate from the patent population (1990-96) to other areas of technology (patent-citations) and to science-bases (citations to Non-Patent Literature or NPL). The study identifies important technology-technology links that involve machinery, process-engineering and chemical and significant science-technology links that involve pharmaceuticals and instruments.

Keywords: Chemical, Citation, Citations, Interactions, Knowledge, Order, Paper, Patent Citations, Pharmaceuticals, Population, US

? Mahlck, P. and Persson, O. (2000), Socio-bibliometric mapping of intra-departmental networks. *Scientometrics*, **49** (1), 81-91.

Full Text: [2000\Scientometrics49, 81.pdf](2000/Scientometrics49,%2081.pdf)

Abstract: the mapping of author networks at academic departments is the focus of this study. Papers from two departments at two different universities, but within the same field of research, were analyzed in terms of co-authorship, direct and indirect citations among the authors. Considerable overlap was found between the co-authorship and the citation based networks. The paper also introduces the idea of socio-bibliometric maps that can be used to make social interpretations of bibliometric networks. The nodes of the networks were labeled by sex and seniority and supervisor-student links were also indicated. When reading the maps and tabulating the links it could be concluded that the two departmental networks were structured differently by sex and seniority.

Keywords: Academic, Bibliometric, Citation, Citations, Co-Authorship, Collaboration, Mapping, Paper, Research, Sex, Social, Universities

Meyer, M. (2000), What is special about patent citations? Differences between scientific and patent citations. *Scientometrics*, **49** (1), 93-123.

Full Text: [2000\Scientometrics49, 93.pdf](2000/Scientometrics49,%2093.pdf)

Abstract: the emergence of patent bibliometrics as a new branch of scientometrics necessitates a deeper understanding of the relationship between patents and papers. As this connection is established through the Linkage between patents and research papers, one must have a clear idea of similarities and differences between patent and paper citations. This paper will investigate to what extent one can not only apply bibliometric methods to patents but also extend the existing interpretative framework for citations in research papers to the field of patent citations. After pointing out some parallels in the debates about the nature of citations in patents and scientific articles, the paper outlines those parts of bibliometric theory covering scientific citations that could be relevant to patent citations too. Then it highlights the specialties and peculiarities of patent citations. One major conclusion is that the general nature of a common framework for both scientific and patent citations would severely limit its usefulness, but research on academic citations might still be a great source of inspiration to the study of patent citations.

Keywords: Academic, Bibliometric, Bibliometric Methods, Bibliometrics, Citations, Emergence, General, Methods, Paper, Patent Citations, Patents, Research, Scientometrics, Source, Theory

Seglen, P.O. and Aksnes, D.W. (2000), Scientific productivity and group size: A bibliometric analysis of Norwegian microbiological research. *Scientometrics*, **49** (1), 125-143.

Full Text: [2000\Scientometrics49, 125.pdf](2000/Scientometrics49,%20125.pdf)

Abstract: To analyse the relationship between research group size and scientific productivity within the highly cooperative research environment characteristic of contemporary biomedical science, an investigation of Norwegian Microbiology was undertaken. By an author-gated retrieval from ISI’s database National Science Indicators on Diskette (NSIOD), of journal articles published by Norwegian scientists involved in microbiological research during the period 1992-1996, a total of 976 microbiological and 938 non-microbiological articles, by 3,486 authors, were obtained. Functional research groups were defined bibliometrically on the basis of co-authorship, yielding a total of 180 research groups varying in size from one author, one article to 180 authors, 83 articles (all authors associated with a group during the whole five-year period were included, hence the large group size). Most of Norwegian microbiological research (73% of the microbiology articles) appears to be performed by specialist groups (with greater than or equal to 70% of their production as microbiology), The remainder being published by groups with a broader biomedical research profile (who were responsible for 95% of the non- microbiological articles). The productivity (articles per capita) showed only moderate (Poisson-distributed) variability between groups, and was remarkably constant across all subfields, at about 0.1 article per author per year. No correlation between group size and productivity was found

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Biomedical Research, Co-Authorship, Correlation, Determinants, Environment, Group, Groups, Investigation, Journal, Microbiology, Production, Productivity, Profile, Research, Research Collaboration, Science, Scientific Productivity, Size, Variability

Thorsteinsdottir, O.H. (2000), External research collaboration in two small science systems. *Scientometrics*, **49** (1), 145-160.

Full Text: [2000\Scientometrics49, 145.pdf](2000/Scientometrics49,%20145.pdf)

Abstract: This paper compares external research collaboration in small science systems. The design involves studying research collaboration in an independent country (Iceland) and a region of a large country (Newfoundland, Canada). The objective of the paper is firstly to gain a deeper understanding of external research collaboration in small science systems by using both quantitative and qualitative methods and secondly to examine if it is justifiable to compare small regions and small independent countries in terms of their scientific activities. The two science systems are compared with respect to their publication patterns in order to explore how comparable they are in their scientific profiles. External collaboration rates for both science systems are then measured and compared, and it is shown that research collaboration plays an important part in the two science systems. The role of research collaboration is examined further with a combination of bibliometric analysis and interview data. It was found that scientists in small science systems do not collaborate only because they lack economic resources, but an important reason for their collaboration was the availability of research material which was in demand by scientists in the wider scientific world.

Keywords: Analysis, Availability, Bibliometric, Bibliometric Analysis, Canada, Collaboration, Community, Cooperation, Design, Economic, International Scientific Collaboration, Methods, Order, Paper, Profiles, Publication, Qualitative, Qualitative Methods, Research, Research Collaboration, Role, Science, Universities

Von Ungern-Sternberg, S. (2000), Bradford’s law in the context of information provision. *Scientometrics*, **49** (1), 161-186.

Full Text: [2000\Scientometrics49, 161.pdf](2000/Scientometrics49,%20161.pdf)

Abstract: the aim of the study is to study empirical use of Bradford’s law for decisions concerning information systems in problem based fields, were journals from different disciplines cover relevant information. Results of comparison of the cores in different fields can be used as a base for tailoring an information system. Bradford’s law is in the study applied on five databases in the topic ‘Information retrieval and seeking’ in order to compare the size and titles of the core journals. These databases give different views of the same interdisciplinary topic. Problems are relevance judgements, which change the shape of the graphs, and consistency of concepts in the analysis. The results show that. Bradford analyses can be useful tools in developing information systems.

Keywords: Analysis, Base, Bibliometrics, Comparison, Core, Databases, Distributions, Field, Information, Information System, Interdisciplinary, Law, Order, Size, Tools

? Braun, T. and Glänzel, W. (2000), Chemistry research in Eastern Central Europe (1992-1997): Facts and figures on publication output and citation impact. *Scientometrics*, **49** (2), 187-213.

Full Text: 2000\Scientometrics49, 187.pdf

Keywords: 27 Science Areas, Newest Version, Life Sciences, Scientometric Indicators, Relative Indicators, World Science, 50 Nations, Countries, Physics, Fields

? Pestaña, A. and Cerdán, S. (2000), Spanish scientific productivity and equipment in magnetic resonance from a regional and European perspective. *Scientometrics*, **49** (2), 215-231.

Full Text: [2000\Scientometrics49, 215.pdf](2000/Scientometrics49,%20215.pdf)

Abstract: the aim of this work was to provide a rational frame for the design of scientific policies in MR infrastructure implementation. To this end, we have investigated the relationships between MR instruments, their scientific productivity or medical performance and several socio-economic, R&D or health care indicators in a Spanish and European context. The distribution of MR spectroscopy instruments among Spanish Autonomous Communities suggests that the allocation policy resulted from a compromise between the pull of demand based on regional strength in R&D activities and the push of convergence criteria to bring underdeveloped regions up to a national standard. On the whole. The average value for Spanish MR spectroscopy equipment(1.6 units per TRDP) was within the average value of 1.7 found in 6 European countries. The scientific productivity of these spectometres in Spain (10.3 publications per unit), compares with the ratio (12.4) found in the United Kingdom and was above the six countries’ average (8.3). Larger differences in productivity were observed between Spanish Autonomous Communities, suggesting the existence of important laguna in the distributive side of the allocation policy. Consistent with its socio-sanitary importance. The regional distribution of MR imaging equipment in Spain correlated with the number of sanitary personnel and regional population or wealth. The average number of installed units per million inhabitants in Spain (3.3) is very close to the average found in five European countries and the diagnostic procedures per installed units are close to the 5 countries’ average values of 3400/year. However, the scientific productivity of MR imaging equipment in Spain (1.6 publications per installed unit in the five year period) was very low as compared with other European countries (3.7 on average). Higher diagnostic demand or lower publication pressures could explain these differences equally well. Our results suggest that increases in scientific productivity and medical performance of MR instrumentation in Spanish Autonomous Communities may not necessarily involve a net increase in the number of MR instruments but rather, improvements in the global socio-economic throughputs derived from the organisation of R&D and medical service policies.

Keywords: Allocation, Design, Distribution, Global, Health, Health Care, Imaging, Implementation, Importance, Indicators, Instrumentation, Low, Magnetic, Magnetic Resonance, Medical, MR, MR Imaging, Performance, Policy, Population, Productivity, Publication, Publications, Regional, Regional Distribution, Resonance, Scientific Productivity, Socio-Economic, Spain, Spectroscopy, Standard, Strength, United Kingdom

Rovira, L., Senra, P. and Jou, D. (2000), Bibliometric analysis of physics in Catalonia: Towards quality consolidation? *Scientometrics*, **49** (2), 233-256.

Full Text: [2000\Scientometrics49, 233.pdf](2000/Scientometrics49,%20233.pdf)

Abstract: This paper studies the main bibliometric figures in order to analyse the ‘states of the art’ and the evolution of research in physics in Catalonia (Spain) between 1981 and 1998 via the National Citation Report (NCR) for Catalonia elaborated by ISI (Institute for Scientific Information). The main indicators and parameters used are: bibliometric size, rate of citation, citedness of papers, concentration of scientific categories, journals and types of paper, index of immediacy, international collaboration, and papers and citation distribution by research centres and universities.

? Bar-Ilan, J. (2000), Results of an extensive search for ‘S&T indicators’ on the Web: A content analysis. *Scientometrics*, **49** (2), 257-277.

Full Text: [2000\Scientometrics49, 257.pdf](2000/Scientometrics49,%20257.pdf)

Abstract: In this study we carried out a content analysis of Web pages containing the search term ‘S&T indicators’. which were located by an extensive search of the Web. Our results dearly show that the Web is a valuable information source on this topic. Major national and international institutions and organizations publish the frill text of their reports on the Web. or allow free downloading of these reports in non-html formats. In addition to direct information, a number of pages listing and linking to major reports, programs and organizations were also located.

Keywords: Analysis, Content Analysis, Engines, Information, Institutions, Internet, Organizations, Overlap, Pages, Political-Parties, Source, World-Wide-Web

Karki, M.M.S., Garg, K.C. and Sharma, P. (2000), Activity and growth of organic chemistry research in India during 1971–1989. *Scientometrics*, **49** (2), 279-288.

Full Text: [2000\Scientometrics49, 279.pdf](2000/Scientometrics49,%20279.pdf)

Abstract: the paper investigates Indian organic chemistry research activity during 1971–1989 using Chemical Abstracts. It attempts at quantification of national contribution to world efforts, and identify areas of relative strengths and weaknesses. Also models the growth of Indian organic chemistry output to world organic chemistry output as a whole and in sub-fields where the activity index for the world and India are similar.

Shama, G., Klaus, K. and Oppenheim, C. (2000), Citation footprint analysis Part I: UK and US chemical engineering academics. *Scientometrics*, **49** (2), 289-305.

Full Text: [2000\Scientometrics49, 289.pdf](2000/Scientometrics49,%20289.pdf)

Abstract: A novel method of displaying the publication and citation characteristics of outputs of researchers using a graphical ‘footprint’ has been developed. Its first application has been to compare the publication and citation characteristics of a small group of top UK, and US academic chemical engineers. The footprint demonstrates the Relationship Factors of publications in a number of related disciplines, as defined by ISI’s Journal Citation Reports. The technique has been used to compare both individual academics and each national group as a whole. The results clearly show that US academic chemical engineers are far more interdisciplinary in their output than their UK counterparts. The technique has a number of potential applications, including tracking changes in a discipline over time, tracking individual academics’ output over time, and comparing different disciplines for their interdisciplinarity.

Notes: CCountry

? Pereira, J.C.R., Fischer, A.L. and Escuder, M.M.L. (2000), Driving factors of high performance in Brazilian Management Sciences for the 1981-1995 period. *Scientometrics*, **49** (2), 307-319.

Full Text: [2000\Scientometrics49, 307.pdf](2000/Scientometrics49,%20307.pdf)

Abstract: As a corollary of former studies, high performance in Brazilian Management Sciences during the period of 1981 to 1995 is put to scrutiny. Information on the 66 papers registered to this field in the ISI databases for this time interval were retrieved, edited and processed as to elicit patterns. Occurrences of highly cited papers seemed haphazard but the presence of collaborative work consistently emerged as an important driving factor for good performance. International collaboration showed the most expressive impact over chances of citation but any form of collaboration seemed to have some effect, even those represented by single authors with double allegiance. Simple addition of authors, nonetheless, had no effect, and thus collaboration involving authors of common institutional affiliation showed the performance of single authored papers. Cluster analysis allowed the identification of patterns of performance, and groups of best performers showed higher levels of international collaboration. The institutional composition of the clusters is presented.

Keywords: Analysis, Citation, Clusters, Collaboration, Composition, Databases, Driving, Groups, Identification, Impact, International Collaboration, ISI, Levels, Performance

? Gupta, B.M. and Karisiddappa, C.R. (2000), Modelling the growth of literature in the area of theoretical population genetics. *Scientometrics*, **49** (2), 321-355.

Full Text: [2000\Scientometrics49, 321.pdf](2000/Scientometrics49,%20321.pdf)

Abstract: Different approaches are introduced for studying the growth of scientific knowledge, as reflected through publications and authors. Selected growth models are applied to the cumulated growth of publications and authors in theoretical population genetics from 1907 to 1980. The criteria are studied on which growth models are to be selected for their possible application in the growth of literature. It is concluded that the power model is observed to be the only model among the models studied which best explains the cumulative growth of publication and author counts in the theoretical population genetics.

Keywords: Genetics, Growth, Knowledge, Model, Models, Population, Publication, Publications, Science

Glänzel, W. (2000), Science in Scandinavia: A bibliometric approach. *Scientometrics*, **49** (2), 357-357.

Full Text: [2000\Scientometrics49, 357.pdf](2000/Scientometrics49,%20357.pdf)

Notes: CCountry

Ortiz-Rivera, L.A., Sanz-Casado, E. and Suárez-Balseiro, C.A. (2000), Scientific production in Puerto Rico in science and technology during the period 1990 to 1998. *Scientometrics*, **49** (3), 403-418.

Full Text: [2000\Scientometrics49, 403.pdf](2000/Scientometrics49,%20403.pdf)

Abstract: This paper analyses the research activity conducted by Puerto Rican scientists in science and technology in the period 1990 to 1998. The Science Citation Index (SCI) database was used to analyse scientific production by geographic area, type of institution, document typology, language coverage, visibility of publications, subjects addressed and collaboration between local and international authors and institutions. Scientific production was observed to nearly double over the period studied and found to be concentrated in the academic sector, primarily in the city of San Juan, specifically in the University of Puerto Rico’s Rio Piedras, Medical Sciences and Mayaguez campuses. Puerto Rican scientific production in the period studied was greater than in any other Caribbean country and the sixth largest in all of Latin America. papers are mainly published in highly visible journals and scientific articles are the vehicle most commonly used to reach the scientific community. Go-operation indices between authors and institutions are high and the principal areas in which research is published are Medicine, Chemistry, Life Sciences and Physics.

Keywords: Latin-America, Research Collaboration, Bibliometric Analysis, Cooperation, Indicators, Authorship, Quality

? Garg, K.C. and Padhi, P. (2000), Scientometrics of prolific and non-prolific authors in laser science and technology. *Scientometrics*, **49** (3), 359-371.

Full Text: 2000\Scientometrics49, 359.pdf

Abstract: An analysis of 766 publications by prolific authors in scientific journals indicate that prolific authors produce about 25% of the total scientific output in periodical literature in laser science and technology. The average productivity per author is about 2. Prolific authors from most of the countries belonged either to academic or research institutions except in USA and Japan. Prolific authors on average made more impact than non-prolific authors. However the situation varied from country to country.

Keywords: Impact, Journals, Literature, Periodical, Productivity, Publications, Research, Research Institutions, Science, Science and Technology, Scientific Journals, Scientific Output, Scientometrics, Technology, USA

? Cahlik, T. (2000), Comparison of the maps of science. *Scientometrics*, **49** (3), 373-387.

Full Text: 2000\Scientometrics49, 373.pdf

Abstract: the aim of this article is to describe some methods of comparison of maps of science and to show possibilities that these methods give for further research in this interesting area.

Keywords: Comparison, Methods, Research, Science, Word

? Cahlik, T. (2000), Search for fundamental articles in economics. *Scientometrics*, **49** (3), 389-402.

Full Text: 2000\Scientometrics49, 389.pdf

Abstract: the aim of this article is to demonstrate on the scientific field “economics” the search for fundamental articles. Co-word analysis and co-citation analysis enable to visualize the structure of a scientific field on the maps of science. Then we can find the fundamental themes on the maps. After finding the articles belonging to these fundamental themes we can discuss the fundamentality of the formers, too.

Keywords: Articles, Co-Citation, Co-Citation Analysis, Cocitation Analysis, Economics, Journals, Science

? Ortiz-Rivera, L.A., Sanz-Casado, E. and Suarez-Balseiro, C.A. (2000), Scientific production in Puerto Rico in science and technology during the period 1990 to 1998. *Scientometrics*, **49** (3), 403-418.

Full Text: 2000\Scientometrics49, 403.pdf

Abstract: This paper analyses the research activity conducted by Puerto Rican scientists in science and technology in the period 1990 to 1998. The Science Citation Index (SCI) database was used to analyse scientific production by geographic area, type of institution, document typology, language coverage, visibility of publications, subjects addressed and collaboration between local and international authors and institutions. Scientific production was observed to nearly double over the period studied and found to be concentrated in the academic sector, primarily in the city of San Juan, specifically in the University of Puerto Rico’s Rio Piedras, Medical Sciences and Mayaguez campuses. Puerto Rican scientific production in the period studied was greater than in any other Caribbean country and the sixth largest in all of Latin America. Papers are mainly published in highly visible journals and scientific articles are the vehicle most commonly used to reach the scientific community. Go-operation indices between authors and institutions are high and the principal areas in which research is published are Medicine, Chemistry, Life Sciences and Physics.

Keywords: Academic Sector, Articles, Authorship, Bibliometric Analysis, Chemistry, Citation, Collaboration, Cooperation, Coverage, Database, Indicators, Journals, Latin America, Latin-America, Local, Physics, Publications, Puerto Rico, Quality, Research, Research Activity, Research Collaboration, SCI, Science, Science and Technology, Science Citation Index, Scientific Production, Technology, University, Visibility

? Dietz, J.S., Chompalov, I., Bozeman, B., Lane, E.O. and Park, J. (2000), Using the curriculum vita to study the career paths of scientists and engineers: An exploratory assessment. *Scientometrics*, **49** (3), 419-442.

Full Text: 2000\Scientometrics49, 419.pdf

Abstract: In this paper we assess the utility of the curriculum vita (CV) as a data source for examining the career paths of scientists and engineers. CVs were obtained in response to an email message sent to researchers working in the areas of biotechnology and microelectronics. In addition, a number of CVs were obtained “passively” from a search of the Internet. We discuss the methodological issues and problems of this data collection strategy and the results from an exploratory analysis using OLS regression and event history analysis. In sum, despite difficulties with coding and variation in CV formats, this collection strategy seems to us to hold much promise.

Keywords: Academic Careers, Agency, Agreement, Assessment, Biotechnology, Cycle Research Productivity, Data Collection, Faculty, History, Internet, Life-Cycle, Model, Rank, Regression, Researchers, Science, Sex-Differences

Abt, H.A. (2000), The reference-frequency relation in the physical sciences. *Scientometrics*, **49** (3), 443-451.

Full Text: [2000\Scientometrics49, 443.pdf](2000/Scientometrics49,%20443.pdf)

Abstract: We counted references in about 200 research papers in each of 16 journals in six physical sciences. They show that for average papers, the number of references is a linear function of the paper length. In fact, it is the same function for journals in different sciences. The fact that various physical sciences all give the same reference frequencies for papers of the same length and impact factor tells us that citation counts in those sciences can be intercompared. There is a dependence upon impact factor and a general relation is derived. In addition, the number of references increases by about 1.5% per year, probably due to the increase in the literature pertinent to any paper. The average paper lengths differ among the six sciences and three possible explanations for that difference are given.

? Prpić, K. (2000), The publication productivity of young scientists: An empirical study. *Scientometrics*, **49** (3), 453-490.

Full Text: [2000\Scientometrics49, 453.pdf](2000/Scientometrics49,%20453.pdf)

Abstract: This research was conducted on a sample of 840 respondents who represent half of the Croatian population of young scientists. There are three main features which define the publication productivity of young scientists. 1) Despite the worsened position of R & D, they publish more scientific papers than the young generations of scientists at the beginning of the nineties. 2) Differences between a highly-productive minority, which produces on average half of all scientific publications, and a low-productive majority is already apparent in young scientists. 3) the productivity of young scientists is formed according to productivity patterns typical of particular scientific fields and disciplines. With regard to the explanation of productivity, the following has been found. a) An expansion of the set of predictors resulted in an improvement in the explanation of the productivity of young scientists compared with previous surveys. b) Among the factors which contribute significantly to the explanation of the quantity of scientific publications, the most powerful predictor is attendance at conferences abroad, followed by scientific qualifications and some gatekeeping variables. c) Besides certain similarities, scientific fields also show a specific structure of determinants of young scientists’ productivity.

Keywords: Bibliometric Indicators, Community, Cum Laude Doctorates, Determinants, Features, Fields, Population, Position, Predictors, Productivity, Publication, Publications, Quantity, Questionnaire, Research, Research Performance, Rise, Science, Scientific Publications, Structure, Surveys

Notes: TTopic, MModel

Tsay, M.Y., Jou, S.J. and Ma, S.S. (2000), A bibliometric study of semiconductor literature, 1978-1997. *Scientometrics*, **49** (3), 491-509.

Full Text: [2000\Scientometrics49, 491.pdf](2000/Scientometrics49,%20491.pdf)

Abstract: Semiconductor is the key element for information industry. The present study investigated the growth of semiconductor literature based on the database of INSPEC. Well-established bibliometric techniques, such as Bradford-Zipf’s plot and Lotka’s law have been employed to further explore the characteristics of semiconductor literature. Quantitative results on the literature growth, form of publication, research treatment, publishing country and language, author productivity and affiliate are reported. Moreover, from the Bradford-Zipf’s plot, 25 core journals in semiconductor were identified and analyzed.

? Ramani, S.V. and de Looze, M.A. (2000), A note on using patent statistics to obtain competition indicators. *Scientometrics*, **49** (3), 511-515.

Full Text: [2000\Scientometrics49, 511.pdf](2000/Scientometrics49,%20511.pdf)

Abstract: In a recent article a set of indicators have been proposed drawing upon patent statistics, which are meant to describe and compare firm and national research competence. However this article has raised more questions on the validity of such indicators as well as on their use. We have thus examined these issues so as to clarify the nature of the problems involved in the construction of competence and competitive indicators of firms and nations and their subsequent implementation on data bases.

Keywords: Competence, Competition, Implementation, Indicators, Recent, Research, Statistics, Validity

? Balaban, A.T. and Randic, M. (2000), Proposal for using an untapped source of citations characterizing scientific areas. *Scientometrics*, **49** (3), 517-521.

Full Text: [2000\Scientometrics49, 517.pdf](2000/Scientometrics49,%20517.pdf)

Abstract: Bibliographies of ‘reference books’, namely Encyclopedias, Comprehensive Treatises, and Advanced Textbooks constitute a valuable source of information about seminal papers in various branches of science. Examples are given mainly for chemistry, but other areas might be treated similarly. Bibliographies of ‘reference books’, namely Encyclopedias, Comprehensive Treatises, and Advanced Textbooks constitute a valuable source of information about seminal papers in various branches of science. Examples are given mainly for chemistry, but other areas might be treated similarly.

Keywords: Citations, Information, Science, Source

Turner, W.A., Gherbi, R., Jacquemin, C. and Leger, M.D. (2001), Infometric methods and measures for sharing knowledge over Internet. *Scientometrics*, **50** (1), 33-57.

Full Text: [2001\Scientometrics50, 33.pdf](2001/Scientometrics50,%2033.pdf)

Abstract: This paper deals with knowledge sharing over Internet. After defining the concept, we will discuss work aimed at creating a technical system to implement it and at measuring the quality of results obtained. However, the reader will quickly see that the text is organized to address the theme of this special issue of Scientometrics. Models, methods and measures characterize scientometric research. What problems arise in attempting to develop them for internet? In order to answer this question, it is important to distinguish between two schools of practice in the scientometric research field: the first derives from applied statistics and is called bibliometrics; the second derives from cognitive sociology and is called infometrics (Turner, 1994).

van Raan, A.F.J. (2001), Bibliometrics and Internet: Some observations and expectations. *Scientometrics*, **50** (1), 59-63.

Full Text: [2001\Scientometrics50, 59.pdf](2001/Scientometrics50,%2059.pdf)

Abstract: Electronic publishing developments and new information technology in general will affect the main functions of scientific communication. Most changes however will be primarily technological hut not conceptual. Publication via journals of high reputation is in most fields of science crucial to receive professional recognition. That will remain so in the ‘electronic era’. A much more revolutionary change in science will be the increasing availability and sharing of research data.

Keywords: ERA, Journals, Publishing, Research, Scientists

Noyons, E. (2001), Bibliometric mapping of science in a science policy context. *Scientometrics*, **50** (1), 83-98.

Full Text: [2001\Scientometrics50, 83.pdf](2001/Scientometrics50,%2083.pdf)

Abstract: Despite the promising introduction of bibliometric maps of science in a science policy context in the nineteen seventies, they have not been very successful yet. It seems, however, that only now they are becoming acknowledged as a useful tool. This is mainly due to the developments and integration of hypertext and graphical interfaces. Because of this, the strength of such navigation tools becomes obvious. The communication through the Internet enables the field expert (as a kind of peer review) as well as the user (from a science policy context) to contribute to the quality of the map and the interface. Moreover, the interface can provide suggestions to answer policy-related question, which is the initial purpose of such maps.

Keywords: Bibliometric, Citation Analysis, Co-Word Analysis, Map, Scientific Literatures

Schubert, A. (2001), Scientometrics: A citation based bibliography 1997-2000. *Scientometrics*, **50** (1), 99-198.

Full Text: [2001\Scientometrics50, 99.pdf](2001/Scientometrics50,%2099.pdf)

Glänzel, W. and Schubert, A. (2001), Double effort = Double impact? A critical view at international co-authorship in chemistry. *Scientometrics*, **50** (2), 199-214.

Full Text: [2001\Scientometrics50, 199.pdf](2001/Scientometrics50,%20199.pdf)

Abstract: An attempt is made to find statistical evidences of the relation between international co-authorship and citation impact. It was found that international co-authorship, in average, results inpublications with higher citation rates than purely domestic papers. No correlation has beenfound, however, between the strength of co-authorship links and the relative citation eminence ofthe resulting publications. International co-authorship links in chemistry, as represented by thewell-known Salton’s measure, displayed a characteristic pattern reflecting geopolitical, historical, linguistic, etc. relations among countries. A new indicator, representing also the asymmetry ofco-authorship links was used to reveal main ‘attractive’ and ‘repulsive’ centres of co-operation.

? Vilanova, M.R. and Leydesdorff, L. (2001), Why Catalonia cannot be considered as a regional innovation system. *Scientometrics*, **50** (2), 215-240.

Full Text: [2001\Scientometrics50, 215.pdf](2001/Scientometrics50,%20215.pdf)

Abstract: We present a model to assess the systemness of an innovation system. Patent and citation data with an institutional address in Catalonia (1986-1996) were analyzed in terms of relational linkages and the development in these distributions over time was evaluated using methods from systems dynamics. Relational linkages are extremely scarce. A transition at the system’s level could be indicated around 1990 when using institutional addresses, but not when using cognitive categories. The institutional restructuring has led to changes in the pattern of linkages (coauthorship. etc.), but the reproduction of the system’s knowledge base has remained differentiated. We conclude that although a system in several other respects, Catalonia cannot (yet) be considered as a (knowledge-based) innovation system. The existence of a mechanism for the integration could not be indicated at the regional level.

Keywords: Citation, European-Union, Industry-Government Relations, Integration, Mechanism, Patent Statistics, Science, System, Technology, Triple-Helix

? Leta, J., Jacques, R., Figueira, I. and de Meis, L. (2001), Central international visibility of Brazilian psychiatric publications from 1981 to 1999. *Scientometrics*, **50** (2), 241-254.

Full Text: [2001\Scientometrics50, 241.pdf](2001/Scientometrics50,%20241.pdf)

Abstract: In this study, we examine the scientific output of Brazilian psychiatry, based on the database of the Institute for Scientific Information (ISI). publications in the 10 most important psychiatric journals, and publications in major Brazilian journals, the number of Brazilian publications (i.e., those carrying at least one Brazilian address) in psychiatry in the ISI database increased by 168% during the If-year period under study (1981-1995). Despite this growth, the relative contribution of publications in psychiatry to the country’s publications in medical sciences did not change over the 15-year period. This fraction, around 2%, remained at less than one-third of the average contribution of psychiatry journals to publications in medicine worldwide. The impact inferred from number of citations (1981-1992) shows that Brazilian articles in psychiatry were cited less than the world average in this field. In the 10 psychiatry journals with the highest impact. Brazilian authors published only 48 articles in the 1981-1995 period, representing only 0.2% of the articles in those journals. Like their American and British counterparts. Brazilian psychiatrists also published primarily in domestic journals: 87.1% of the publications by Brazilians appeared in the two major Brazilian psychiatric journals, compared with only 12.9% in foreign journals. Among publications in psychiatry in the ISI database, the number of articles co-authored by Brazilians with scientists from other countries increased 12.3 fold from 1981-1985 to 1991-1995. representing at the end 50% of all publications by Brazilian psychiatrists in international journals. Despite all cuts in funding for Brazilian science during the last decades, all of the articles in our sample originated in public universities, and only 10 universities were responsible for similar to 70% of the publications by Brazilian psychiatrists in our survey period. We conclude that Brazilian psychiatric research is a subject worthy of particular concern. especially if we take into account the country’s modest scientific performance and the socio-economic consequences of mental disorders in the Brazilian population.

Keywords: Articles, Citations, Contribution, Database, Impact, Impact Factors, ISI, ISI Database, Journals, Medical, Medicine, Mental Disorders, Profile, Psychiatry, Publications, Research, Science, Scientific Output, Scientific Performance, Universities, Visibility

? Andersen, H. (2001), The norm of universalism in sciences. Social origin and gender of researchers in Denmark. *Scientometrics*, **50** (2), 255-272.

Full Text: [2001\Scientometrics50, 255.pdf](2001/Scientometrics50,%20255.pdf)

Abstract: Implied by the norm of universalism in modern science, known from Merton’s CUDOS-norm set, is the demand that scientific careers should be open to talents, independent of personal attributes such as race, religion, class, and gender. In spite of a large amount of studies related to CUDOS-norms very few deals with class origin of researchers. Based on a survey among a sample of 788 Danish researchers this article investigates class bias, compared to I:ender bias in researcher recruitment and careers, and researcher assessments of impartiality and objectivity of evaluations and reward system. The data demonstrate very strong class bias, and also confirm the well-known gender bias in recruitment, class bias being the strongest. This is shown to be mainly because of bias in the educational system, however. Concerning later career attainment bias is also found, but much weaker, and most pronounced concerning social origin. Regarding researcher assessments of impartiality there are no indications of strong mistrust among researchers in general; nor are there significant differences in degree of trust in reward system, conditioned by class origin or gender. In conclusion, the analysis does not lend strong support to an assumption of deviance from norms of universalism.

Keywords: Researchers, Science, System

Yong, F. and Rousseau, R. (2001), Lattices in citation networks: An investigation into the structure of citation graphs. *Scientometrics*, **50** (2), 273-287.

Full Text: [2001\Scientometrics50, 273.pdf](2001/Scientometrics50,%20273.pdf)

Abstract: the main purposes of this article are to uncover interesting features in real-world citationnetworks, and to highlight important substructures. In particular, it applies lattice theory tocitation analysis. On the applied side, it shows that lattice substructures exist in real-word citationnetworks. It is further shown that, through its relations with co-citations and bibliographiccoupling, the diamond (a four-element lattice) is a basic structural element in citation analysis. Finally, citation compactness is calculated for the four- and five element lattices.

Salzarulo, L and Von Ins, M. (2001), Bias, structure and quality in citation indexing. *Scientometrics*, **50** (2), 289-299.

Full Text: [2001\Scientometrics50, 289.pdf](2001/Scientometrics50,%20289.pdf)

Abstract: the small size of institutes and publication clusters is a problem when determining citationindices. To improve the citation indexing of small sets of publications (less than 50 or 100 publications), a method is proposed. In addition, a method for error calculation is given for largesets of publications. Here, the classical methods of citation indexing remain valid.

Notes: MModel

Schoepflin, U. and Glänzel, W. (2001), Two decades of ‘scientometrics’ - An interdisciplinary field represented by its leading journal. *Scientometrics*, **50** (2), 301-312.

Full Text: [2001\Scientometrics50, 301.pdf](2001/Scientometrics50,%20301.pdf)

Abstract: the development of the field of bibliometric and scientometric research is analysed by quantitative methods to answer the following questions: (1) Is bibliometrics evolving from a soft science field towards rather hard (social) sciences (Schubert- Maczelka hypothesis)? (2) Can bibliometrics be characterised as a social science field with stable characteristics (Wouters- Leydesdorff hypothesis)? (3) Is bibliometrics a heterogeneous field. The sub-disciplines of which have their own characteristics? Are these sub-disciplines more and more consolidating, and are predominant sub-disciplines impressing their own characteristics upon the whole field (Glänzel - Schoepflin hypothesis)? the Price Index per paper, the percentage of references to serials, the mean references age, and the mean reference rate are calculated based on all articles and their respective references in Scientometrics in 1980, 1989, and 1997. The articles are classified in six categories. The findings suggest, that the field is in fact heterogeneous, and each sub-discipline has its own characteristics. While the contribution of these sub- disciplines in Scientometrics was still well-balanced in 1980, papers dealing with case studies and methodology became dominant by 1997.

Keywords: Sciences

? Rai, L.P., Kumar, N. and Madan, S. (2001), Structural changes in S&T research in India. *Scientometrics*, **50** (2), 313-321.

Full Text: [2001\Scientometrics50, 313.pdf](2001/Scientometrics50,%20313.pdf)

Abstract: Before India became an independent country, its scientists and policy maker!; could foresee the importance of science in its development, and accordingly a number of research and development (R&D) institutions were established. However during these five decades of independence, the choice between basic sciences and technology was always a subject of debate. It will be appropriate now to examine the changing patter ns of Science and Technology (S&T) manpower growth to find out the ground truth reality. The present study pertains to the analysis of S&T outturn data in various fields of scientific research that can provide a base for SET planning and policy making. These S&T indicators will be helpful in estimating future requirements, which in turn can be useful to a great extent in science and technology policy formulation. These estimates and future projections are based on mathematical modelling of the data pertaining to the outturn of highly qualified Scientific and Technical (S&T) personnel in India from different faculties over the period 1990-1998. From the trend analysis it is evident that research is no more perceived as an interesting career except in the field of engineering and medicine. The findings further suggest that there is a noticeable shift from basic sciences to technology.

Keywords: Mathematical Modelling, Medicine, Modelling, R&D, Research, Research and Development, Science, Science and Technology, Technology

Notes: MModel

Huber, J.C. and Wagner-Döbler, R. (2001), Scientific production: A statistical analysis of authors in mathematical logic. *Scientometrics*, **50** (2), 323-337.

Full Text: [2001\Scientometrics50, 323.pdf](2001/Scientometrics50,%20323.pdf)

Abstract: We show that scientific production can be described by two variables: rate of production (rate of publications) and career duration. for mathematical logicians, we show that the time pattern of production is random and Poisson distributed, contrary to the theory of cumulative advantage. We show that the exponential distribution provides excellent goodness-of-fit to rate of production and a reasonable fit to career duration. The good fits to these distributions can be explained naturally from the statistics of exceedances. Thus, more powerful statistical tests and a better theoretical foundation is obtained for rate of production and career duration than has been the case for Lotka’s Law.

Persson, O. (2001), All author citations versus first author citations. *Scientometrics*, **50** (2), 339-344.

Full Text: [2001\Scientometrics50, 339.pdf](2001/Scientometrics50,%20339.pdf)

Abstract: Based on a set of information science papers this study demonstrates that ‘all author’ citationcounts should be preferred when visualizing the structure of research fields. ‘First author’ citationstudies distort the picture in terms of most influential researchers, while the subfield structuretends to be just about the same for both methods.

? Burrell, Q.L. (2001), Some remarks on a paper by Egghe. *Scientometrics*, **50** (2), 345-350.

Full Text: [2001\Scientometrics50, 345.pdf](2001/Scientometrics50,%20345.pdf)

? Egghe, L. (2001), Comments on the “Letter to the Editor” by Burrell. *Scientometrics*, **50** (2), 351.

Full Text: [2001\Scientometrics50, 351.pdf](2001/Scientometrics50,%20351.pdf)

Kostoff, R.N. (2001), The metrics of science and technology. *Scientometrics*, **50** (2), 353-361.

Full Text: [2001\Scientometrics50, 353.pdf](2001/Scientometrics50,%20353.pdf)

Egghe, L. (2001), A heuristic study of the first-citation distribution. *Scientometrics*, **50** (2), 363-363.

Full Text: [2001\Scientometrics50, 363.pdf](2001/Scientometrics50,%20363.pdf)

Jarneving, B. (2001), The cognitive structure of current cardiovascular research. *Scientometrics*, **50** (3), 365-389.

Full Text: [S\Scientometrics50, 365.pdf](S/Scientometrics50,%20365.pdf)

Abstract: This paper presents a citation analysis of the cognitive structure of current cardiovascular research. Used methods are co-citation analysis, bibliographic coupling and quantitative analysis of title words. Tables and graphs reveal: (1) the journal co-citation structure; (2) the cognitive content and the bibliometric structure of clusters based on co-citation: (3) the cognitive content and the bibliometric structure of clusters based on bibliographic coupling. A predominance of different research aspects on coronary artery disease was found in clusters based on co-citations as well as in dusters based on bibliographic coupling

Keywords: Bibliometric, Citation, Methods, Research, Science, Scientific Literatures, Scientometrics

? Ojasoo, T., Maisonneuve, H. and Dore, J.C. (2001), Evaluating publication trends in clinical research: How reliable are medical databases? *Scientometrics*, **50** (3), 391-404.

Full Text: [2001\Scientometrics50, 391.pdf](2001/Scientometrics50,%20391.pdf)

Abstract: the aim of this study was to draw attention to the possible existence of “quirks” in bibliographic databases and to discuss their implications. We analysed the time-trends of “publication types” (PTs) relating to clinical medicine in the most frequently searched medical database, MEDLINE. We counted the number of entries corresponding to 10 PTs indexed in MEDLINE (1963-1998) and drew up a matrix of [10 PTs x 36 years] which we analysed by correspondence factor analysis (CFA). The analysis showed that, although the “internal clock” of the database was broadly consistent, there were periods of erratic activity. Thus, observed trends might not always reflect true publication trends in clinical medicine but quirks in MEDLINE indexing of PTs. There may be, for instance, different limits for retrospective tagging of entries relating to different PTs. The time-trend for Reviews of Reported Cases differed substantially from that of other publication types. Despite the quirks, quite rational explanations could be provided for the strongest correlations among PTs. The main factorial map revealed how the advent of the Randomised Controlled Trial (RCT) and the accumulation of a critical mass of literature may have increased the rate of publication of research syntheses (meta-analyses, practice guidelines...). The RCT is now the “gold standard” in clinical investigation and is often a key component of formal “systematic reviews” of the literature. Medical journal editors have largely contributed to this situation and thus helped to foster the birth and development of a new paradigm, “evidence based medicine” which assumes that expert opinion is biased and therefore relies heavily - virtually exclusively on critical analysis of the peer-reviewed literature. Our exploratory factor analysis, however, leads us to question the consistency of MEDLINE’s indexing procedures and also the rationale for MEDLINE’s choice of descriptors. Databases have biases of their own, some of which are not independent of expert opinion. User-friendliness should not make us forget that outputs depend on how the databases are constructed and structured.

Keywords: Countries, Database, Databases, Factor Analysis, Literature, Medical, Medicine, MEDLINE, Paradigm, Publication, Research, Science

? dos Santos, N.F. and Rumjanek, V.M. (2001), Brazilian immunology: One hundred years later. *Scientometrics*, **50** (3), 405-418.

Full Text: [2001\Scientometrics50, 405.pdf](2001/Scientometrics50,%20405.pdf)

Abstract: Brazilian immunology dates from the end of the 19(th) century. The aim of the present paper was to analyze the impact of this field in contemporary Brazilian biomedical research. for this, a 15 years period (1981-1995) was studied. Production of immunological articles in Brazil represented in 1995 a percentage of 8.66 of total papers in biomedical sciences in this country. This level was achieved by an exponential increase in 1991 in the number of papers in immunology followed by a steady increase in the subsequent years. This growth was only observed in articles published in international immunology journals listed by ISI, a similar increase did not occur when the most representative Brazilian journal in biomedical sciences was analyzed. The production in immunology in the last five years (1991-1995) represented 60.69% of total articles in this field published in the whole 15 years period. When quality was assessed based on impact factor of the journals were the articles appeared, 52.71% of total immunology papers had been published in journals with impact factors varying between 7.29 and 3.24. A higher degree of international co-authorship was seen both in articles published in international journals and presentations at international congresses compared to national ones. The main countries collaborating with Brazil were: EUA. England and France. Within Brazil, immunology research was not equally distributed. Around 80% of the articles were produced by four states (Sao Paulo, Rio de Janeiro, Minas Gerais and Bahia). Sao Paulo being responsible for more than half of those articles. This geographic distribution closely resembles the distribution of the Brazilian Society of Immunology (SBI) membership. The main field of study throughout the period was immunoparasitotogy.

Keywords: Articles, Biomedical Research, Co-Authorship, France, Impact, Impact Factor, Impact Factors, ISI, Journals, Research

? Wagner-Dobler, R. (2001), Rescher’s principle of decreasing marginal returns of scientific research. *Scientometrics*, **50** (3), 419-436.

Full Text: [2001\Scientometrics50, 419.pdf](2001/Scientometrics50,%20419.pdf)

Abstract: In his book “Scientific Progress”. Rescher (1978, German ed. 1982, French ed. 1993) developed a principle of decreasing marginal returns of scientific research, which is based, inter alia. on a law of logarithmic returns and on Lotka’s law in a certain interpretation. In the present paper, the historical precursors and the meaning of the principle are sketched out. It is reported on some empirical case studies concerning the principle spread over the literature. New bibliometric data are used about 19th-century mathematics and physics. They confirm Rescher’s principle apart From the early phases of the disciplines where a square root law seems to be more applicable. The implication of the principle that the returns of different quality levels grow the slower, the higher the level, is valid. However, the time-derivative ratio between (logarithmized) investment in terms of manpower and returns in terms of first-rate contributors seems not to be linear, but rather to fluctuate vividly, pointing to the cyclical nature of scientific progress. With regard to Rescher’s principle, in the light of bibliometric indicators no difference occurs between a natural science like physics and a formal science like mathematics. From mathematical progress of the 19th century, constant or increasing returns in the form of new formulas, theorems and axioms are observed, which leads to a complementary interpretation of the principle of decreasing marginal returns as a principle of scientific “mass production”.

Keywords: Bibliometric, Bibliometric Indicators, Case Studies, Law, Literature, Lotka’S Law, Mathematics, Research, Science

? Huber, J.C. and Wagner-Dobler, R. (2001), Scientific production: A statistical analysis of authors in physics, 1800-1900. *Scientometrics*, **50** (3), 437-453.

Full Text: [2001\Scientometrics50, 437.pdf](2001/Scientometrics50,%20437.pdf)

Abstract: We show that scientific production can be described by two variables: rate of production (rate of publications) and career duration. for 19(th) century physicists, we show that the time pattern of production is random and Poisson distributed, contrary to the theory of cumulative advantage. We show that the exponential distribution provides excellent goodness-of-fit to rate of production and career duration. The good fits to these distributions can be explained naturally from the statistics of exceedances. Thus, more powerful statistical tests and a better theoretical foundation is obtained for rate of production and career duration than has been the case for Lotka’s Law.

Keywords: Publications, Scientific Production, Statistics, Theory

? van Dalen, H.P. and Henkens, K. (2001), What makes a scientific article influential? the case of demographers. *Scientometrics*, **50** (3), 455-482.

Full Text: [2001\Scientometrics50, 455.pdf](2001/Scientometrics50,%20455.pdf)

Abstract: In this paper we examine, by means of a citation analysis, which factors influence the impact of articles published in demography journals between 1990 and 1992. Several quantifiable characteristics of the articles (characteristics with respect to authors, visibility, content and journals) are strongly related to their subsequent impact in the social sciences. Articles are most frequently cited when they deal with empirical, ahistorical research focusing on populations in the developed world, when they are prominently placed in a journal issue, when they are written in English and when they appear in core demography journals. Furthermore, although eminent scholars are likely to be cited on the basis of their reputation, the effect of reputation appears to be small in demography.

Keywords: Articles, Citation, Citation Analysis, Core, Impact, Journals, Origins, Research, Research Productivity, Social Sciences, Social-Science, Visibility

? Stegmann, J. and Grohmann, G. (2001), Citation rates, knowledge export and international visibility of dermatology journals listed and not listed in the Journal Citation Reports. *Scientometrics*, **50** (3), 483-502.

Full Text: [2001\Scientometrics50, 483.pdf](2001/Scientometrics50,%20483.pdf)

Abstract: Publication and citation data for the thirty journals listed in the Dermatology gr Venereal Diseases category of the 1996 edition of the Journal Citation Reports (JCR) on CDROM and seven dermatology journals not listed in the JCR-1996 were retrieved online from DIMDI and analysed with respect to short- and long-term impact factors, ratios of cited to uncited papers, as well as knowledge export and international visibility. The short-term impact factors (calculated according to the rules applied in the JCR) are very similiar to their JCR counterparts: thus there are only minor changes in the rankings according to JCR impact factors and those calculated on the basis of online data, the non-JCR journals rank within the upper (two titles) and the lower third of the 37 journals (one title being at the upper end of the last third and the other four titles being at the very end of the list). Ranking the journals according to their long-term impact factors results in no major changes of a journal’s position. Normalized mean citation rates which give a more direct impression of a journals’s citedness in relation to the average citedness of its subfield are also shown. Ratios of cited to uncited papers parallel in general the impact factors, i.e., journals with higher (constructed) impact factors have a higher percentage of cited papers. for each journal, the Gini concentration coefficient was calculated as a measure of unevenness of the citation distribution. In general, journals with higher (constructed) impact factors have higher Gini coefficients, i.e., the higher the impact factors the more uneven the citation distribution. Knowledge export and international visibility were measured by determination of the distinct categories to which the citing journals have been assigned (“citing subfields”) and of the distinct countries to which the citing authors belong (“citing countries”), respectively. Each journal exhibits a characteristic profile of citing subfields and citing countries, Normalized rankings based on knowledge export and international visibility (relating the number of published papers to the number of distinct subfields and distinct countries) are to a large extent different compared to the impact factor rankings. It is concluded that the additional data given, especially the data on knowledge export and international visibility, are necessary ingredients of a comprehensive description of a journal’s significance and its position within its subject category.

Keywords: Citation, Dermatology, Impact, Impact Factor, Impact Factors, Indicators, Journal Citation Reports, Journals, Ranking, Rankings, Scientific Journals, Visibility

Notes: TTopic, CCountry

Kim, M.J. (2001), A bibliometric analysis of physics publications in Korea, 1994-1998. *Scientometrics*, **50** (3), 503-521.

Full Text: [2001\Scientometrics50, 503.pdf](2001/Scientometrics50,%20503.pdf)

Abstract: This study examined research performance of Korean physicists, comparing Korean-authored papers versus internationally co-authored papers, indexed in SCI, 1994-1998, and using thenumber of citations received by internationally co-authored papers covered by the SCI CD-ROM. for the study, 4,665 papers published from the researchers affiliated with the physics departments or physics-associated laboratories at Korean universities and indexed by SCI were analyzed. Korean authored papers tended to be published in Korean, Japanese, and UK journals, while internationally co-authored papers were more likely to appear in German, Dutch, and Swiss journals. Among the 18 authorship countries (on the basis of first author), 93 internationally co-authored papers by U.S. researchers had the highest citation rate, an average 15.9 citations per paper. of the eight countries that published over 5 papers, there was no correlation between the average number of citations per paper and the total number of citations. However, an ANOVA indicated a significant difference between the average number of citations per paper according to country (F = 5.84, p < 0.0005). In other words, papers by the U.S. and French researchers tended to be cited more frequently than papers by the Italian, Japanese, Korean, Russian, and German researchers.

Hornbostel, S. (2001), Third party funding of German universities. An indicator of research activity? *Scientometrics*, **50** (3), 523-537.

Full Text: [2001\Scientometrics50, 523.pdf](2001/Scientometrics50,%20523.pdf)

Abstract: This article focusses on third party funding of research in German universities. The central question is, whether funding data can function as suitable indicators for the measurement of research performance of university departments. After a brief description of the importance and the extent of third party funding in the German system of research funding, the quality of data is discussed and the funding indicator is compared with bibliometric indicators. Resultened, one can say that in subjects where external funding of research is usual, the funding indicator points to the same direction as other indicators do. Because of the peer review process involved in grant awarding, a funding indicator is in many subjects a suitable indicator to evaluate R&D impacts.

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Full Text: [2001\Scientometrics50, 539.pdf](2001/Scientometrics50,%20539.pdf)

Keywords: Big Scientometrics, Scientometrics

? Burrell, Q.L. (2001), Two problems posed by Egghe. *Scientometrics*, **50** (3), 545-550.

Full Text: [2001\Scientometrics50, 545.pdf](2001/Scientometrics50,%20545.pdf)

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Full Text: [2001\Scientometrics50, 551.pdf](2001/Scientometrics50,%20551.pdf)

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Full Text: [2001\Scientometrics51, 5.pdf](2001/Scientometrics51,%205.pdf)

Keywords: International, Science, Technology

? Amaral, L.A.N., Gopikrishnan, P., Matia, K., Plerou, V. and Stanley, H.E. (2001), Application of statistical physics methods and concepts to the study of science & technology systems. *Scientometrics*, **51** (1), 9-36.

Full Text: [2001\Scientometrics51, 9.pdf](2001/Scientometrics51,%209.pdf)

Abstract: We apply methods and concepts of statistical physics to the study of science & technology (S&T) systems. Specifically, our research is motivated by two concepts of fundamental importance in modern statistical physics: scaling and universality. We try to identify robust, universal, characteristics of the evolution of S&T systems that can provide guidance to forecasting the impact of changes in funding. We quantify the production of research in a novel fashion inspired by our previous study of the growth dynamics of business firms. We study the production of research from the point of view both of inputs (R&D funding) and of outputs (publications and patents) and find the existence of scaling laws describing the growth of these quantities. We also analyze R&D systems of different countries to test the “universality” of our results. We hypothesize that the proposed methods may be particularly useful for fields of S&T (or for levels of aggregation) for which either not enough information is available, or for which evolution is so fast that there is not enough time to collect enough data to make an informed decision.

Keywords: Alzheimer-Disease, Growth Dynamics, Impact, Indicators, Journal Impact Factors, Law, Long-Range Correlations, Patents, Publications, R&D, Rates, Research, Research Performance, Scaling Behavior, Science, Senile Plaques, Technology

? Bonitz, M. and Scharnhorst, A. (2001), Competition in science and the Matthew core journals. *Scientometrics*, **51** (1), 37-54.

Full Text: [2001\Scientometrics51, 37.pdf](2001/Scientometrics51,%2037.pdf)

Abstract: Competition is one of the most essential features of science. A new journal indicator - the “number of Matthew citations in a journal” was found that reflects certain aspects of this competition. The indicator mirrors the competition of countries in scientific journals for recognition in terms of seemingly “redistributed” citations. The indicator shows, as do other journal indicators, an extreme skewed distribution over an ensemble of 2712 SCI journals. Half of all Matthew citations are contained in 144 so-called Matthew core journals. In this paper, a new typology of scientific journals, including the Matthew core journals, is introduced. for a few selected journals, graphs are presented showing national impact factors as well as the absolute number of Matthew citations gained or lost by the countries publishing in the journal. Scientific competition among countries for recognition is strongest in the Matthew core journals, they ate the most competitive markets for scientific publications. Conclusions are drawn for national science policy, for the journal acquisition policy of national libraries, and for the publication behaviour of individual scientists.

Keywords: Citations, Competition, Core, Impact, Impact Factors, Journals, National Science, Publication, Publications, Publishing, SCI, Science, Scientific Journals, Scientific Publications

? Buter, R.K. and Noyons, E.C.M. (2001), Improving the functionality of interactive bibliometric science maps. *Scientometrics*, **51** (1), 55-68.

Full Text: [2001\Scientometrics51, 55.pdf](2001/Scientometrics51,%2055.pdf)

Abstract: the use of a map as a metaphor of a scientific field is an established idea and using it as an interface to bibliometric data seems to have great potential. Nevertheless, our own implementation of such an interface came up with some limits inhibiting the user to comprehend as to what he was looking at. As a result, the map was not used to its fullest potential. The implementation described in this paper as a high-level (conceptual) design, addresses the problems noted by users. It combines both top-down and bottom-up access to the bibliometric data, something we see as vital to mapping internal knowledge onto the external depiction and vice versa. and as such, it becomes a more complete tool to explore the mapped scientific field and to find and retrieve relevant information.

Keywords: Bibliometric, Mapping, Science

? Glänzel, W. (2001), National characteristics in international scientific co-authorship relations. *Scientometrics*, **51** (1), 69-115.

Full Text: [2001\Scientometrics51, 69.pdf](2001/Scientometrics51,%2069.pdf)

Abstract: the main objective of this study is the elaboration of national characteristics in international scientific co-authorship relations. An attempt is made to find statistical evidence of symmetry and asymmetry in co-publication links, of the relation between international co-authorship and both national research profiles and citation impact. Four basic types can be distinguished in the relative specialisation of domestic and internationally co-authored publications of 50 most active countries in 1995/96 concerning the significance of the difference between the two profiles. Co-publication maps reveal structural changes in international co-authorship links in the last decade. Besides stable links and coherent clusters, new nodes and links have also been found. Not all links between individual countries are symmetric. Specific (unidirectional) co-authorship affinity could also be detected in several countries. As expected, international co-authorship, on an average, results in publications with higher citation rates than purely domestic papers. However, the influence of international collaboration on the national citation impact varies considerably between the countries (and within one individual country between fields). In some cases there is, however, no citation advantage for one or even for both partners.

Keywords: Citation, Citation Impact, Co-Authorship, Collaboration, Impact, International Collaboration, Publications, Research

Koehler, W. (2001), Information science as ‘Little Science’: the implications of a bibliometric analysis of the Journal of the American Society for Information Science. *Scientometrics*, **51** (1), 117-132.

Full Text: [2001\Scientometrics51, 117.pdf](2001/Scientometrics51,%20117.pdf)

Abstract: This paper considers the status of information science as science through an exploration of one of the leading journals in the field - the Journal of the American Society for Information Science (JASIS) from its initial publication as American Documentation (AD) in 1950 through the closing issue of its Silver Anniversary year in December 1999, It is a bibliometric examination of AD, JASIS articles. Based on our analysis of articles published in AD and JASIS from 1950 to 1999, we find that there has been a slow but perhaps inevitable shift based first on the single nonfunded researcher and author to a much wider research and publishing participation among authors, regions, corporate authors, and countries. This suggests not only cross-fertilization of ideas, but also more complex research questions. A small trend toward greater external funding further reinforces this hypothesis. Information may no longer be ‘little’ science, but it is also not ‘big’ science

Keywords: Authorship, Bibliometric, Bibliometric Analysis, Citation Analysis, Cocitation, Countries, Jasis, Journals, Library, Publication, Publishing, Research, Scientific Literature, Scientometrics

Kortelainen, T.A.M. (2001), Studying the international diffusion of a national scientific journal. *Scientometrics*, **51** (1), 133-146.

Full Text: [2001\Scientometrics51, 133.pdf](2001/Scientometrics51,%20133.pdf)

Abstract: the purpose of this paper is to apply concepts of the diffusion of innovations research in the study of the international diffusion of a formerly national scientific journal, Annales Zoologici Fennici. The study was conducted using bibliometric methodology. The diffusion of the journal was described through citations of the journal and through the development of the national distribution of its contributors. The compatibility of the journal as well as the decrease of complexity were found to have an influence on diffusion. Bibliometric methods were able to represent the international diffusion of a scientific journal

Keywords: Bibliometric, Citation, Citations, Methods, Research, Scientometrics

? Mabe, M. and Amin, M. (2001), Growth dynamics of scholarly and scientific journals. *Scientometrics*, **51** (1), 147-162.

Full Text: [2001\Scientometrics51, 147.pdf](2001/Scientometrics51,%20147.pdf)

Abstract: Results are presented on journal growth dynamics at both the micro and macro levels, showing that journal development clearly follows researcher behaviour and growth characteristics. At the subject discipline level, the journal system is highly responsive to research events. Overall journal growth characteristics clearly show the predominance of 3.3% compound annual growth under a number of different socio-political climates. It is proposed that this represents a lower limit to journal growth rates and that this growth is the outcome of a self-organizing information system that reflects on the growth and specialization of knowledge. Potential models are suggested which could form attractive theoretical further lines of enquiry.

Keywords: Journals, Research, Scientific Journals, System

? Meyer, M.S. (2001), Patent citation analysis in a novel field of technology: An exploration of nano-science and nano-technology. *Scientometrics*, **51** (1), 163-183.

Full Text: [2001\Scientometrics51, 163.pdf](2001/Scientometrics51,%20163.pdf)

Abstract: This paper explores the interrelationships between science and technology in the emerging area of nano-science and technology. We track patent citation relations at the sectoral-disciplinary, the organizational, and the combined industrial/organizational levels, Then we investigate the geographic location and organizational affiliation of inventor/authors, Our main finding is that there are only a small number of citations connecting nano-patents with nano-science papers, while nano-science and technology appear to be relatively well connected in comparison with other fields. Further explorations suggest that nano-science and technology are still mostly separated spheres, even though there are overlaps, as an analysis of title words shows. Another observation is that university-assigned patents seem to cite papers more frequently than other patents.

Keywords: Citation, Citation Analysis, Citations, Nanoscience, Nanoscience and Nanotechnology, Nanotechnology, Patent, Patents, Science, Science and Technology, Technical Change, Technology

? Michel, J. and Bettels, B. (2001), Patent citation analysis - A closer look at the basic input data from patent search reports. *Scientometrics*, **51** (1), 185-201.

Full Text: [2001\Scientometrics51, 185.pdf](2001/Scientometrics51,%20185.pdf)

Abstract: the present paper focuses on some important requirements for understanding patent search reports in view of their use for statistical analysis. It is pointed out and illustrated that the comprehensiveness and the quality of a given search report may vary significantly as a function of the patent office drawing up the report. These differences imply consequences with respect to the safe use and interpretation of the data. The authors stress that a sound analysis based on patent citation data can only be performed in a meaningful way if the analyst has a minimum knowledge of the underlying search reports.

Keywords: Citation, Citation Analysis, Indicators, Patent, Science, Technology

Morillo, F., Bordons, M. and Gomez, I. (2001), An approach to interdisciplinarity bibliometric indicators. *Scientometrics*, **51** (1), 203-222.

Full Text: [2001\Scientometrics51, 203.pdf](2001/Scientometrics51,%20203.pdf)

Abstract: Interdisciplinarity has become of increasing interest in science in the past few years. This paper is a case study in the area of Chemistry, in which a series of different bibliometric indicators for measuring interdisciplinarity are presented. The following indicators are analysed: a) ISI multi- classification of journals in categories, b) patterns of citations and references outside category and c) multi- assignation of documents in Chemical Abstracts sections. Convergence between the different indicators is studied. Depending on the size of the unit analysed (area, category or journal) the most appropriate indicators are determined

Keywords: Bibliometric, Citations, Interdisciplinarity, Journals, Science, Scientometrics

? Narvaez-Berthelemot, N. and Russell, J.M. (2001), World distribution of social science journals: A view from the periphery. *Scientometrics*, **51** (1), 223-239.

Full Text: [2001\Scientometrics51, 223.pdf](2001/Scientometrics51,%20223.pdf)

Abstract: An analysis carried out on the 4.326 periodicals in the social sciences included in the most recent 1991 printed edition of the UNESCO DARE database showed that 64% of the world’s production is published by High Income Economy countries (IEC). Only 0.7% of Low IEC journals in the UNESCO database were also present in the Social Sciences Citation Index (SSCT) for the same year while corresponding figures for the Middle and High IEC were 2.3%, and 97.0%, respectively. With the notable exception of the United States, all countries had fewer journals in SSCI than in UNESCO database.

Keywords: Analysis, Database, Distribution, Journals, Periodicals, Science, Science Journals, Sciences, Social, Social Sciences, SSCI, Unesco, United States

Nederhof, A.J., Luwel, M. and Moed, H.F. (2001), Assessing the quality of scholarly journals in Linguistics: An alternative to citation-based journal impact factors. *Scientometrics*, **51** (1), 241-265.

Full Text: [2001\Scientometrics51, 241.pdf](2001/Scientometrics51,%20241.pdf)

Abstract: Methods were developed to allow quality assessment of academic research in linguistics in all sub-disciplines. Data were obtained from samples of respondents from Flanders, the Netherlands, as well as a world-wide sample, evaluated journals, publishers, and scholars. Journals and publishers were ranked by several methods. First, we weighted the number of times journals or publishers were ranked as ‘outstanding’, ‘good’. or ‘occasionally, not at all good’. To reduce the influence of unduly positive or negative biases of respondents, the most extreme ratings were trimmed. A second weight reflects the (international) visibility of journals and publishers. Here, journals or publishers nominated by respondents from various countries or samples received a greater weight than journals or publishers nominated by respondents from one country or one sample only. Thirdly, a combined index reflects both quality and international visibility. Its use is illustrated on the output of scholars in linguistics. Limitations and potentials for application of bibliometric methods in output assessments are discussed

Keywords: Behavioral- Sciences, Bibliometric, Bibliometric Indicators, Fields, Humanities, Journal Impact, Journals, Methods, Questionnaire, Research, Research Performance, Scientometrics

? Polanco, X., Francois, C. and Lamirel, J.C. (2001), Using artificial neural networks for mapping of science and technology: A multi-self-organizing-maps approach. *Scientometrics*, **51** (1), 267-292.

Full Text: [2001\Scientometrics51, 267.pdf](2001/Scientometrics51,%20267.pdf)

Abstract: We argue in favour of artificial neural networks for exploratory data analysis, clustering and mapping. We propose the Kohonen self-organizing map (SOM) for clustering and mapping according to a multi-maps extension. It is consequently called Multi-SOM. Firstly the Kohonen SOM algorithm is presented. Then the following improvements are detailed: the way of naming the clusters, the map division into logical areas, and the map generalization mechanism. The multi-map display founded on the inter-maps communication mechanism is exposed, and the notion of the viewpoint is introduced. The interest of Multi-SOM is presented for visualization, exploration or browsing, and moreover for scientific and technical information analysis. A case study in patent analysis on transgenic plants illustrates the use of the Multi-SOM. We also show that the inter-map communication mechanism provides support for watching the plants on which patented genetic technology works. It is the first map. The other four related maps provide information about the plant parts that are concerned, the target pathology, the transgenic techniques used for making these plants resistant, and finally the firms involved in genetic engineering and patenting. A method of analysis is also proposed in the use of this computer-based multi-maps environment. Finally, we discuss some critical remarks about the proposed approach at its current state. and we conclude about the advantages that it provides for a knowledge-oriented watching analysis on science and technology. In relation with this remark we introduce in conclusion the notion of knowledge indicators.

Keywords: Data Analysis, Mapping, Mechanism, Patent, Patent Analysis, Science, Science and Technology, Technology

? Rinia, E.J., van Leeuwen, T.N., Bruins, E.E.W., van Vuren, H.G. and van Raan, A.F.J. (2001), Citation delay in interdisciplinary knowledge exchange. *Scientometrics*, **51** (1), 293-309.

Full Text: [2001\Scientometrics51, 293.pdf](2001/Scientometrics51,%20293.pdf)

Abstract: As part of a larger project to investigate knowledge flows between fields of science, we studied the differences in speed of knowledge transfer within and across disciplines. The age distribution of references in three selections of articles was analysed, including almost 800,000 references in journal publications of the United Kingdom in 1992, 700,000 references in publications of Germany in 1992, and more than 11 million references in the world total of publications in 1998. The rate of citing documented knowledge from other disciplines appears to differ sharply among disciplines. for most of the disciplines the same ratio’s are found in the three data sets. Exceptions show interesting differences in the interdisciplinary nature of a field in a country. We find a general tendency of a citation delay in case of knowledge transfer between different fields of science: citations to work of the own discipline show less of a time lag than citations to work in a foreign discipline. Between disciplines typical differences in the speed of incorporating knowledge from other disciplines are observed, which appear to be relatively independent of time and place: for each discipline the same pattern is found in the three data sets. The discipline specific characteristics found in the speed of interdisciplinary knowledge transfer may be point of departure for further investigations. Results may contribute to explanations of differences in citation rates of interdisciplinary research.

Keywords: Articles, Citation, Citations, Publication Delays, Publications, Research, Science, Scientific Literature, United Kingdom

? Schwechheimer, H. and Winterhager, M. (2001), Mapping interdisciplinary research fronts in neuroscience: A bibliometric view to retrograde amnesia. *Scientometrics*, **51** (1), 311-318.

Full Text: [2001\Scientometrics51, 311.pdf](2001/Scientometrics51,%20311.pdf)

Abstract: the neoroscience research front on Retrograde Amnesia is taken as an example to demonstrate the capabilities of co-citation mapping in combination with peer review. In an interview with a well-known expert in the field the co-citation map was confirmed as a good representation of the speciality. The expert was able to identify and comment on different regions of the map and he could validate important documents in the cluster core and research front as well as the main actors on institutional and national level. The bibliometric data inspired the expert to outline the cognitive and social ‘history’ of the speciality.

? Thomas, P. (2001), A relationship between technology indicators and stock market performance. *Scientometrics*, **51** (1), 319-333.

Full Text: [2001\Scientometrics51, 319.pdf](2001/Scientometrics51,%20319.pdf)

Abstract: One of the main objectives of technology analyses is to understand how investing in technological innovation can have commercial benefits. However, empirical studies of the relationship between investments in technology and subsequent economic performance are relatively scarce. This paper provides such an analysis by demonstrating how quantitative R&D and technology indicators may be used to forecast company stock price performance. The purpose of the analysis is to utilize a unique patent database, and the science and technology indicators developed from the data therein, to explore this issue of technological competence and economic performance. The underlying concept behind this study is that the quality of a company’s technology is reflected in its patent portfolio. Previous research has shown that a company with a large percentage of influential parents is much more likely to be technologically successful than a company with weaker patents. The analysis presented here reveals that such a company is also more likely to be successful in capital markets.

Keywords: Database, Output, Patent, Patents, R&D, R-And-D, Research, Science, Science and Technology, Technological Innovation, Technology

Van Leeuwen, T.N., Moed, H.F., Tijssen, R.J.W., Visser, M.S. and Van Raan, A.F.J. (2001), Language biases in the coverage of the Science Citation Index and its consequences for international comparisons of national research performance. *Scientometrics*, **51** (1), 335-346.

Full Text: [2001\Scientometrics51, 335.pdf](2001/Scientometrics51,%20335.pdf)

Abstract: Empirical evidence presented in this paper shows that the utmost care must be taken ininterpreting bibliometric data in a comparative evaluation of national research systems. From the results of recent studies, the authors conclude that the value of impact indicators of research activities at the level of an institution or a country strongly depend upon whether one includes or excludes research publications in SCI covered journals written in other languages than in English. Additional material was gathered to show the distribution of SCI papers among publication languages. Finally, the authors make suggestions for further research on how to deal with this type of problems in future national research performance studies.

? van Raan, A.F.J. (2001), Competition amongst scientists for publication status: Toward a model of scientific publication and citation distributions. *Scientometrics*, **51** (1), 347-357.

Full Text: [2001\Scientometrics51, 347.pdf](2001/Scientometrics51,%20347.pdf)

Abstract: We present a model in which scientists compete with each other in order to acquire status for their publications in a two-step-process: first, to get their work published in better journals, and second, to get this work cited in these journals. On the basis of two Maxwell-Boltzmann type distribution functions of source publications we derive a distribution function of citing publications over source publications. This distribution function corresponds very well to the empirical data. In contrast to all observations so far, we conclude that this distribution of citations over publications, which is a crucial phenomenon in scientometrics. is not a power law, but a modified Bessel-function.

Keywords: Citation, Citations, Journals, Publication, Publications, Science, Scientific Publication, Scientometrics

? Grupp, H., Schmoch, U. and Hinze, S. (2001), International alignment and scientific regard as macro-indicators for international comparisons of publications. *Scientometrics*, **51** (2), 359-380.

Full Text: [2001\Scientometrics51, 359.pdf](2001/Scientometrics51,%20359.pdf)

Abstract: Many international comparisons of the publication performance at the macro level are based on direct counts of citation frequencies in the Science Citation Index. However, these comparisons may reveal a significant negative language bias for non-English-speaking countries, or other selection biases, which can be illustrated by the relation between research budgets of scientific institutions and SCI publications. Against this background, a two-dimensional representation, specifying for the international alignment of the national publications and the journal-standardized citation impact, proves to be a more appropriate indicator base to assess the citation performance of countries such as Germany. In the light of a ten countries’ benchmark, time series of these indicators for the nineties show a considerable impact of the German unification with a recent trend towards an adaptation of publication behaviour in East Germany towards the Western patterns.

Keywords: Citation, Citation Impact, Impact, International, Publication, Publications, Research, SCI, Science, Science Citation Index

? Koljatic, M. and Silva, M. (2001), The international publication productivity of Latin American countries in the economics and business administration fields. *Scientometrics*, **51** (2), 381-394.

Full Text: [2001\Scientometrics51, 381.pdf](2001/Scientometrics51,%20381.pdf)

Abstract: the present study compares the international publication productivity of Latin American countries in the fields of business administration and economics from 1995 to 1999. Only four countries - Argentina, Brazil, Chile, and Mexico - have a substantial research production in these areas. Among these countries, Chile showed the most favorable results according to various indicators of publication productivity.

Keywords: Authorship, Behavioral-Sciences, Citation Analysis, Indicators, Journals, Management, Mexico, Patterns, Publication, Publication Productivity, Research, Research Production, Scientists, Social-Sciences, Subfields

? de Marchi, M. and Rocchi, M. (2001), The editorial policies of scientific journals: Testing an impact factor model. *Scientometrics*, **51** (2), 395-404.

Full Text: [2001\Scientometrics51, 395.pdf](2001/Scientometrics51,%20395.pdf)

Abstract: There is an evident need for the most scrupulous assessment possible of the fruits of research tin the context considered here; namely, publications) with a qualitative hence in-depth analysis of the single products of R&D. But this would require time and competences which not all policy makers have at their disposal. Hopefully, quantitative procedures, apparently objective and easy to apply, would be able to surmount these difficulties. The diffusion of the quantitative evaluation of research is, that is, the policy makers’ adaptive response to the need to increase controls of the efficiency of public spending in R&D - since public investment clearly could not be determined at the outset on the basis of the market’s spontaneous, decentralised balancing mechanisms. An essential step towards the prevention of the distortions most likely to result from quantitative evaluation is the adoption of quantitative procedures of evaluation of the editorial policies of scientific journals - or, rather, of journals which claim to be scientific. Such procedures must be designed to highlight any distortions caused by the non-optimal editorial policies of journals. With quantitative evaluation, in fact, journals play a crucial role in the formation of public science policies. They thus have to be subjected to specific monitoring to make sure that their conduct fits in with the prerequisites necessary for them to perform their semi-official activity as certifiers of the quality of the products of research. The phenomena of the production, divulgation and fruition of scientific discovery are, of course, so complex that it is necessary to weigh them not with a single indicator, however helpful it may be, but with a constellation of indicators. We received confirmation of the reliability of the impact factor as an instrument to monitor the quality of research and as a means of evaluating the research itself. This is a reassuring result for the current formulation of public policies and confirms the substantial honesty of the competition mechanisms of the scientific enterprise.

Keywords: Assessment, Citation Counts, Competition, Complex, Diffusion, Editorial Policies, Evaluation, Fruits, Impact, Impact Factor, Indicators, Journals, Mechanisms, Publications, R&D, Research, Science, Scientific Journals

? Sutter, M. and Kocher, M.G. (2001), Power laws of research output. Evidence for journals of economics. *Scientometrics*, **51** (2), 405-414.

Full Text: [2001\Scientometrics51, 405.pdf](2001/Scientometrics51,%20405.pdf)

Abstract: In this paper we examine the validity of Lotka’s law and Zipf’s law for research output in 15 top journals of economics in the period 1977 to 1997. Our data for individual authors satisfy a general form of Lotka’s law. We find increasing competition over time among economists on the individual level. However, publications in top journals are concentrated heavily when the institutional level is under consideration. Research output of institutions can be fit adequately by Zipf’s law.

Keywords: Competition, Core Journals, Journals, Lotka’S Law, Publications, Relative Impacts, Research, Research Output

? Garg, K.C. and Padhi, P. (2001), A study of collaboration in laser science and technology. *Scientometrics*, **51** (2), 415-427.

Full Text: [2001\Scientometrics51, 415.pdf](2001/Scientometrics51,%20415.pdf)

Abstract: An analysis of 3174 papers published in journals in the field of laser science and technology indicate that only 401 papers were single authored and the rest 2773 were co-authored papers. of the 2773 papers, only 687 were written in local (inter-departmental), domestic (inter-institutional) and international collaboration. As reflected by the values of collaborative coefficient and coauthorship index, it is observed that the proportion of mega-authored papers for Japan, France, Italy, and the Netherlands was more, while for Canada, China, and Australia the proportion of single authored papers was more. Most of the collaborative papers had bilateral domestic and international collaboration. Domestic collaborations were higher for USA, Japan, France and Australia, while international collaboration was higher for China, Israel, the Netherlands, and Switzerland.

Keywords: China, Collaboration, France, International Collaboration, International Scientific Collaboration, Journals, Population-Genetics Speciality, Science, Science and Technology, Scientometrics, Technology, USA

? Genest, C. and Thibault, C. (2001), Investigating the concentration within a research community using joint publications and co-authorship via intermediaries. *Scientometrics*, **51** (2), 429-440.

Full Text: [2001\Scientometrics51, 429.pdf](2001/Scientometrics51,%20429.pdf)

Abstract: Given extensive research collaboration in modem science, both at the national and international level, one might wonder whether the network of researchers within each discipline is now sufficiently meshed that a large proportion of contributors to peer-reviewed journals in a given field could either share joint publications or, more realistically, be connected through chains of co-authorships. Such is not the case yet in the fields of probability and statistics, however, as shown here using a large data base covering 9 reknown journals from each of these two areas over the period 1986-1995.

Keywords: Co-Authorship, Coauthorship Networks, Collaboration, Data Base, International Scientific Collaboration, Invisible-Colleges, Journals, Patterns, Probability, Publications, Research, Research Collaboration, Researchers, Science, Statistics

? Van den Besselaar, P. (2001), The cognitive and the social structure of STS. *Scientometrics*, **51** (2), 441-460.

Full Text: [2001\Scientometrics51, 441.pdf](2001/Scientometrics51,%20441.pdf)

Abstract: the differentiation of scientific fields into sub-fields can be studied on the level of the ‘scientific content’ of the sub-field, that is on the level of the products, as well as on the level of the ‘social structures’ of the sub-field, that is on the lever of the producers of the content. By comparing the behavior of the constructs with the behavior of the constructors, we are able to demonstrate the analytical distinction between a cognitive and a social approach in an empirical way. This will be illustrated using the case of integration and differentiation in Science and Technology Studies (STS), Elsewhere, using relations between documents, I showed how STS is characterized by strong differentiation tendencies. In this paper I address the question to what extent this differentiation is also reflected in the social structure of the STS field. Can STS scholars and STS research groups be classified in terms of the sub-fields? Or do researchers and institutes carry an integrative role in the STS field? Are the relations between the sub-fields of STS maintained by individual researchers or research institutes, and to what extent? the analysis in this paper reveals that this is generally not the case. Although we are able to distinguish analytically between the cognitive and social dimension of the development of the research field, we find similar patterns of differentiation an the social level too. At the same time, this differentiation differs in some respects from the cognitive differentiation pattern. Consequently, the social and the cognitive dimensions of the STS field are not independent as no serious STS scholar would argue - but also not identical, as radical constructivists claim, but are strongly interacting Further analysis may reveal the leading dynamics, that is answering the question whether the ‘social’ follows the ‘cognitive’, the other way around, or whether the dynamics has the pattern of ‘co-evolution’.

Keywords: Groups, Integration, Research, Researchers, Science, Technology

? Mccain, K.W. (2001), Dr. Belver C. Grittith - Introduction. *Scientometrics*, **51** (3), 465-467.

Full Text: [2001\Scientometrics51, 465.pdf](2001/Scientometrics51,%20465.pdf)

? Moyer, L.J. (2001), Bibliography of publications of Belver C. Griffith. *Scientometrics*, **51** (3), 469-479.

Full Text: [2001\Scientometrics51, 469.pdf](2001/Scientometrics51,%20469.pdf)

Keywords: Publications

? Chu, H.T. (2001), Intellectual activities and influences of Belver C. Griffith: A citation perspective. *Scientometrics*, **51** (3), 481-488.

Full Text: [2001\Scientometrics51, 481.pdf](2001/Scientometrics51,%20481.pdf)

Abstract: Based on an analysis of the 377 documents that cited Griffith’s publications in the ISI citation databases, it has been found that Griffith made pioneer and significant contributions with his collaborators to the fields of bibliometrics and scholarly communication among scientists. His research work has also greatly influenced people from all over the world conducting research in psychology, bibliometric information science, and social studies of science in the past several decades.

Keywords: Bibliometric, Bibliometrics, Citation, Publications, Research, Scholarly Communication

? Small, H. (2001), Belver and Henry. *Scientometrics*, **51** (3), 489-497

Full Text: [2001\Scientometrics51, 489.pdf](2001/Scientometrics51,%20489.pdf)

Keywords: Co-Citation, Science, Scientific Literatures

Braun, T., Glänzel, W. and Schubert, A. (2001), Publication and cooperation patterns of the authors of neuroscience journals. *Scientometrics*, **51** (3), 499-510.

Full Text: [2001\Scientometrics51, 499.pdf](2001/Scientometrics51,%20499.pdf)

Abstract: Characteristics of publication activity and co-authorship in neurosciences are analysed. The present study aims at describing the common, as well as the distinguishing features of productivity and co-publication patterns of four types of authors. for this purpose, authors are classified according to their anterior and posterior records. The role of the author types in the process of documented scientific communication, the relation between co-authorship and publication activity, as well as collaboration between the four types is studied.

? Koenig, M.E.D. (2001), Lessons from the study of scholarly communication for the new information era. *Scientometrics*, **51** (3), 511-523.

Full Text: [2001\Scientometrics51, 511.pdf](2001/Scientometrics51,%20511.pdf)

Abstract: the rich body of literature examining communications flow in the research context, an area where Professor Belver Griffith made major contributions, has very direct relevance to the relatively newly emerging recognition in the business community of the importance of knowledge creation and deployment to the competitive performance of an organization. This essay examines and delineates some of those lessons, specifically the tension between open and rich communications versus the need to protect intellectual property; the importance of environmental awareness and serendipity, and achieving the correct balance with efficient use of information searching time; the importance of end-user training; and crafting the balance in knowledge management between codifications and personalization.

Keywords: Knowledge, Literature, Productivity, Research, Research Performance, Scholarly Communication, Services, Training

Kreuzman, H. (2001), A co-citation analysis of representative authors in philosophy: Examining the relationship between epistemologists and philosophers of science. *Scientometrics*, **51** (3), 525-539.

Full Text: [2001\Scientometrics51, 525.pdf](2001/Scientometrics51,%20525.pdf)

Abstract: the relation between philosophy of science and epistemology is studied using the author co-citation technique. Co-citation links among 62 authors - a representative list of various styles and approaches to rationality - were established using the Arts and Humanities Citation Index. Multidimensional scaling results in a two-dimensional map of authors, where the axes represent the subject (philosophy of science to epistemology) and the method (qualitative to quantitative), respectively. The authors on the map can be clustered into more or less coherent groups at different levels of resolution.

? Markusova, V., Minin, V., Libkind, A. and Arapov, M. (2001), Russian grant-holders opinion on competitive funding: Results of a survey. *Scientometrics*, **51** (3), 541-551.

Full Text: [2001\Scientometrics51, 541.pdf](2001/Scientometrics51,%20541.pdf)

Abstract: This paper describes results of a survey conducted among the Russian Foundation for Basic Research (RFBR) grant-holders. The aim of this paper is to examine the attitude of grant holders to new multi-channel funding system and to assess its significance for Russian scientists involved in research in natural and applied sciences. It is a first attempt to get a fair and general picture of what scientists think about competitive funding. In 1999, 1440 questionnaires were distributed by mail. The response rate was 31.8%. The results of the survey clearly show that proposal writing has become a substantial part of research activity in Russia. Each respondent received more than 5 grants during 1993-1997. The RFBR and foreign funding agencies, particularly ISF, INTAS, and the Civilian Research and Development Foundation equally evaluated Russian scientists’ performance: about 69.% of RFBR grant-holders were awarded a grant from foreign agencies. The present findings are being used, as a practical matter, to guide and inform the Ministry of Science and Technology Policy which is responsible for the promotion R&D in Russia to organize a special training for students and post does on proposal writing.

Keywords: R&D, Research, Science, System, Technology, Training

? Meadows, J. (2001), Early reactions to information growth. *Scientometrics*, **51** (3), 553-561.

Full Text: [2001\Scientometrics51, 553.pdf](2001/Scientometrics51,%20553.pdf)

Abstract: the expansion in the number of journals being published really took off in the nineteenth century. Between the beginning and end of that century, the problems of dealing with the spread of literature appearing consequently grew rapidly. The reactions of scientists to this included a move towards increasing specialisation in their research, and a higher level of organisation of their communication activities. Li particular, ways of assisting information retrieval were developed then which became extremely important in the twentieth century. Two of these developments are examined here - the provision of abstracts for scientists and of popular articles for non-scientists. Parallels can be found between these two activities, as well as differences due to the different target audiences. It is noted that both appeared in print environment: an electronic environment may affect their futures differently.

Keywords: Articles, Information Retrieval, Journals, Literature, Research

? Old, L.J. (2001), Utilizing spatial information systems for non-spatial-data analysis. *Scientometrics*, **51** (3), 563-571.

Full Text: [2001\Scientometrics51, 563.pdf](2001/Scientometrics51,%20563.pdf)

Abstract: Recent advances in the power and capabilities of personal computers have brought the algorithms and representational methods of Geographic Information Systems (GIS) to the desktop. Information that has relationships between elements may be represented spatially, especially if some distance metric can be brought to bear. This paper discusses information cartography, the use of spatial methods for the display of non-Geographic data.

Keywords: GIS, Science

? Sandstrom, P.E. (2001), Scholarly communication as a socioecological system. *Scientometrics*, **51** (3), 573-605.

Full Text: [2001\Scientometrics51, 573.pdf](2001/Scientometrics51,%20573.pdf)

Abstract: Among Belver C. Griffith’s many contributions to disciplinary communication is the idea that science and scholarship at large constitute a social system to be investigated empirically. This paper reports findings of an author co-citation analysis of the field of human behavioral ecology that expands Griffith’s concept of the social system of scientific communication to fit a socioecological framework. Cluster analysis and multidimensional scaling techniques are used to characterize the research specialty at large and portray five respondents’ individual resource maps. The techniques reveal co-citation relationships among authors whose work they had referenced in recent articles. Survey data on searching and handling behaviors for an aggregated sample of 180 cited references are correlated with core-periphery zones of the individual maps. Findings that types of socially mediated communication and distinctive information foraging behaviors correlate with different zones of a bibliographic microhabitat support an interpretation that active specialty members conform to foraging efficiency principles as predicted by prey-choice models from optimal foraging theory.

Keywords: Articles, Author Co-Citation Analysis, Author Cocitation, Co-Citation, Documents, Human Behavioral Ecology, Information-Seeking, Intellectual Structure, Research, Retrieval, Scholarly Communication, Scholarship, Science, Scientific Communication, Scientific Literatures, Space, System, Theory

? White, H.D. (2001), Author-centered bibliometrics through CAMEOs: Characterizations automatically made and edited online. *Scientometrics*, **51** (3), 607-637.

Full Text: [2001\Scientometrics51, 607.pdf](2001/Scientometrics51,%20607.pdf)

Abstract: This article describes ways of automatically generating 15 kinds of personal profiles of authors from bibliographic data on their publications in databases. Nicknamed CAMEOs, the profiles can be used for retrieval of documents by human searchers or computerized agents. They can also be used for mapping an author’s subject matter (in terms of descriptors, identifiers, and natural language) and studying his or her publishing career. Finally, they can be used to map the intellectual and social networks evident in citations to and from authors and in co-authorships.

Keywords: Bibliometrics, Citation Analysis, Citations, Databases, Mapping, Model, Publications, Publishing, Retrieval

Burrel, Q.L. (2001), Stochastic modelling of the first-citation distribution. *Scientometrics*, **52** (1), 3-12.

Full Text: [2001\Scientometrics52, 3.pdf](2001/Scientometrics52,%203.pdf)

Abstract: A simple stochastic model, based upon mixtures of non-homogeneous Poisson processes, is proposed to describe the citation process in the presence of ageing/obsolescence. Particular emphasis is placed upon investigation of the first-citation distribution where it is shown that in the presence of ageing there will inevitably be nevercited items. Conditions are given which show how the model is capable of modelling the various shapes of firstcitation distributions reported in the literature. In particular, the essential link between the firstcitation distribution and the obsolescence distribution is established.

Notes: TTopic

Arunachalam, S. and Balaji, J. (2001), Fish science research in China: How does it compare with fish research in India? *Scientometrics*, **52** (1), 13-28.

Full Text: [2001\Scientometrics52, 13.pdf](2001/Scientometrics52,%2013.pdf)

Abstract: Fish and aquaculture research in the People’s Republic of China over the six years 1994-1999 has been mapped using data from six databases – three abstracting services and three citation indexes. The results are compared with fish science research in India. During the six years China has published 2035 papers (roughly 4.5 –5% of the world output) and India 2454. More than 95% of China’s papers are journal articles, compared to 82.8% of Indian papers. About 78% of China’s journal paper output has appeared in 143 domestic journals compared to 70% from India in 113 Indian journals. Less than one-eighth of the journal articles published by Chinese researchers are published in journals indexed in SCI, compared to 30% of journal articles by Indian researchers. Less than a dozen papers from each of these countries have appeared in journals of impact factor greater than 3.0. Fish research institutes and fishery colleges are the major contributors of the Chinese research output in this area. In India academic institutions are the leading contributors (61%), followed by central government institutions (>25%). Qingdao, Wuhan, Beijing and Shanghai are the cities and Shandong, Hubei and Fujian are the provinces contributing a large number of papers. As we do not have addresses of all authors in most of the papers, we are unable to estimate the extent of international collaboration. Although China’s research output and its citation impact are less than those of India, China’s fish production and export earnings are far higher than those of India. Probably China is better at bridging the gap between knowhow (research) and do-how (technology and creation of employment and wealth). China is pretty strong in extension.

Notes: CCountry

Lewison, G. (2001), The quantity and quality of female researchers: A bibliometric study of Iceland. *Scientometrics*, **52** (1), 29-43.

Full Text: [2001\Scientometrics52, 29.pdf](2001/Scientometrics52,%2029.pdf)

Abstract: the output of female researchers in Iceland, relative to that of males, can be investigated because typically their ‘surnames’ end in ‘dottir’ whereas the names of males end in ‘son’. Over the 21 years from 1980 to 2000, there has been a rise in female: male output from 8% to about 30%. It is higher in the life sciences (biomedical research, biology and clinical medicine) but lower where there is also foreign co-authorship, suggesting that females are less able to make overseas contacts through travel. There appears to be no difference in the quality of female and male research output, as measured either by journal impact categories or by citations.

Keywords: Citations, Europe, Research, Science, Sexism, Women

Notes: TTopic, JJournal

Ugolini, D., Cimmino, M.A., Casilli, C. and Mela, G.S. (2001), How the European Union writes about ophthalmology. *Scientometrics*, **52** (1), 45-58.

Full Text: [2001\Scientometrics52, 45.pdf](2001/Scientometrics52,%2045.pdf)

Abstract: This study evaluates the distribution of papers published by European Union (EU) authors in ophthalmological journals from 1995 to 1997. The impact of ophthalmological research in the EU is compared with that produced in other countries and trends of research are highlighted through the keywords analysis. Data of articles published in ophthalmological journals (ISI Subject Category) were downloaded. Mean Impact Factor, source country population and gross domestic product were analyzed. A special purpose software for keyword elaboration was utilized. 11, 219 papers were published in the world in the ophthalmological journals: 34.8% came from the EU (UK, Germany, France, Italy and the Netherlands ranking at the top) and 40.7% from the US. The mean Impact Factor of EU papers was 0.8 in comparison with 1.5 in the US. Despite the limitations of the existing methods, bibliometric findings are useful for the monitoring of research trends. The keywords analysis shows that the leading fields of research were retinal pathologies for diseases and keratoplasty for surgical procedures. It also suggests that keywords are overused, and urges minimization of this as well as standardization among journal editors

Keywords: Bibliometric, Countries, Impact, Indicators, Journals, Methods, Publications, Research, Research Performance, Science, Tools

Marx, W., Schier, H. and Wanitschek, M. (2001), Citation analysis using online databases: Feasibilities and shortcomings. *Scientometrics*, **52** (1), 59-82.

Full Text: [2001\Scientometrics52, 59.pdf](2001/Scientometrics52,%2059.pdf)

Abstract: Extensive citation analysis with the Science Citation Index (SCI) has become possible through expanded search capabilities introduced by STN International a few years ago. STN enhanced its retrieval language with some important features, originally developed for statistical analysis of patents. Most important are an expanded select command and several functions to list the search results. The publications to be evaluated may be selected either in the SCI, or in a number of other bibliographic databases offered by the host. With the help of these features, the basic methods to appropriately measure the impact of scientific activities are demonstrated. Furthermore, possible shortcomings as well as the risks when interpreting the results of such studies are discussed.

Keywords: Fullerene Research

? Szydlowski, M. and Krawiec, A. (2001), Scientific cycle model with delay. *Scientometrics*, **52** (1), 83-95.

Full Text: [2001\Scientometrics52, 83.pdf](2001/Scientometrics52,%2083.pdf)

Abstract: In this paper we analyse the growth in scientific results of natural sciences in terms of infinite dynamical system theory. We use functional differential equations to model the evolution of science in its sociological aspect. Our model includes the time-to-build of fundamental notions in science (time required to understand them). We show that the delay parameter describing time required to learn and to apply past scientific results to new discoveries plays a crucial role in generating cyclic behaviour via the Hopf bifurcation scenario. Our model extends the de Solla Price model by including death of results as well as by incorporating the time-to-build notion. We also discuss the concepts of knowledge and its accumulation used in economic growth theory.

Keywords: Growth, Science, System, Theory

Braun, T. (2001), Vassily Vassilievich Nalimov. *Scientometrics*, **52** (2), 101.

Full Text: [2001\Scientometrics52, 101.pdf](2001/Scientometrics52,%20101.pdf)

? Nalimov, V.V. (2001), V. V. Nalimov’s foreword to the hungarian edition. *Scientometrics*, **52** (2), 102-104.

Full Text: [2001\Scientometrics52, 102.pdf](2001/Scientometrics52,%20102.pdf)

? Bonitz, M. (2001), About the Nalimov memorial issue of the journal Scientometrics - Guest editor’s foreword. *Scientometrics*, **52** (2), 107-109

Full Text: [2001\Scientometrics52, 107.pdf](2001/Scientometrics52,%20107.pdf)

Keywords: Scientometrics

Gurjeva, L.G. and Wouters, P. (2001), Scientometrics in the context of probabilistic philosophy. *Scientometrics*, **52** (2), 111-126.

Full Text: [2001\Scientometrics52, 111.pdf](2001/Scientometrics52,%20111.pdf)

Abstract: Although the word ‘naukometriya’ (first translated as sciencemetrics) was coined by V. V, Nalimov (1910-1997) in 1969, this field was not his main concern In the work of this multifaceted and intriguing scientist and scholar, scientometrics was only of central concern for a short period of time. Nevertheless, it is no coincidence that Nalimov is regarded as one of the founding fathers of scientometrics. In this article, we discuss the development of Nalimov’s style of scientometric research within the context of his distinctive approach to the sciences, social sciences and humanities in their entirety: his probabilistic philosophy of science and the world.

Keywords: Research

Granovsky, Y.V. (2001), Is it possible to measure science? V. V. Nalimov’s research in scientometrics. *Scientometrics*, **52** (2), 127-150.

Full Text: [2001\Scientometrics52, 127.pdf](2001/Scientometrics52,%20127.pdf)

Abstract: This article is devoted to. The scientometric research of Professor V. V, Nalimov (1910-1997) of Moscow State University, His first scientometric article was published in 1959: mathematical models of world science growth were examined and logical grounds for the applicability of these models were also given, In his further works, V.V. Nalimov continued to stress the importance of quantitative studies of science development. In 1969, the monograph on scientometrics by V. V. Nalimov and his co-author Z. M. Mulchenko was published. This book reflected his earlier publications on scientometrics and the solutions of new tasks. In 1970, Nalimov published articles on the comparison of science and the biosphere, the geographic distribution of scientific information, and changes in the demand of scientific staff. In later articles in philosophy of science, he stressed the necessity of a combination of the scientometric approach with works on the logic of science development. One of the latest works by Nalimov was an analysis of articles published by the Journal of Transpersonal Psychology: Here the scientometric approach was used to study the origin and development of a new scientific branch.

? Markova, E.V. (2001), He brought new meanings and new solutions. *Scientometrics*, **52** (2), 151-158.

Full Text: [2001\Scientometrics52, 151.pdf](2001/Scientometrics52,%20151.pdf)

Abstract the name of Vassily Vassilievich Nalimov is connected not only with the development of scientometrics, but also with the development of several other scientific branches such as metrology of quantitative chemical analysis, chemical cybernetics, mathematical theory of experiment, philosophy of science, probabilistic theory of meanings among others. All these different scientific subjects were united on the basis of a probabilistic approach as opposed to a deterministic one.

The paper covers two decades (1961–1981) of Nalimov’s life and describes the “cybernetic” period of his activity in the Scientific Council for Cybernetics in the Presidium of the USSR Academy of Sciences as a chairman of two section — “Chemical Cybernetics” and “Mathematical Theory of Experiment”

The author was the closest colleague of Nalimov in the Council. The paper touches on the peculiarities of scientific life of that time in soviet Russia, as well as the difficulties of dealing with an attempt to reorganize the higher education system. Nalimov paid special attention to this problem. The mathematical theory of experiment and scientometrics, both of which later became independent scientific branches, came from the section of “Chemical Cybernetics”.

Nalimov was a gifted pedagogue and a brilliant speaker, with an ability to enthrall the audience. Some vivid episodes related to his talks are presented in the paper.

The informal scientific community, united by ideas and world outlook, was known in our country as “Nalimov’s invisible college”. Such a community could be treated as a pioneer in the history of Russian science.

? Chernyi, A.I. and Gilyarevskii, R.S. (2001), The impact of V.V. Nalimov on information science. *Scientometrics*, **52** (2), 159-163.

Full Text: [2001\Scientometrics52, 159.pdf](2001/Scientometrics52,%20159.pdf)

Abstract: the paper briefly outlines the contributions made by VN. Nalimov to the development of science of science, scientometrics, and information science, especially during his career in VINTI. It also brings attention to his main achievements in philosophy, linguistics, and other branches of modem science.

Keywords: impact/information science/science/scientometrics

? Garfield, E. (2001), Reminiscences of Vassily V. Nalimov. *Scientometrics*, **52** (2), 165-166.

Full Text: [2001\Scientometrics52, 165.pdf](2001/Scientometrics52,%20165.pdf)

? Roy, R. (2001), Vassily Nalimov - Modern Russian high priest. *Scientometrics*, **52** (2), 167-169.

Full Text: [2001\Scientometrics52, 167.pdf](2001/Scientometrics52,%20167.pdf)

? Nalimov, V.V. (2001), Citation Classics of V. V. Nalimov. 1. Current Contents, Number 21, May 21, 1990. *Scientometrics*, **52** (2), 171-174.

Full Text: [2001\Scientometrics52, 171.pdf](2001/Scientometrics52,%20171.pdf)

Keywords: Citation

? (2001), Citation Classics of V. V. Nalimov 2. Current Contents, Number 24, June 11, 1990. *Scientometrics*, **52** (2), 175-177.

Full Text: [2001\Scientometrics52, 175.pdf](2001/Scientometrics52,%20175.pdf)

Keywords: Citation

? (2001), Facing the mystery: A philosophical approach - Nalimov Vassily Vassilievich. *Scientometrics*, **52** (2), 179-184.

Full Text: [2001\Scientometrics52, 179.pdf](2001/Scientometrics52,%20179.pdf)

? Nalimov, V.V. (2001), Philosophy of Number: How metrical hermeneutics is possible. *Scientometrics*, **52** (2), 185-192.

Full Text: [2001\Scientometrics52, 185.pdf](2001/Scientometrics52,%20185.pdf)

? Stefaniak, B. (2001), International co-operation in science and in social sciences as reflected in multinational papers indexed in SCI and SSCI. *Scientometrics*, **52** (2), 193-210.

Full Text: [2001\Scientometrics52, 193.pdf](2001/Scientometrics52,%20193.pdf)

Abstract: the paper presents a comparative analysis of publications, co-authored by Polish and foreign researchers, selected from seven annual files of Science Citation Index and Social Sciences Citation Index (CD-ROM Editions 1992-1998). Information obtained from SCI and SSCI were elaborated, completed, coded and entered in two-international files” designed for analytical purposes. It was found that the number of internationally co-authored papers was many times higher (18 982 records) in science than in social sciences (342 records). The share of these “international papers” in the “Polish files” increased in the time under review, but for those derived from SCI was also higher (39.1-46.0%) than in case of SSCI (22.4-37.0%). Results of the analysis include countries of foreign partners and affiliation of domestic coauthors, as well as, subject structure of both international files. Observed differences in the scale of international co-operation in science and in social sciences are being the matter under discussion.

Keywords: Affiliation, Analysis, CD-ROM, Cooperation, International, International Co-Operation, International Cooperation, Papers, Publications, Records, Review, Scale, SCI, Science, Science Citation Index, Sciences, Social, Social Sciences, SSCI, Structure

? Skalska-Zlat, M. (2001), Nalimov and the Polish way towards science of science - Vassily V. Nalimov. *Scientometrics*, **52** (2), 211-223.

Full Text: [2001\Scientometrics52, 211.pdf](2001/Scientometrics52,%20211.pdf)

Abstract: Nalimov’s relations with Polish scientists date from the sixties. He was present in Polish science owing to his publication - also specially prepared for Polish journals - and for his participation in Polish-Soviet science of science conferences organized alternately in Poland and in (of that time) Soviet Union. He had a high opinion - which he many times expressed - on contemporary condition of Polish science of science as well as on its previous achievements. In such opinion he was riot isolated; also John Bernal and Derek de Solla Price referred in their papers to precursory statements of Maria and Stanislaw Ossowski formulating already in the thirties of XX century progressive programme for science of science research. Ten years earlier a similar views upon science presented world-famous Polish sociologist Florian Znaniecki. So, in the first part of the paper a common way of thinking and approaching science of science basic problems in Ossowski’s, Znaniecki’s and Nalimov’s works is presented. In the second part the direct contacts of Nalimov with Polish science of science researchers widely described and commentated in Polish journals are discussed. At least using citation analysis the influence of Nalimov’s ideas on science of science and scientometrics in Poland is presented. As a base to citation analysis the journal Problems of the Science of Science (1965-1999) and monographs devoted to scientometrics, bibliometrics and informetrics were taken.

Keywords: Bibliometrics, Citation, Citation Analysis, Informetrics, Journals, Publication, Research, Researchers, Science, Science of Science, Scientometrics

? Żbikowska-Migoń, A. (2001), Karl Heinrich Frommichen (1736-1783) and Adrian Balbi (1782-1848) - the pioneers of biblio- and scientometrics. *Scientometrics*, **52** (2), 225-233.

Full Text: [2001\Scientometrics52, 225.pdf](2001/Scientometrics52,%20225.pdf)

Abstract: When V. V, Nalimov in his important book Naukometriya (Moskva 1969) postulated research on the process of developement of science with the aid of quantitative methods, he listed many different indicators. There were among them the number and growth of scientific publications books and periodicals, the number of scientists, the level of expenditure. This article shows that the importance of these indicators was recognised by earlier authors.

Keywords: Books, Periodicals, Publications, Research, Science, Scientific Publications, Scientometrics

Notes: TTopic

Arunachalam, S. (2001), Mathematics research in India today: What does the literature reveal? *Scientometrics*, **52** (2), 235-259.

Full Text: [2001\Scientometrics52, 235.pdf](2001/Scientometrics52,%20235.pdf)

Abstract: Mathematics research in India, as reflected by papers indexed in Mathsci 1988-1998, is quantified and mapped. Statistics, quantum theory and general topology are the three subfields contributing the most to India’s output in mathematics research, followed by special functions, economics and operations research, and relativity and gravitational theory. Indian Statistical Institute and Tata Institute of Fundamental Research are the two leading publishers of research papers. Unlike in many other fields, Calcutta publishes the largest number of papers in mathematics, followed by Mumbai, New Delhi, Chermai and Bangalore. West Bengal, Uttar Pradesh, Maharashtra, Tamil Nadu and Delhi are the leading states. Researchers from 257 institutions spread over 134 cities/towns have published 17, 308 papers in the 11 years. About 92% of these papers have appeared in 877 journals published from 62 countries. Journals published in the USA, UK and the Netherlands are popular with Indian mathematicians. of the 36 journals that have published at least a hundred papers, 20 are Indian journals of which only two are indexed in Journal Citation Reports. In all, about 38.5% of papers have been published in Indian journals, as against about 70% in agriculture, 55% in life sciences, 33.5% in medicine and 20% in physics. In the later years, there has been a moderate shift to non-Indian journals. Close to 78% of papers have come from universities and colleges and 13% from the institutions under science related departments. Almost all papers in high impact journals are physics related and most of them have come from institutions under the Department of Atomic Energy. Over 15% of the 9760 papers published during 1993-1998 are internationally coauthored. In all of science, as seen from Science Citation Index, 14% of Indian papers were internationally coauthored in 1991 and 17.6% in 1998, the USA, Canada, and Germany are the important collaborating nations, followed by France, Italy, Japan and the UK.

Keywords: Science

? Egghe, L. and Rousseau, R. (2001), Symmetric and asymmetric theory of relative concentration and applications. *Scientometrics*, **52** (2), 261-290.

Full Text: [2001\Scientometrics52, 261.pdf](2001/Scientometrics52,%20261.pdf)

Abstract: Relative concentration theory studies the degree of inequality between two vectors (a(1),....,a(N)) and (alpha (1),....,alpha (N)). It extends concentration theory in the sense that, in the latter theory, one of the above vectors is (1/N,....,1/N) (N coordinates). When studying relative concentration one can consider the vectors (a(1),....,a(N)) and (alpha (1),.....,alpha (N)) as interchangeable (equivalent) or not. In the former case this means that the relative concentration of (a(1),....,a(N)) versus (alpha (1),....,alpha (N)) is the same as the relative concentration of (alpha (1),.....,alpha (N)) versus (a(1),....,a(N)). We deal here with a symmetric theory of relative concentration. In the other case one wants to consider (a(1),....,a(N)) as having a different role as and hence the results can be different when interchanging the vectors. This leads to an asymmetric theory of relative concentration. In this paper we elaborate both models, As they extend concentration theory, both models use the Lorenz order and Lorenz curves. for each theory we present good measures of relative concentration and give applications of each model.

Keywords: Concentration Theory, Information-Retrieval, Theory

Notes: TTopic

Hood, W.W. and Wilson, C.S. (2001), The literature of bibliometrics, scientometrics, and informetrics. *Scientometrics*, **52** (2), 291-314.

Full Text: [2001\Scientometrics52, 291.pdf](2001/Scientometrics52,%20291.pdf)

Abstract: Since Vassily V. Nalimov coined the term ‘scientometrics’ in the 1960s, this term has grown in popularity and is used to describe the study of science: growth, structure, interrelationships and productivity. Scientometrics is related to and has overlapping interests with bibliometrics and informetrics. The terms bibliometrics, scientometrics, and informetrics refer to component fields related to the study of the dynamics of disciplines as reflected in the production of their literature, Areas of study range from charting changes in the output of a scholarly field through time and across countries, to the library collection problem of maintaining control of the output, and to the low publication productivity of most researchers. These terms are used to describe similar and overlapping methodologies. The origins and historical survey of the development of each of these terms are presented. Profiles of the Usage of each of these terms over time are presented, using an appropriate subject category of databases on the DIALOG information service. Various definitions of each of the terms are provided from an examination of the literature. The size of the overall literature of these fields is determined and the growth and stabilisation of both the dissertation and non-dissertation literature are shown. A listing of the top journals in the three fields are given, as well as a list of the major reviews and bibliographies that have been published over the years.

Keywords: Bibliometrics, Bradford Distribution, Citation Analysis, Cocitation Analysis, Definition, Information-Science, Journals, Scholarly Communication

? Zorin, N.A., Nemtsov, A.V. and Kalinin, V.V. (2001), Formalised assessment of publication quality in Russian psychiatry. *Scientometrics*, **52** (2), 315-322.

Full Text: [2001\Scientometrics52, 315.pdf](2001/Scientometrics52,%20315.pdf)

Abstract: A comparative study was carried out to determine the quality of research papers published during 1996 in two leading Russian psychiatric journals: Social and Clinical Psychiatry - SCP (27 papers) and the Journal of Neuropathology and Psychiatry S.S. Korsakov - JNP (33 papers). A newly created “Checklist for the formalised assessment of medical papers” elaborated on the principles of the evidence-based medicine was used for the analysis. A paper was defined as a scientific study if the suggested hypothesis had been verified by the methods that permitted to minimise systematic errors, to take into consideration random errors and if conclusions and arguments answered the suggested goals and were based on the data obtained. 1/3 of all papers in both journals appeared to be purely descriptive ones. Tbe analysis showed that only 2 papers in SCP (7%) and 5 papers in JNP (15%) could be defined as scientific studies. 12% of papers met the requirements of scientific standards to a certain extent. But 77% of papers published in 1996 were real spoilage of scientific research.

Keywords: Assessment, Evidence-Based Medicine, Journals, Medical, Medicine, Psychiatry, Publication, Research, Research Papers, Standards

Notes: TTopic

Marshakova-Shaikevich, I. (2001), Scientometric perspectives of the analysis of chemical terminology. *Scientometrics*, **52** (2), 323-336.

Full Text: [2001\Scientometrics52, 323.pdf](2001/Scientometrics52,%20323.pdf)

Abstract: This paper is dedicated to the memory of Prof. Nalimov. The paper is to show some possibilities of bibliometric methods applied to Subject Index to ‘CHEMICAL ABSTRACT’ (CA) and to Permuterm Subject Index to ‘SCIENCE CITATION INDEX’.

? Shapiro, S.I. (2001), The Universe Grasper. *Scientometrics*, **52** (2), 337-344

Full Text: [2001\Scientometrics52, 337.pdf](2001/Scientometrics52,%20337.pdf)

? Nalimov, V.V., Drogalina-Nalimov, J. and Zuyev, K. (2001), The universe of meanings. *Scientometrics*, **52** (2), 345-360

Full Text: [2001\Scientometrics52, 345.pdf](2001/Scientometrics52,%20345.pdf)

? Kretschmer, H. (2001), Selected papers of the “Second Berlin Workshop on Scientometrics and Informetrics/Collaboration in Science and in Technology and First COLLNET Meeting” - Berlin (Germany), September 1-4, 2000 - Preface. *Scientometrics*, **52** (3), 363-364.

Full Text: [2001\Scientometrics52, 363.pdf](2001/Scientometrics52,%20363.pdf)

Keywords: Science, Scientometrics, Technology

? Beaver, D.D. (2001), Reflections on scientific collaboration, (and its study): Past, present, and future. *Scientometrics*, **52** (3), 365-377.

Full Text: [2001\Scientometrics52, 365.pdf](2001/Scientometrics52,%20365.pdf)

Abstract: Personal observations and reflections on scientific collaboration and its study, past, present, and future, containing new material on motives for collaboration, and on some of its salient features. Continuing methodological problems are singled out, together with suggestions for future research.

Keywords: Co-Authorship, Collaboration, Research

Basu, A. and Aggarwal, R. (2001), International collaboration in science in India and its impact on institutional performance. *Scientometrics*, **52** (3), 379-394.

Full Text: [2001\Scientometrics52, 379.pdf](2001/Scientometrics52,%20379.pdf)

Abstract: In this paper, our objective is to delineate some of the problems that could arise in using research output for performance evaluation. Research performance in terms of the Impact Factor (IF) of papers, say of scientific institutions in a country, could depend critically on coauthored papers in a situation where internationally co-authored papers are known to have significantly different (higher) impact factors as compared to purely indigenous papers. Thus, international collaboration not only serves to increase the overall output of research papers of an institution, the contribution of such papers to the average Impact Factor of the institutional output could also be disproportionately high. To quantify this effect, an index of gain in impact through foreign collaboration (GIFCOL) is defined such that it ensures comparability between institutions with differing proportions of collaborative output. A case study of major Indian institutions is undertaken, where Cluster Analysis is used to distinguish between intrinsically high performance institutions and those that gain disproportionately in terms of perceived quality of their output as a result of international collaboration.

? Davis, M. and Wilson, C.S. (2001), Elite researchers in ophthalmology: Aspects of publishing strategies, collaboration and multi-disciplinarity. *Scientometrics*, **52** (3), 395-410.

Full Text: [2001\Scientometrics52, 395.pdf](2001/Scientometrics52,%20395.pdf)

Abstract: This study covers a ten-year period, 1990-1999, of the publishing careers of nine authors who appear in the top-20 most productive authors in the field of ophthalmology In this paper we discuss findings from a study of the publishing careers of elite researchers in the field of ophthalmology. The paper highlights the extent and nature of the journals in which these elite researchers publish their work. Data derived from the study include indications of multidisciplinary involvement or ‘work-space’ interests, publication characteristics, and: collaborative engagement with others. We provide insights into the workings of author productivity, characteristics of papers such as numbers per paper of pages, references, and: authors, and initial findings about their collaboration patterns. These findings, showing! (ir)regularities or patterns in publishing careers, may be of interest to researchers and practitioners because they provide a view that might not otherwise be apparent to the field or to authors themselves.

Keywords: Author Productivity, Collaboration, Journals, Publication, Publishing, Researchers

? Gläser, J. and Laudel, G. (2001), Integrating scientometric indicators into sociological studies: Methodical and methodological problems. *Scientometrics*, **52** (3), 411-434.

Full Text: [2001\Scientometrics52, 411.pdf](2001/Scientometrics52,%20411.pdf)

Abstract: This article discusses the methodological problems of integrating scientometric methods into a; qualitative study. Integrative attempts of this kind are poorly supported by the methodologies of both the sociology of science and scientometrics. Therefore it was necessary to develop a project-specific methodological approach that linked scientometric methods to theoretical considerations. The methodological approach is presented and used to discuss general methodological problems concerning the relation between (qualitative) theory and scientometric methods. This discussion: enables some conclusions to be drawn as to the relations that exist between scientometrics and them sociology of science.

Keywords: Big Scientometrics, Citation, Communication, East, Journals, Patterns, Physics, Science, Scientometric Indicators, Scientometrics, Sociology of Science, Spanish, Technology, Theory

Havemann, F. (2001), Collaboration behaviour of Berlin life science researchers in the last two decades of the twentieth century as reflected in the Science Citation Index. *Scientometrics*, **52** (3), 435-443.

Full Text: [2001\Scientometrics52, 435.pdf](2001/Scientometrics52,%20435.pdf)

Abstract: Coming together to get publishable research results is not always a simple task. There can be geographical, cultural, disciplinary and political barriers, which have to be overcome. The Berlin Wall was such a barrier. After its fall in November 1989 Berlin scientists changed their collaboration behaviour. Research groups in East Berlin went West to look for partners and vice versa. The numbers of papers in life science journals with co-authors working in Berlin and coauthors in other places are discussed against the background of the international trend to more and more collaboration in science.

? Kretschmer, H., Liang, L.M. and Kundra, R. (2001), Chinese-Indian-German collaboration results that provided the impetus for the foundation of COLLNET. *Scientometrics*, **52** (3), 445-456.

Full Text: [2001\Scientometrics52, 445.pdf](2001/Scientometrics52,%20445.pdf)

Abstract: the collaboration model of Kretschmer was applied to the co-authorship network of Indian medicine with the aim of being able to observe changes in structure over a period of 30 years. The idea of Liang, on her “Distribution of Major Scientific and Cultural Achievements in Terms of Age” was put in relation to the collaboration model by Kretschmer.

Keywords: Co-Authorship, Collaboration, Medicine, Model

Lange, L.L. (2001), Citation counts of multi-authored papers: First-named authors and further authors. *Scientometrics*, **52** (3), 457-470.

Full Text: [2001\Scientometrics52, 457.pdf](2001/Scientometrics52,%20457.pdf)

Abstract: To examine whether primary-citation indexing can be taken as an unbiased representation of all-author indexing, we compared the cited first-author counts (straight counts) with the: cited all-author counts (complete counts) in two psychological journals over two publication years. Although rather high correlations were found between straight counts and complete counts, correlations differ with journals of the same discipline, with different publication years of them same journal, and according to seniority of cited authors. No effect of alphabetical name ordering was found. Results are discussed against the background of the possible use of weighting procedures for all-author indexing.

Keywords: Productivity

? Liang, L.M., Kretschmer, H., Guo, Y.Z. and Beaver, D.D. (2001), Age structures of scientific collaboration in Chinese computer science. *Scientometrics*, **52** (3), 471-486.

Full Text: [2001\Scientometrics52, 471.pdf](2001/Scientometrics52,%20471.pdf)

Abstract: This paper is a scientometric study of the age structure of scientific collaboration in Chinese computer science, Analysis reveals some special age structures in scientific collaboration in Chinese computer science. Most collaborations are composed of scientists younger than thirty-six (Younger) or older than fifty (Elder). for two-dimensional collaboration formed by first and second authors, Younger-Elder and Younger-Younger are the Predominant age structures. for three-dimensional collaboration formed by first, second and third authors, Younger-Younger-Elder and Younger-Younger-Younger are the most important age structures. Collaboration between two authors older than 38 amounts to only 6.4 percent of all two-person collaborations. Collaboration between two middle-aged scientists is seldom seen. Why do such types of age structure in Chinese computer science exist? We suggest a tentative, explanation based on analyses of the age composition of all authors, the age distributions of the authors in different ranks, and the name-ordering of authors in articles written by professors and their students.

Keywords: Articles, Collaboration, Computer, Science

? Mutschke, P. and Haase, A.Q. (2001), Collaboration and cognitive structures in social science research fields. Towards socio-cognitive analysis in information systems. *Scientometrics*, **52** (3), 487-502.

Full Text: [2001\Scientometrics52, 487.pdf](2001/Scientometrics52,%20487.pdf)

Abstract: Bibliographic information systems have to address the needs of users by providing “value-added-components.” for instance, users would benefit from knowing the social and cognitive structures of research fields. Research suggests that a relationship exists between actors’ position in scientific networks and the innovativeness of themes they examine. The present study confirms: and expands these results through a technique that relates the cognitive and social structures of a research field (socio-cognitive analysis). The results from two social science fields suggest that well-integrated actors are engaged in the consolidation of the mainstream, whereas new ideas are most likely to be introduced and pursued by social climbers, i.e., actors who are starting to form a social network of collaboration.

Keywords: Co-Word Analysis, Collaboration, Networks, Research, Science, Scientific Networks

? Wagner-Döbler, R. (2001), Continuity and discontinuity of collaboration behaviour since 1800 - from a bibliometric point of view. *Scientometrics*, **52** (3), 503-517.

Full Text: [2001\Scientometrics52, 503.pdf](2001/Scientometrics52,%20503.pdf)

Abstract: Time-series of collaboration trends indicated through co,authorships are examined from 1800 to presence in mathematics, logic, and physics. In physics, the share of co-authored papers expands in the second half of the 19th century, in mathematics in the first decades of the 20th century, in logic in the second half of the 20th century. Subdisciplines of mathematics, of physics, and areas of logic show large differences in their respective propensities to collaborate. None of the existing explanatory approaches meets this: heterogeneity; the most salient: feature is a propensitiy to collaborate in fields where theoretical and applied research is combined.

Keywords: Bibliometric, Collaboration, Mathematics, Research, Scientific Co-Authorship

Kundra, R. and Tomov, D. (2001), Collaboration Patterns in Indian and Bulgarian Epidemiology of Neoplasms in MEDLINE for 1966–1999. *Scientometrics*, **52** (3), 519-523.

Full Text: [2001\Scientometrics52, 519.pdf](2001/Scientometrics52,%20519.pdf)

Abstract: the publication output of India and Bulgaria on epidemiology of neoplasms as reflected in MEDLINE on CD-ROM for 1966–1999 was scientometrically analyzed. Indians have published 347 papers in 24 domestic journals but 444 papers in 169 journals from 21 countries. Bulgarians have published 88 papers in 6 Bulgarian journals but 63 papers in 39 journals from 13 countries. Some 17 journals from 8 countries contained papers by Indian and Bulgarian authors both. Oncology dominated with 46 different journals. Indians have published papers in foreign journals of 30 thematic profiles but Bulgarians - of 12 ones. The collaboration of Indians and Bulgarians resulted from joint bilateral projects and/or postgraduate studies abroad.

? Wenzel, V. (2001), Complex systems in natural science and humanities. *Scientometrics*, **52** (3), 525-529.

Full Text: [2001\Scientometrics52, 525.pdf](2001/Scientometrics52,%20525.pdf)

Abstract: In this paper specifics of the research subject within the natural sciences and humanities are supposed to be well-known. These specifics set limits: to communication between, scholars and natural scientists. In particular this leads to critical situations in cases if both participantes have to collaborate within a common interdisciplinary research work. The modem conception of complex system as subject of investigation for both natural sciences and humanities have in this context an integrating function. The term ‘complex system’ is now recognized as a transdisciplinary matters of research. Despite of the well-known differences between two fields of modem science one can find on this condition a number of mechanisms which are generating also common properties of them.

Keywords: Complex, Humanities, Mechanisms, Research, Research Work, Science, System

? Kretschmer, H., Liang, L.M. and Kundra, R. (2001), Foundation of a global interdisciplinary research network (COLLNET) with Berlin as the virtual centre. *Scientometrics*, **52** (3), 531-537.

Full Text: [2001\Scientometrics52, 531.pdf](2001/Scientometrics52,%20531.pdf)

Abstract: the growing importance of collaboration in research and the still underdeveloped state-of-the-art of research on collaboration have encouraged scientists from 16 countries to establish a global interdisciplinary research network under the title “Collaboration in Science and in Technology” (COLLNET) with Berlin as its virtual centre which has been set up on January Ist, 2000. The network is to comprise the prominent scientists, who work at present mostly in the field of quantitative science studies. The intention is to work together in co-operation both on theoretical and applied aspects.

Keywords: Collaboration, Research, Science

Markusova, V.A., Wilson, C.S. and Davis, M. (2002), From bioweapon to biodefense - the collaborative literature of biodefense in the 1990s. *Scientometrics*, **53** (1), 21-38.

Full Text: [2002\Scientometrics53, 21.pdf](2002/Scientometrics53,%2021.pdf)

Abstract: the biological arms race could have been considered a closed chapter in the Cold War history. However, the growth of different terrorist groups and organisations has increased the threat of biological weapon (BW) use. The goal of this pilot scientometric project was to trace changes in biodefense research and the activities of its main players, Russia and the US. Data were collected from the SCI via the Dialog information system for 1991-2000, the period covering the post-soviet era. In-depth content analysis was performed on selected papers from the 2870 publications identified as BW-related. During the period examined, the publication flow increased by 250 percent. The main contributors to this literature weir shown to be the US, Russia, UK France and Germany. The results presented in this paper are of interest to security analysis (follwing the attacks in the US of 11th September 200 1), to public health care policy researchers and to politicians,

Notes: CCountry

de Arenas, J.L., Castaños-Lomnitz, H. and Arenas-Licea, J. (2002), Significant Mexican research in the health sciences: A bibliometric analysis. *Scientometrics*, **53** (1), 39-48.

Full Text: [2002\Scientometrics53, 39.pdf](2002/Scientometrics53,%2039.pdf)

Abstract: In the 1970s Mexico started to consolidate its S&T system by training human resources and actively preventing brain drain, mainly by motivating researchers through economic incentives. Considering Bradford’s Law, an analysis of significant Mexican research in the health sciences, i.e., papers published in journals with a high-impact factor which grant a degree of credibility and importance was carried out. Significant papers produced in Mexico show a measure of the country’s productivity, and these papers’ citations measure the country’s international impact.

Keywords: Bibliometric Analysis, Citations, Journals, Research

Kademani, B.S., Kalyane, V.L. and Kumar, V. (2002), A. H. Zewail: Research collaborator par excellence. *Scientometrics*, **53** (1), 113-121.

Full Text: [2002\Scientometrics53, 113.pdf](2002/Scientometrics53,%20113.pdf)

Abstract: Ahmed Hassan Zewail, the Nobel laureate (1999) in chemistry have collaborated with 103 colleagues and has published 246 papers during 1976 to 1994 in; femtochemistry (62), reaction rates and IVR (56), general reviews (49), coherence and optical dephasing phenomena (27), solids: magnetic resonance and optical studies (13), liquids and biological systems (9), local modes in large molecules (9), molecular structure from rotational coherence (8), solar energy concentrators (7), and other studies (6). This authorship pattern included: three authored papers (87) followed by two authored (78), four authored (38), one authored (30), five authored (8), and six authored (5). Highest collaborations were with P. M. Felker (39), M. Damns (19), and L. R. Khundkar (16). The core journals publishing his papers were: J. Chem. Phys. (77), Chem. Phys. Lett. (53), J. Phys. Chem. (33), and Nature (6) out of the 33 journal channels and 32 chapters in books.

Keywords: Scientometric Portrait, Chemistry

Leydesdorff, L. (2002), Indicators of structural change in the dynamics of science: Entropy statistics of the *SCI Journal Citation Reports*. *Scientometrics*, **53** (1), 131-159.

Full Text: [2002\Scientometrics53, 131.pdf](2002/Scientometrics53,%20131.pdf)

Abstract: Can change in citation patterns among journals be used as an indicator of structural change in the organization of the sciences? Aggregated journal-journal citations for 1999 are compared with similar data in the Journal Citation Reports 1998 of the Science Citation Index. In addition to indicating local change, probabilistic entropy measures enable us to analyze changes in distributions at different levels of aggregation. The results of various statistics are discussed and compared by elaborating the journal-journal mappings. The relevance of this indicator for science and technology policies is further specified.

Keywords: Communication, Intelligence, Performance, Technology, Knowledge, Impact, Areas

Gupta, B.M., Kumar, S. Sangam, S.L.and Karisiddappa, C.R. (2002), Modeling the growth of world social science literature. *Scientometrics*, **53** (1), 161-164.

Full Text: [2002\Scientometrics53, 161.pdf](2002/Scientometrics53,%20161.pdf)

Abstract: the main objectives of this study are: (a) to find the applicability of selected growth models to the growth of publications in six subdisciplines of social sciences, namely anthropology, economics, history, political science, psychology, and sociology in the world; and (b) to verify the criteria for selecting the most appropriate growth model suggested by *Egghe and Rao* (1992).

Jeevan, V.K.J. and Gupta, B.M. (2002), A scientometric analysis of research output from Indian Institute of Technology, Kharagpur. *Scientometrics*, **53** (1), 165-168.

Full Text: [2002\Scientometrics53, 165.pdf](2002/Scientometrics53,%20165.pdf)

Abstract: the objective of this paper is to suggest a methodology for studying the quantitative profile of a research university, with a view to get idea about the performance and impact of research produced in each department, and the comparison of the impact of research in various departments.

? Glänzel, W. and Moed, H.F. (2002), Journal impact mmeasures: Their role in research policy and scientific information management - Selected papers of the Speical Day Session at the 8th International Conference on Scientometrics and Informetrics, held in Sydney (Australia) on 17 July, 2001. Preface. *Scientometrics*, **53** (2), 169-170.

Full Text: Scientometrics53, 169.pdf

Notes: JJournal

Glänzel, W. and Moed, H.F. (2002), Journal impact measures in bibliometric research. *Scientometrics*, **53** (2), 171-193.

Full Text: [2002\Scientometrics53, 171.pdf](2002/Scientometrics53,%20171.pdf)

Abstract: the Impact Factor introduced by Eugene Garfield is a fundamental citation-based measure for significance and performance of scientific journals. It is perhaps the most popular bibliometric product used in bibliometrics itself, as well as outside the scientific community. First, a concise review of the background and history of the ISI impact factor and the basic ideas underlying it are given. A cross-citation matrix is used to visualise the construction of the Impact Factor and several related journal citation measures*.* Both strengths and flaws of the impact factor are discussed. Several attempts made by different authors to introduce more sophisticated journal citation measures and the reasons why many indicators aiming at a correction of methodological limitations of the Impact Factor were not successful are described.

The next section is devoted to the analysis of basic technical and methodological aspects. In this context, the most important sources of possible biases and distortions for calculation and use of journal citation measures are studied. Thereafter, main characteristics of application contexts are summarised.

The last section is concerned with questions of statistical reliability of journal citation measures. It is shown that in contrast to a common misbelief statistical methods can be applied to discrete ‘skewed’ distributions, and that the statistical reliability of these statistics can be used as a basis for application of journal impact measures in comparative analyses. Finally, the question of sufficiency or insufficiency of a single, howsoever complex measure for characterising the citation impact of scientific journals is discussed.

Notes: JJournal

Butler, L. (2002), Identifying ‘highly-rated’ journals: An Australian case study. *Scientometrics*, **53** (2), 207-227.

Full Text: [2002\Scientometrics53, 207.pdf](2002/Scientometrics53,%20207.pdf)

Abstract: A study undertaken in 1996 of Australia’s performance in the high impact journals of a few selected fields of science has produced empirical data for examining the factors that influence peers in their choice of the ‘highly-rated’ journals in their field. A number of characteristics were used to compare the selected journals with those having the highest impact factor, as listed in ISI’s Journal Citation Reports. This paper ranked journals on three impact factors - ISI’s impact factor for two consecutive years, and one calculated for a five-year window. The data suggests that the type of impact measure was less important in journal selection than the long-term validity of the rankings. A group of experts was less likely to include journals that were only highly ranked for a short period in their ‘top 20’. of the more descriptive journal characteristics analysed, the age of the journal appeared significant. Their selections also appeared biased against journals that were relatively new, regardless of how high their impact factor was.

Lewison, G. (2002), Researchers’ and users’ perceptions of the relative standing of biomedical papers in different journals. *Scientometrics*, **53** (2), 229-240.

Full Text: [2002\Scientometrics53, 229.pdf](2002/Scientometrics53,%20229.pdf)

Abstract: Journal citation impact factors, which are frequently used as a surrogate measure of research quality, do not correlate well with UK researchers’ subjective views of the relative importance of journals as media for communicating important biomedical research results. The correlation varies with the sub-field: it is almost zero in nursing research but is moderate in more ‘scientific’ subfields such as multiple sclerosis research, characterised by many authors per paper and appreciable foreign co-authorship. If research evaluation is to be based on journal-specific indicators, then these must cover different aspects of the process whereby research impacts on other researchers and on healthcare improvement.

Keywords: Biomedical, Biomedical Research, Citation, Co-Authorship, Coauthorship, Correlation, Evaluation, Impact, Impact Factors, Impacts, Improvement, Indicators, Journals, Measure, Media, Multiple Sclerosis, Nursing, Papers, Quality, Research, Research Evaluation, Research Quality, Research Results, Surrogate, UK

Rinia, E.J., Van Leeuwen, T.N. and Van Raan, A.F.J. (2002), Impact measures of interdisciplinary research in physics. *Scientometrics*, **53** (2), 241-248.

Full Text: [2002\Scientometrics53, 241.pdf](2002/Scientometrics53,%20241.pdf)

Abstract: In an evaluation of physics research programs in the Netherlands, held in 1996, assessments of research by expert panels were supplemented with bibliometric analysis. This latter analysis included the calculation of several bibliometric indicators, among which some taking journal impact measures as a baseline. Final outcomes of this evaluation provided an opportunity to re-examine the results of this assessment from the perspective of the degree of interdisciplinarity of programs involved. In this paper we discuss results of this latter analysis, in particular with respect to the relation between several citation based indicators and interdisciplinary research in Dutch physics

Keywords: Bibliometric, Bibliometric Analysis, Citation, Journal Impact, Research

Notes: JJournal

van Leeuwen, T.N. and Moed, H.F. (2002), Development and application of journal impact measures in the Dutch science system. *Scientometrics*, **53** (2), 249-266.

Full Text: [2002\Scientometrics53, 249.pdf](2002/Scientometrics53,%20249.pdf)

Abstract: This paper discusses development and application of journal impact indicators in a number of bibliometric studies commissioned by Dutch organizations and institutions, and conducted in our institute during the past five years. An outline is given of the research questions addressed in these studies and their policy context. for each study the appropriateness of the use of journal impact indicators produced by the Institute for Scientific Information (ISI) is evaluated. Alternative journal impact measures were developed which are shown to be more appropriate in the particular research and policy contexts than the ISI measures. These measures were considered to be highly useful by the users. The studies have revealed methodological flaws of the ISI journal impact factors.

Notes: JJournal

Vinkler, P. (2002), Subfield problems in applying the Garfield (Impact) Factors in practice. *Scientometrics*, **53** (2), 267-279.

Full Text: [2002\Scientometrics53, 267.pdf](2002/Scientometrics53,%20267.pdf)

Abstract: the assessment of the publications of research teams working on different subfields raises concerns because of the different scientometric features of the subfields. for equalizing the differences in the Garfield (Impact) Factors of journals, several methods applied in practice have been described. A new indicator - Specific Impact Contribution (SIC) relating the citation share of a respective team (or journal) in the total citations of the teams (or journals) evaluated to its share in publications - was introduced. It has been realized that the normalized Garfield Factors and the normalized SIC values are identical measures within any selected set of journals. Consequently, the Garfield Factor of a journal should be assumed as an indicator characterizing the contribution of the information channel as a whole, appropriately.

Keywords: Scientometric Indicators, Journals, Citation

Notes: CCountry

Moed, H.F. (2002), Measuring China’s research performance using the Science Citation Index. *Scientometrics*, **53** (3), 281-296.

Full Text: [2002\Scientometrics53, 281.pdf](2002/Scientometrics53,%20281.pdf)

Abstract: This contribution focuses on the application of bibliometric techniques to research activities in China, based on data extracted from the Science Citation Index (SCI) and related Citation Indexes, produced by the Institute for Scientific Information (ISI).

The main conclusion is that bibliometric analyses based on the ISI databases in principle provide useful and valid indicators of the international position of Chinese research activities, provided that these analyses deal properly with the relatively large number of national Chinese journals covered by the ISI indexes.

It is argued that it is important to distinguish between a national and an international point of view. In order to assess the Chinese research activities from a national perspective, it is appropriate to use the scientific literature databases with a good coverage of Chinese periodicals, such as the Chinese Science Citation Database (CSCD), produced at the Chinese Academy of Sciences. Assessment of the position of Chinese research from an international perspective should be based on the ISI databases, but it is suggested to exclude national Chinese journals from this analysis.

In addition it is proposed to compute an indicator of international publication activity, defined as the percentage of articles in journals processed for the ISI indexes, with the national Chinese journals being removed, relative to the total number of articles published either in national Chinese or in other journals, regardless of whether these journals are processed for the ISI indexes or not. This indicator can only be calculated by properly combining CSCD and ISI indexes.

Keywords: Scientific Journals, Internationalization, Database

Uzun, A. (2002), Productivity ratings of institutions based on publication in Scientometrics, Informetrics, and Bibliometrics, 1981-2000. *Scientometrics*, **53** (3), 297-307.

Full Text: [2002\Scientometrics53, 297.pdf](2002/Scientometrics53,%20297.pdf)

Abstract: the author surveyed a set of ten scholarly journals that publish the mainstream of papers in the field of Scientometrics, Informetrics, and Bibliometrics (SIB). The survey is limited only to the research articles published in the field for the two decades period 1981-2000. Each journal was examined issue by issue for the institutional affiliations of contributing authors. Institutional rankings for the total period and the two decade periods; 1981-1990 and 1991-2000 were determined by awarding credit to the authors’ institutions based on authorship. In the composite of ten journals, the University Sheffield (England), The University of North Carolina (USA), The University of Leiden (Netherlands), The City University of London (England), The National Institute of Science, Technology and Development Studies (India), The University of Sussex (England), The University of Illinois (USA), The University of Michigan (USA), The Hungarian Academy of Sciences Library (Hungary), and Indiana University (USA) emerged as the ten most productive institutions for the period 1981-2000.

Keywords: Scientists

Burrell, Q.L. (2002), The nth-citation distribution and obsolescence. *Scientometrics*, **53** (3), 309-323.

Full Text: [2002\Scientometrics53, 309.pdf](2002/Scientometrics53,%20309.pdf)

Abstract: the stochastic model proposed recently by the author to describe the citation process in the presence of obsolescence is further investigated to illustrate the nth-citation distribution and the distribution of the total number of citations. The particular case where the latent rate has a gamma distribution is analysed in detail and is shown to be able to agree well with empirical data.

Keywords: Library Circulation Model

? Leta, J. and Chaimovich, H. (2002), Recognition and international collaboration: the Brazilian case. *Scientometrics*, **53** (3), 325-335.

Full Text: [2002\Scientometrics53, 337.pdf](2002/Scientometrics53,%20337.pdf)

Abstract: the number of Brazilian publications in the Institute for Scientific Information database, ISI, increased significantly in the last 20 years, comprising more than I percent of the database in the last two years. The relationship between size and recognition of Brazilian science, estimated by number of ISI-indexed publications, p, and citations, c, obeyed a power law, c = k p(n). The value of n, a known indicator of such relationship was 1.42 +/- 0.04, significantly higher than that found for the whole set of ISI-indexed world publications. The recent growth of Brazilian publication was not solely due to international collaboration, since over the last six years international collaboration, estimated as the percentage of Brazilian publications having at least one foreign address, reached a constant value of ca. 30%. International collaboration increased the impact of Brazilian publications. Although the most frequent collaborating countries are those that produce the largest percentage of world’s science, Brazilian collaboration with Argentina and Chile exhibit impacts comparable to the major science producers.

Keywords: Scientific Cooperation, Co-Authorship, Science, Impact, Citation

Eto, H. (2002), Authorship and citation patterns in Management Science in comparison with operational research. *Scientometrics*, **53** (3), 337-349.

Full Text: [2002\Scientometrics53, 337.pdf](2002/Scientometrics53,%20337.pdf)

Abstract: the authorship and citation patterns in the journal titled Management Science (MS) are analysed. The purpose of the analysis is to examine the competitive relation of MS with OR (operational research or operations research). The analysis is focused on the use of mathematical methods, because MS entered the management research area by using mathematical methods developed by OR and because the use of mathematical methods in real management is facing difficulties. The relationship of MS with information systems (IS) and organisation research (Org) is analysed in regard to the competition of MS with OR. The analysis reveals the intermediate character of MS; that is, MS is less prone to mathematical methods and is more inclined towards IS and Org than OR is.

Notes: JJournal

Ren, S. and Rousseau, R. (2002), International visibility of Chinese scientific journals. *Scientometrics*, **53** (3), 389-405.

Full Text: [2002\Scientometrics53, 389.pdf](2002/Scientometrics53,%20389.pdf)

Abstract: We discuss the internationalisation and the visibility of Chinese journals covered by the Institute for Scientific Information (ISI). Attention is focused on physics and chemistry journals. for these journals the country of origin of published papers and their citation patterns are analysed. As an indicator of internationality we further consider the composition of their editorial boards. It is concluded that even those Chinese journals that are covered by ISI are still rather ‘local’ and suffer from a low visibility in the world. Yet we are optimistic about the future of Chinese science and its scientific journals.

Macías-Chapula, C.A. (2002), Bibliometric and webometric analysis of health system reforms in Latin America and the Caribbean. *Scientometrics*, **53** (3), 407-427.

Full Text: [2002\Scientometrics53, 407.pdf](2002/Scientometrics53,%20407.pdf)

Abstract: Health systems are reforming their structures and services world-wide. Both, developed and developing countries are searching for better organisation and functioning schemes of their health systems. The social service delivery system in developing countries is severely limited in its ability to respond and adjust to changing circumstances by institutional, organisational, and structural factors. As a result, different countries of the Latin American and Caribbean regions have developed a diversity of reform models.

While international agencies and non-government academic organisations have been funding some of the health system reform initiatives among developing countries, no clear picture exists as to the results or impact of this support. Indicators related to knowledge administration, published results or shared experiences are needed to establish a diagnosis of the existing situation and to support decision making processes in ten-as of policy and research funding.

This work presents the results of a bibliometric and webometric analysis on the production and distribution of the literature generated on health system reforms, as produced in or about Latin America and the Caribbean, for the period 1980-1999.

Results indicated the limitations and low quality of local and regional databases to represent the productivity in the field. Data was obtained regarding the patterns of production and distribution of documents over time; the main countries and areas involved in health system reform processes; and the institutions behind the initiatives. The implications of the results derived from this research to health policy makers, researchers, librarians, database producers, and information scientists are discussed by the author.

Notes: MModel

Egghe, L. and Rousseau, R. (2002), A proposal to define a core of a scientific subject: A definition using concentration and fuzzy sets. *Scientometrics*, **54** (1), 51-62.

Full Text: [2002\Scientometrics54, 51.pdf](2002/Scientometrics54,%2051.pdf)

Abstract: Determining the core of a field’s literature, i.e. its ‘most important’ sources, has been and still is an important problem in bibliometrics. In this article an exact definition of a core of a bibliography or a conglomerate is presented. The main ingredients for this definition are: fuzzy set theory, Lorenz curves and concentration measures. If one prefers a strict delineation, the fuzzy core can easily be defuzzified. The method we propose does not depend on the subjective notion of ‘importance’. It is, moreover, completely reproducible. The method and the resulting core is also independent of the mathematical function (Lotka, Zipf, Bradford, etc.) that may be used to describe the relation between the set of sources and that of items.

Glänzel, W. and de Lange, C. (2002), A distributional approach to multinationality measures of international scientific collaboration. *Scientometrics*, **54** (1), 75-89.

Full Text: [2002\Scientometrics54, 75.pdf](2002/Scientometrics54,%2075.pdf)

Abstract: In a recent study, de Lange and Glänzel introduced a model for the bibliometric analysis of the extent of multinational co-authorship links. They showed that this model can be considered a generalisation of the ‘fractionation approach’ by Nederhof and Moed. The authors analysed international collaboration links (the Multilateral Collaboration Index) as a function of the share of internationally co-authored papers. The measurement of the deviation of individual countries from (sub-)field peculiarities proved, however, complicated. The intensifying international collaboration and, in several fields, the substantial growth of number of multinational papers (involving three or more countries) in the 90s necessitates a detailed analysis of co-publication distributions, that is, of the distributions of partner countries in a given country’s publication output. The main objective of the study is to elaborate such a measure to be used in addition to the share of international publications and the Multilateral Collaboration Index. In addition, a detailed analysis of national citation impact of domestic, bilateral and multilateral papers in the major science fields is conducted.

The model, we develop and the statistical analysis that it allows, support the practical conclusion that the ratio of the number of international links and international papers turns out to be roughly proportional to the ratio of full and fractional publication counts.

Keywords: Multilateral Co-Authorship, Publication, Indicators, Science

Haritash, N. and Gupta, B.M. (2002), Mapping of S&T issues in the Indian Parliament: A scientometric analysis of questions raised in both Houses of the Parliament. *Scientometrics*, **54** (1), 91-102.

Full Text: [2002\Scientometrics54, 91.pdf](2002/Scientometrics54,%2091.pdf)

Abstract: the Parliament, the highest legislative body in India, plays a significant role in formulating national policies. It is, therefore, pertinent to find the concern the Members of Parliament and different political parties show and the priorities they accord to the S&T related issues. They can judge it statistically through the number of questions raised/asked on the floor of the House. The study presents such an analysis taking the example from the S&T questions raised in the year 1992 during the Tenth Parliament. The analysis has been done by dividing the S&T related issues into 14 socio- economic areas, such as environmental sciences, biotechnology, energy, food and agriculture, health, natural resources, telecommunications, human resource development, etc. and eight policy areas such as technology policy, international collaborations in S&T, etc. The raising of S&T questions jointly by MPs and different political parties through inter- party and intra-party sponsorships has also been studied. Such an analysis may provide an important basis to the managers and policy makers in formulating the S&T policy of a country.

Jin, B.H., Zhang, J.G., Chen, D.Q. and Zhu, X.Y. (2002), Development of the Chinese Scientometric Indicators (CSI). *Scientometrics*, **54** (1), 145-154.

Full Text: [2002\Scientometrics54, 145.pdf](2002/Scientometrics54,%20145.pdf)

Abstract: We describe the Chinese Scientometric Indicators (CSI), an indicator database derived from the Chinese Science Citation Database (CSCD). Its design is supported by the Natural Sciences Foundation of China (NSFC). In this indicator database data of a statistical nature are organized and categorized leading to ranked lists and providing bases for comparisons among Chinese institutions and regions.

Larsen, B. (2002), Exploiting citation overlaps for Information Retrieval: Generating a boomerang effect from the network of scientific papers. *Scientometrics*, **54** (2), 155-178.

Full Text: [2002\Scientometrics54, 155.pdf](2002/Scientometrics54,%20155.pdf)

Abstract: A new citation search strategy is proposed for Information Retrieval (IR) based on the principle of polyrepresentation (Ingwersen, 1992, 1996). The strategy exploits logical overlaps between a range of cognitively different interpretations of the same documents in a structured manner, i.e. so-called cognitive overlaps of representations. The strategy is essentially a ‘cycling strategy’ starting with documents retrieved by a subject search, wherefrom new documents are identified automatically by following the network of citations in scientific papers backwards and forwards in time. In contrast to earlier citation search strategies the proposed strategy does not require known relevant documents (seed documents) as a starting point, but may be based on a subject search. A pilot study is reported where the ability of the strategy to retrieve additional relevant documents is analysed. Results show that a very large amount of documents can be retrieved by the strategy, and that these may be segmented in a number of distinct ‘overlap levels’. It is demonstrated that the combined core of the higher-level overlaps contains higher relevance density than found in the original retrieval results. Based on these results it is suggested that the documents be displayed in order of their presence in higher-level overlaps, so as to maximise the chances that as many relevant documents as possible will be presented first to a user.

Keywords: Systems, Science, Design, Web

Lewison, G. (2002), From biomedical research to health improvement. *Scientometrics*, **54** (2), 179-192.

Full Text: [2002\Scientometrics54, 179.pdf](2002/Scientometrics54,%20179.pdf)

Abstract: Traditional means of analysis of research outputs have focussed on citations to papers in journals in other journal publications. But these only chronicle the early stages whereby research in biomedicine is converted into health improvement through better patient care and through preventive measures. New evaluation methods, still based on the concept of citation of research in other documents, are needed and are now being developed. These include the use of textbooks in medical education and the analysis of governmental regulations and health policies, which can influence both the availability of new drugs and the control of toxic substances in food and the environment. There is also an interest in the way that newspapers report biomedical research advances. Readers include politicians, healthcare professionals, the general public (who are increasingly becoming active consumers of healthcare products) and other researchers who may value the immediacy of the reporting. Newspaper articles tend to focus on fashionable topics and to offer premature hopes of cures to disease, but they can also provide a valuable service in showing the importance of animal experiments to biomedical progress. It would be useful to create an international database of newspaper citations through a consortium of partners in different countries who would agree a common protocol and exchange information on a regular basis.

Keywords: Citations, Evaluation, Journals, Research

Notes: CCountry

Narváez-Berthelemot, N., Russell, J.M., Arvanitis, R., Waast, R. and Gaillard, J. (2002), Science in Africa: An overview of mainstream scientific output. *Scientometrics*, **54** (2), 229-241.

Full Text: [2002\Scientometrics54, 229.pdf](2002/Scientometrics54,%20229.pdf)

Abstract: the total scientific output of mainstream articles for the 15 most productive African countries for the period 1991 to 1997 was 45,080, with South Africa and Egypt publishing 15,725 and 10,433, respectively. The productions of these two top ranked countries varied little from 1991-1997 while others such as the Maghreb countries increased between 75-102%. Total contributions were mainly in the fields of Clinical Medicine (36%), Biology (17%), Chemistry (14%), and Biomedical Research (12%). papers in international collaboration were overriding in Biomedical Research, Biology, Earth and Space Science, and Physics. Institutions in the US were the principal collaborators followed closely by those in France.

Notes: MModel

Nelson, M. and Downie, J.S. (2002), Informetric analysis of a music database. *Scientometrics*, **54** (2), 243-255.

Full Text: [2002\Scientometrics54, 243.pdf](2002/Scientometrics54,%20243.pdf)

Abstract: We analyse the statistical properties a database of musical notes for the purpose of designing an information retrieval system as part of the Musifind project. In order to reduce the amount of musical information we convert the database to the intervals between notes, which will make the database easier to search. We also investigate a further simplification by creating equivalence classes of musical intervals which also increases the resilience of searches to errors in the query. The Zipf, Zipf-Mandelbrot, Generalized Waring (GW) and Generalized Inverse Gaussian-Poisson (GIGP) distributions are tested against these various representations with the GIGP distribution providing the best overall fit for the data. There are many similarities with text databases, especially those with short bibliographic records. There are also some differences, particularly in the highest frequency intervals which occur with a much lower frequency than the highest frequency ‘stopwords’ in a text database. This provides evidence to support the hypothesis that traditional text retrieval methods will work for a music database.

Nisonger, T.E. (2002), The relationship between international editorial board composition and citation measures in political science, business, and genetics journals. *Scientometrics*, **54** (2), 257-268.

Full Text: [2002\Scientometrics54, 257.pdf](2002/Scientometrics54,%20257.pdf)

Abstract: Three measures of international composition on journal editorial boards - the number of countries represented on the board, the number of international members, and the proportion of international board members - were correlated with impact factor and total citation data in the 1999 Journal Citation Reports for 153 business, political science, and genetics journals. With a few exceptions the relationship between international editorial board composition and citation measures was non-linear, leading to the conclusion that international membership on the editorial board can not generally be used as a marker of better journal quality. Yet further investigation is warranted due to positive correlations between some editorial board and citation measures for non-U.S. business and political science journals.

Prime, C., Bassecoulard, E. and Zitt, M. (2002), Co-citations and co-sitations: A cautionary view on an analogy. *Scientometrics*, **54** (2), 291-308.

Full Text: [2002\Scientometrics54, 291.pdf](2002/Scientometrics54,%20291.pdf)

Abstract: Like the citation network of scientific publications, the Web is also a graph where pages are connected together by hypertext links or ‘sitations’. In the new research field Webometrics, scholars have investigated equivalencies between citationist concepts established in bibliometrics and hyperlinks networks. This paper focuses on the possible analogy between co-citation and co-sitation to structure Web universes. It reports an experiment in the field of bibliometrics and scientific indicators. Several technical aspects that must be dealt with are reviewed. Co-sitation seems a promising way to delineate topics on the Web. However, the analogy with traditional co-citation is deeply misleading: many precautions must be taken in the interpretation of the results.

Keywords: Scientific Literature, Science, Cocitation, Impact

Notes: TTopic

Macías-Chapula, C.A. and Mijangos-Nolasco, A. (2002), Bibliometric analysis of AIDS literature in Central Africa. *Scientometrics*, **54** (2), 309-317.

Full Text: [2002\Scientometrics54, 309.pdf](2002/Scientometrics54,%20309.pdf)

Abstract: the purpose of this paper is to present the preliminary results of a bibliometric analysis of AIDS documents as produced on Sub-Saharan Africa. AIDSLINE 1980-2000 was used to conduct the literature search. In this paper, an analysis was made only of the records retrieved under ‘Central Africa’. Bibexcel (version 2001) and Microsoft Excel (2000) were used as software tools to conduct the analysis of the records. Seven countries and 1052 records were identified. Main participating countries were Democratic Republic of the Congo (527 documents), and Cameroon (271). Results indicated a high pattern of collaboration through multiple authorship. Most documents were published in English (84.50%) and French (14.73%). Over 57% corresponded to journal articles. The subject content of the documents was mainly focused on epidemiological, complications, and prevention & control issues on ‘HIV Infections’ and ‘Acquired Immunodeficiency Syndrome’. Countries behind this productivity were Cameroon, USA, Democratic Republic of the Congo, France, and Belgium. Comparison of results among Central African countries and among other developing countries is made by the authors.

Keywords: Immunodeficiency-Syndrome AIDS, Latin-America

Ramani, S.V. and de Looze, M.A. (2002), Using patent statistics as knowledge base indicators in the biotechnology sectors: An application to France, Germany and the U.K. *Scientometrics*, **54** (3), 319-346.

Full Text: [2002\Scientometrics54, 319.pdf](2002/Scientometrics54,%20319.pdf)

Abstract: In order to formulate firm, national or regional technology policy, it is necessary to have indicators that can measure technological competence. This paper develops a set of indicators using patent statistics to compare the ‘knowledge base’ of individuals, laboratories, firms or nations. These indicators are then applied to the patent applications in France, Germany and the U.K. in the biotechnology sectors. The paper shows that France is lagging behind Germany and the U.K. in technology stocks (or its patent applications) in all biotechnology fields. However it is the leader in the technology network supporting the foods industry. It has a comparative advantage in terms of either technology stock counts or networks in Genetic Engineering, Pharmaceuticals, Foods, Chemicals, Cell Culture and Biocatalysis. Germany is leading in many sectors, but in all sectors in which it is a leader, it is a specialized leader, i.e. its technology networks need to be more extensive. It has a comparative advantage in terms of either technology stock counts or networks in all sectors except Genetic Engineering, Pharmaceuticals, Agriculture and Cell Culture. The U.K. is the leader in the important field of Genetic Engineering and in terms of the entire technology networks in the biotechnology sectors. It has a comparative advantage in terms of either technology stock counts or networks in Genetic Engineering, Pharmaceuticals, Agriculture and Purification.

Rinia, E.J., van Leeuwen, T.N., Bruins, E.E.W., van Vuren, H.G. and van Raan, A.F.J. (2002), Measuring knowledge transfer between fields of science. *Scientometrics*, **54** (3), 347-362.

Full Text: [2002\Scientometrics54, 347.pdf](2002/Scientometrics54,%20347.pdf)

Abstract: In this paper we report on the results of an exploratory study of knowledge exchange between disciplines and subfields of science, based on bibliometric methods. The goal of this analysis is twofold. Firstly, we consider knowledge exchange between disciplines at a global level, by analysing cross-disciplinary citations in journal articles, based on the world publication output in 1999. Among others a central position of the Basic Life Sciences within the Life Sciences and of Physics within the Exact Sciences is shown. Limitations of analyses of interdisciplinary impact at the journal level are discussed. A second topic is a discussion of measures which may be used to quantify the rate of knowledge transfer between fields and the importance of work in a given field or for other disciplines. Two measures are applied, which appear to be proper indicators of impact of research on other fields. These indicators of interdisciplinary impact may be applied at other institutional levels as well.

Keywords: Disciplines, Citation, Physics, Impact

Vinkler, P. (2002), Dynamic changes in the chance for citedness. *Scientometrics*, **54** (3), 421-434.

Full Text: [2002\Scientometrics54, 421.pdf](2002/Scientometrics54,%20421.pdf)

Abstract: A new index - Relative Publication Growth (RPG) - was suggested for characterizing the annual increase of publications in different selected periods. It has been revealed that the mean citedness of papers (‘Chance for Citedness’) increases parallel with increasing RPG and growing mean number of references in papers. The number of citations attainable by a paper published in a given journal may be estimated by multiplying the resp. Journal Citedness Factor (JCF) with the Garfield Factor of the resp. journal. The JCF values may represent the aging of information whereas GF-s the potential frequency of citations.

Keywords: Citation, Impact, Model

Liang, L.M., Guo, Y.Z. and Davis, M. (2002), Collaborative patterns and age structures in Chinese publications. *Scientometrics*, **54** (3), 473-489.

Full Text: [2002\Scientometrics54, 473.pdf](2002/Scientometrics54,%20473.pdf)

Abstract: This paper is the continued study on age structure of scientific collaboration in Chinese computer science. Based on an extended database a new method is used to analyze the nature and preference of collaboration. Observed values of two- three- and four-dimensional collaboration were compared respectively with their expected values. Investigation covered co-authors’ combination patterns, name permutations in their papers, especially the age of the first author.

Notes: TTopic; CCountry

Garg, K.C. (2002), Scientometrics of laser research in India and China. *Scientometrics*, **55** (1), 71-85.

Full Text: [2002\Scientometrics55, 71.pdf](2002/Scientometrics55,%2071.pdf)

Abstract: An analysis of 1223 papers published by India (347 papers) and China (876 papers) at conferences and in journals during 1993 and 1997 in the field of laser S&T indicates that China’s output was twice to that of India. However, Activity Indices for both the countries in 1993 and 1997 were almost the same. Chinese scientists preferred to publish in domestic journals, while Indian scientists published in foreign journals. The number of papers by Indian scientists in SCI covered journals and journals with high-Normalized Impact Factors was more than for China, and, thus India was better connected to the mainstream science compared to China. The impact made by Indian papers was more than for Chinese papers, as reflected by normalized impact per paper, proportion of papers in high quality journals, and publication effective index. Indian papers also got more citations per paper than Chinese papers. Team research appears to be better in China than in India, as reflected by the number of mega-authored papers produced by the two countries.

Notes: JJournal

Fernández-Cano, A. and Bueno, Á. (2002), Multivariate evaluation of Spanish educational research journals. *Scientometrics*, **55** (1), 87-102.

Full Text: [2002\Scientometrics55, 87.pdf](2002/Scientometrics55,%2087.pdf)

Abstract: This paper informs about an evaluation of Spanish educational research journals using the modality of reputation inferred from survey data. Univariate and multivariate patterns are offered. Specifically cluster analysis and non-parametric multidimensional scaling reveal themselves as useful methods to inquire the complexity of this scientometric question which is the evaluation of periodical series.

Notes: CCountry

Gülgöz, S., Yedekçioglu, Ö.A. and Yurtsever, E. (2002), Turkey’s output in social science publications: 1970-1999. *Scientometrics*, **55** (1), 103-121.

Full Text: [2002\Scientometrics55, 103.pdf](2002/Scientometrics55,%20103.pdf)

Abstract: Publications originating from Turkey in SSCI were analyzed for changes in the thirty-year span between 1970 and 1999. There has been a high rate of increase in the number of publications and most of these publications were in the form of articles and review papers. The rate of increase was lower than the increase in science publications but the rankings among other countries in sciences and social sciences were comparable. The analysis of impact factors and citations received by published work showed a decline across years. Many of the high-impact publications were joint work with foreign authors. The low level of impact was attributed in part by the difficulty of international scholars in belonging to research networks.

Notes: UUniversity

Tonta, Y. and Ilhan, M. (2002), Contribution of Hacettepe University Faculty of Medicine to the world’s biomedical literature (1988-1997). *Scientometrics*, **55** (1), 123-136.

Full Text: [2002\Scientometrics55, 123.pdf](2002/Scientometrics55,%20123.pdf)

Abstract: the contribution of Turkish researchers to sciences is increasing. Turkish scientists published more than 6,000 articles in 1999 in scientific journals indexed by the Institute for Scientific Information’s Science Citation Index, which puts Turkey to the 25(t)h place in the world rankings in terms of total contribution to science. The number of biomedical publications authored by Turkish scientists is increasing faster than that of engineering and other non-medical sciences, which might be one of the main causes of the steep rise in Turkey’s rankings that we have been witnessing in recent years. More specifically, researchers affiliated with Hacettepe University produce almost a quarter of all the biomedical publications of Turkey that appear in international biomedical literature. In this paper, we report the findings of the bibliometric characteristics (authors and affiliations, medical journals and their impact factors, among others) of a total of 1.434 articles published between 1988 and 1997 by scientists affiliated with Hacettepe University Faculty of Medicine and indexed in MEDLINE, a well-known biomedical bibliographic database.

Keywords: 27 Science Areas, Scientometric Weight, 50 Nations

Rey-Rocha, J., Martiín-Sempere, M.J. and Garzón, B. (2002), Research productivity of scientists in consolidated vs. non-consolidated teams: the case of Spanish university geologists. *Scientometrics*, **55** (1), 137-156.

Full Text: [2002\Scientometrics55, 137.pdf](2002/Scientometrics55,%20137.pdf)

Abstract: We present some results of an evaluation of research performance of Spanish senior university researchers in Geology. We analyse to what extent productivity of individual researchers is influenced by the level of consolidation of the team they belong to. Methodology is based on the combination of a mail survey carried out among a defined set of researchers, and a bibliometric study of their scientific output. Differences among researchers have been investigated with regard to team size and composition, patterns of publication in domestic and foreign journals, productivity, co-authorship of papers, and impact of publications. Results indicate that not belonging to a research team represents a handicap at the time of publishing in top international journals. Researchers belonging to consolidated teams are more productive than their colleagues in non-consolidated teams, and these in turn more than individuals without team. Team size does not appear to be as important for scientific productivity as the number of researchers within the team that reached a stable job position. Analysis of the impact factor of journals has not revealed differences among researchers with regard to the visibility of their papers.

Keywords: Bibliometric Analysis, Determinants, Size

Notes: CCountry

Farahat, H. (2002), Authorship patterns in agricultural sciences in Egypt. *Scientometrics*, **55** (2), 157-170.

Full Text: [2002\Scientometrics55, 157.pdf](2002/Scientometrics55,%20157.pdf)

Abstract: This study examines patterns of authorship in nineteen Egyptian journals of agricultural science. Multiple authorship was found to be the predominant trend in the field and co-authored papers accounted for some 79 percent of the sample. The most common form of multiple authorship involved three people. Considerable variation was found among sub-fields and coauthorship was found to be most common in social-science related agricultural disciplines. The author found no significant differences in patterns of collaboration in the agricultural sciences in Egypt and two the other developing countries for which comparative data was available, India and Pakistan.

Dalpé, R. (2002), Bibliometric analysis of biotechnology. *Scientometrics*, **55** (2), 189-213.

Full Text: [2002\Scientometrics55, 189.pdf](2002/Scientometrics55,%20189.pdf)

Abstract: Although Derwent Biotechnology Abstracts has been used in a variety of bibliometric studies, it has never undergone a systematic examination of its reliability and validity. The objective of this paper is to assess its quality for bibliometric studies attempting to analyse the evolution of biotechnology research, to map leading organizations, and to study the interaction between science and technology. The first part reviews the tools used in bibliometric studies of biotechnology and describes the Derwent Biotechnology Abstracts database. The second part is a case study of plant genetic research, with special emphasis on Canada.

Keywords: Research-and-Development, Patent Statistics, Agricultural Biotechnology, Public Science, US, Indicators, Competition, Government, Technology, Knowledge

Notes: TTopic; CCountry

Garg, K.C. and Padhi, P. (2002), Scientometrics of laser research in India during 1970-1994. *Scientometrics*, **55** (2), 215-241.

Full Text: [2002\Scientometrics55, 215.pdf](2002/Scientometrics55,%20215.pdf)

Abstract: An analysis of 952 publications published by Indian scientists and abstracted by *Journal of Current Laser Abstracts* during 1970-1994 indicates that laser research in India picked up during 1978-1994 and reached its peak in 1980. The Indian output in the field of laser research forms an integral part of the mainstream science as reflected by the pattern of publications and their citations in the international literature. Laser research performed in India improved considerably during 1985-1994 as compared to 1970-1984 as seen by different impact indicators such as citation per paper, proportion of high quality papers, and publication effective index. The publication output is concentrated among few institutions and there is a similarity in the activity and attractively profile of the highly productive institutions. India’s citation rate per paper for highly productive authors is at par with the world citation rate per paper. The study indicates that the proportion of mega authored papers increased during 1990-1994 and the international collaboration is mainly with the USA.

Keywords: Activity, Analysis, Citations, Collaboration, Effective, Impact, Index, India, Indicators, Institutions, International Collaboration, Output, Paper, Profile, Publication, Publications, Quality, Research, Science, Similarity, Technology, USA

Goel, K. (2002), Gender differences in publication productivity in psychology in India. *Scientometrics*, **55** (2), 243-258.

Full Text: [2002\Scientometrics55, 243.pdf](2002/Scientometrics55,%20243.pdf)

Abstract: An analysis of gender differences in psychology in India provides quantitative and qualitative assessment of R&D output contributed by psychologists with the indication of the trend of growth, skewness, relatedness, co-authorship pattern of productivity.

Ponzi, L.J. (2002), The intellectual structure and interdisciplinary breadth of Knowledge Management: A bibliometric study of its early stage of development. *Scientometrics*, **55** (2), 259-272.

Full Text: [S\Scientometrics55, 259.pdf](S/Scientometrics55,%20259.pdf)

Abstract: This study explores the intellectual structure and interdisciplinary breadth of Knowledge Management in its early stage of development. Intellectual structure is established by a principal component analysis applied to an author co-citation frequency matrix. The author co-citation frequencies were derived from the 1994-1998 academic literature and captured by the single search phrase of ‘Knowledge Management.’ Four factors were labeled Knowledge Management, Organizational Learning, Knowledge-based Theories, and the Role of Tacit Knowledge in Organizations. The interdisciplinary breadth surrounding Knowledge Management mainly occurs in the discipline of management. Empirical evidence suggests that the discipline of Computer Science is not a key contributor as originally hypothesized.

Keywords: Co-Citation Analysis, Information, Innovation

Burrell, Q.L. (2002), Modelling citation age data: Simple graphical methods from reliability theory. *Scientometrics*, **55** (2), 273-285.

Full Text: [2002\Scientometrics55, 273.pdf](2002/Scientometrics55,%20273.pdf)

Abstract: Certain similarities between the types of data reported in retrospective citation analyses and lifetime/survival/reliability models are noted. Graphical techniques much used in reliability analyses are exploited to throw further light on observed citation age distributions and these are then compared and contrasted with previously reported studies. These simple techniques allow systematic departures of empirical data from assumed theoretical models to be highlighted and the models to be compared.

Keywords: Obsolescence

Notes: MModel

Rousseau, R. (2002), Lack of standardisation in informetric research. Comments on ‘Power laws of research output. Evidence for journals of economics’ by Matthias Sutter and Martin G. Kocher. *Scientometrics*, **55** (2), 317-327.

Full Text: [2002\Scientometrics55, 317.pdf](2002/Scientometrics55,%20317.pdf)

Abstract: Lack of standard procedures hinders progress in scientometric and bibliometric research. Provoked by a recent publication in the journal Scientometrics, we consider in particular the problem of how to handle - in a standardised way - data that, by and large, follow a Lotka, Zipf or Mandelbrot distribution.

Keywords: Lotka’s Law, Scientific Production, Statistical-Analysis, Distributions, Authors

Glänzel, W., Schubert, A. and Braun, T. (2002), A relational charting approach to the world of basic research in twelve science fields at the end of the second millennium. *Scientometrics*, **55** (3), 335-348.

Full Text: [2002\Scientometrics55, 335.pdf](2002/Scientometrics55,%20335.pdf)

Keywords: Indicators, Datafiles, Nations

Notes: UUniversity

Martín-Sempere, M.J., Rey-Rocha, J. and Garzón-García, B. (2002), The effect of team consolidation on research collaboration and performance of scientists. Case study of Spanish university researchers in Geology. *Scientometrics*, **55** (3), 377-394.

Full Text: [2002\Scientometrics55, 377.pdf](2002/Scientometrics55,%20377.pdf)

Abstract: We analyse to what extent research collaboration and performance of individual scientists is influenced by the level of consolidation of the team they belong to. A case study of Spanish senior university researchers in Geology is performed. Methodology is based on the combination of a mail survey carried out among a defined set of researchers, and a bibliometric study of their scientific output. Results provide support for the hypothesis that consolidation of research teams would result in a greater facility to establish contacts and collaborations with colleagues, that could benefit all members of the team, fostering their participation in funded projects and favouring their potential to publish in international mainstream journals.

Notes: UUniversity

Kim, M.J. (2002), Citation patterns of Korean physicists and mechanical engineers: Differences by type of publication source and type of authorship. *Scientometrics*, **55** (3), 421-436.

Full Text: [2002\Scientometrics55, 421.pdf](2002/Scientometrics55,%20421.pdf)

Abstract: By comparing the citation patterns of Korean researchers in physics and mechanical engineering, this study identifies the extent to which type of publication source (Korean non-SCI, Korean SCI, and international SCI) and type of authorship (purely Korean authors, Korean-foreign co-authors, and foreign-Korean co-authors) influence the choice of sources cited by Korean scientists. Koreans publishing physics or mechanical engineering papers in international SCI journals are more likely to cite articles published in journals of the science mainstream countries (the U.S., the U.K., the Netherlands, and Germany) than articles published in national journals, while Koreans publishing in Korean journals tend to cite articles published in national journals. In terms of authorship, articles published in mainstream journals are more highly cited by internationally co-authored papers than Korean-authored papers in both disciplines.

Keywords: Behavior, Science, Journals, Place

Notes: TTopic

Kurnaz, E.L. (2002), Observations on the growth characteristics of the research output of Turkish physicists based on a selective citation analysis. *Scientometrics*, **55** (3), 437-444.

Full Text: [2002\Scientometrics55, 437.pdf](2002/Scientometrics55,%20437.pdf)

Abstract: A comparison has been carried out between the scientific production of Turkish physicists in the periods 1961-1971 and 1994-2000, by considering articles (written singly or in collaboration with scientists of different nationalities) which have received at least ten citations. The results show that in 30 years, appreciable increases have occurred in the number of authors making significant contributions and in the number of papers based on research carried out in Turkey.

Notes: TTopic

Sombatsompop, N., Ratchatahirun, P., Surathanasakul, V., Premkamolnetr, N., and Markpin, T. (2002), A citation report for Thai academic journals published during 1996-2000. *Scientometrics*, **55** (3), 445-462.

Full Text: [2002\Scientometrics55, 445.pdf](2002/Scientometrics55,%20445.pdf)

Abstract: This article aimed to report Journal Impact Factor (J-IF) and Journal Immediacy Index (J-II) of 68 Thai academic journals during the past five years (from 1996 to 2000) using the calculation method given by the Institute for Scientific Information (ISI). This was the first time that the citation indexes of Thai academic journals were established. With respect to the journal impact factor, the results showed that only six journals have been cited continuously during the past five years, this being 8.8% of the total journal number selected in this work. It was also noticeable that articles published in longer journal age tended to have greater opportunity to be cited and higher journal impact factor. The average impact factor of the 68 journals was relatively low, this being of 0.069, suggesting that the possibility of an article published in a national journal to be cited was only 6.9%. In terms of the immediacy index, it was found that the average immediacy index value was 0.063, which was again very low. No significant relationship between the journal age and the immediacy index could be observed. 47% of the journals have never been able to produce the immediacy index in the past five years, suggesting that articles in the Thai academic journals were hardly cited within the same years they were published.

Braun, T., Szabadi-Peresztegi, Z. and Kovács-Németh, É. (2002), No-bells for ambiguous lists of ranked Nobelists as science indicators of national merit in physics, chemistry and medicine, 1901-2001. *Scientometrics*, **56** (1), 3-28.

Full Text: [2003\Scientometrics56, 3.pdf](2003/Scientometrics56,%203.pdf)

Keywords: Models

? Enachescu, C. and Postelnicu, T. (2003), Patterns in journal citation data revealed by exploratory multivariate analysis. *Scientometrics*, **56** (1), 43-59.

Full Text: [2003\Scientometrics56, 43.pdf](2003/Scientometrics56,%2043.pdf)

Abstract: the paper discusses techniques to emphasize patterns in citation data and to study their dynamics. In this context, the STATIS and the STATIS dual methods are presented. The methods are a generalization of the principal component analysis from a dynamical point of view. STATIS and its dual are applied in order to illustrate the dynamic of ‘citing-cited patterns’ by using citation data of sixteen major journals from the statistics field.

Keywords: Analysis, Citation, Context, Data, Dynamic, Dynamics, Field, Journal, Journals, Methods, Multivariate, Multivariate Analysis, Principal Component Analysis, Statistics, Techniques

? Brunk, G.G. (2003), Swarming of innovations, fractal patterns, and the historical time series of US patents. *Scientometrics*, **56** (1), 61-80.

Full Text: [2003\Scientometrics56, 61.pdf](2003/Scientometrics56,%2061.pdf)

Abstract: While most of us who study intellectual and technical advancement believe that innovations tend to swarm, the details of this process are not well understood. The aggregate-level behavior of US patents is examined as a way to better infer the process that generates innovation. The amount of swarming decreases as the observational period increases, which indicates that the process of innovation is not perfectly self-similar. Instead, the effects of innovations are mostly contained within specialized areas, and do not often trigger further advances in other fields.

Keywords: Advances, Behavior, Citation, Effects, Fractal, Innovation, Observational, Patents, Science, Self-Organized-Criticality, Time Series, US, Waves

Bharvi, D., Garg, K.C. and Bali, A. (2003), Scientometrics of the international journal Scientometrics. *Scientometrics*, **56** (1), 81-93.

Full Text: [2003\Scientometrics56, 81.pdf](2003/Scientometrics56,%2081.pdf)

Abstract: An analysis of 1317 papers published in first fifty volumes during 1978 to 2001 of the international journal Scientometrics indicates the heterogeneity of the field with emphasis on scientometric assessment. The study indicates that the US share of papers is constantly on the decline while that of the Netherlands, India, France and Japan is on the rise. The research output is highly scattered as indicated by the average number of papers per institution. The scientometric output is dominated by the single authored papers, however, multi-authored papers are gaining momentum. Similar pattern has been observed for domestic and international collaboration.

Notes: UUniversity

Lee, C.K. (2003), A scientometric study of the research performance of the Institute of Molecular and Cell Biology in Singapore. *Scientometrics*, **56** (1), 95-110.

Full Text: [2003\Scientometrics56, 110.pdf](2003/Scientometrics56,%20110.pdf)

Abstract: This paper describes results of a scientometric study of the Institute of Molecular and Cell Biology (IMCB). The purpose of the study is to evaluate the research performance of IMCB in the first ten years since its establishment. Research inputs and three research outputs - publications, graduate students, and patents filed, are examined. The findings indicate that in the ten years, IMCB produced 395 research papers, 33 book chapters, 24 conference papers, and 4 monographs, graduated 46 PhDs and 14 MScs, and filed 10 patents. In its quest to become world-class, IMCB researchers have been very selective in where they publish - 95.6% of the articles were published in ISI journals. The articles received an average of 25 to 35 citations per article, and the percentage of uncited articles is 11.6%. Four articles received more than 200 citations, and 18 received between 100 to 200 citations.

Stegmann, J. and Grohmann, G. (2003), Hypothesis generation guided by co-word clustering. *Scientometrics*, **56** (1), 111-135.

Full Text: [2003\Scientometrics56, 111.pdf](2003/Scientometrics56,%20111.pdf)

Abstract: Co-word analysis was applied to keywords assigned to MEDLINE documents contained in sets of complementary but disjoint literatures. In strategical diagrams of disjoint literatures, based on internal density and external centrality of keyword-containing clusters, intermediate terms (linking the disjoint partners) were found in regions of below-median centrality and density. Terms representing the disjoint literature themes were found in close vicinity in strategical diagrams of intermediate literatures. Based on centrality-density ratios, characteristic values were found which allow a rapid identification of clusters containing possible intermediate and disjoint partner terms. Applied to the already investigated disjoint pairs Raynaud’s Disease - Fish Oil, Migraine - Magnesium, the method readily detected known and unknown (but relevant) intermediate and disjoint partner terms. Application of the method to the literature on Prions led to Manganese as possible disjoint partner term. It is concluded that co-word clustering is a powerful method for literature-based hypothesis generation and knowledge discovery.

Inönü, E. (2003), The influence of cultural factors on scientific production. *Scientometrics*, **56** (1), 137-146.

Full Text: [2003\Scientometrics56, 137.pdf](2003/Scientometrics56,%20137.pdf)

Abstract: A classification of countries is made according to respective ranks in the scales of ‘publications per million persons’ and ‘GDP per capita (ppp)’. The result is a clustering of countries which share a common cultural attitude toward scientific research.

Braun, T., Szabadi-Peresztegi, Z. and Kovacs-Nemeth, E. (2003), About Abels and similar international awards for ranked lists of awardees as science indicators of national merit in mathematics. *Scientometrics*, **56** (2), 161-168.

Full Text: [2003\Scientometrics56, 161.pdf](2003/Scientometrics56,%20161.pdf)

Garg, K.C. (2003), An overview of cross-national, national, and institutional assessment as reflected in the international journal Scientometrics. *Scientometrics*, **56** (2), 169-199.

Full Text: [2003\Scientometrics56, 169.pdf](2003/Scientometrics56,%20169.pdf)

Abstract: An overview is given of the studies published in the international journal Scientometrics during 1978-2000 on cross-national, national and institutional scientometric assessment.

Tsay, M.Y. and Ma, S.S. (2003), The nature and relationship between the productivity of journals and their citations in semiconductor literature. *Scientometrics*, **56** (2), 201-222.

Full Text: [2003\Scientometrics56, 201.pdf](2003/Scientometrics56,%20201.pdf)

Abstract: the purpose of this study was to investigate the relationship between journals’ productivity and their citations in the field of semiconductors. Journal samples were gathered from the INSPEC database, 1978 to 1997 while the data of citation frequency, impact factor, cited half-life and citing half-life were obtained from Science Citation Index, Journal Citation Reports 1997 CD-ROM edition. One thoUSAnd and eight hundred and seventy seven journals publishing articles on semiconductors were retrieved. The nature for the data of journal productivity, impact factor, cited half-life and citing half-life are explored. Among these journals, only 672 journals that were covered in JCR were compared. Moreover, statistical tests of more productive journals with cumulative publication in semiconductor >100 were also conducted on the basis of all articles they published annually (for 1997). The results of the study showed that there is a significant correlation between journal productivity and citation frequency and between journal productivity and impact factor. However, there are no associations between journal productivity and cited half-life and between journal productivity and citing half-life.

Lee, J.D., Vicente, K.J., Cassano, A. and Shearer, A. (2003), Can scientific impact be judged prospectively? A bibliometric test of Simonton’s model of creative productivity. *Scientometrics*, **56** (2), 223-232.

Full Text: [2003\Scientometrics56, 223.pdf](2003/Scientometrics56,%20223.pdf)

Abstract: Simonton’s (1997) model of creative productivity, based on a blind variation-selection process, predicts scientific impact can only be evaluated retrospectively, after recognition has been achieved. We test this hypothesis using bibliometric data from the Human Factors journal, which gives an award for the best paper published each year. If Simonton’s model is correct, award winning papers would not be cited much more frequently than non-award winning papers, showing that scientific success cannot be judged prospectively. The results generally confirm Simonton’s model. Receipt of the award increases the citation rate of articles, but accounts for only 0.8% to 1.2% of the variance in the citation rate. Consistent with Simonton’s model, the influence of the award on citation rate may reflect a selection process of an elite group of reviewers who are representative of the larger peer group that eventually determines the citation rate of the article. Consistent with Simonton’s model, author productivity accounts for far more variance in the authors’ total citation rate (58.9%) and in the citation rate of the authors’ most cited article (12.6%) than does award receipt.

Aksnes, D.W. (2003), A macro study of self-citation. *Scientometrics*, **56** (2), 235-246.

Full Text: [2003\Scientometrics56, 235.pdf](2003/Scientometrics56,%20235.pdf)

Abstract: This study investigates the role of self-citation in the scientific production of Norway (1981-1996). More than 45,000 publications have been analysed. Using a three-year citation window we find that 36% of all citations represent author self-citations. However, this percentage is decreasing when citations are traced for longer periods. We find the highest share of self-citation among the least cited papers. There is a strong positive correlation between the number of self-citations and the number of authors of the publications. Still, only a minor part of the overall increase in citation rates that can be found for multi-authored papers is due to self-citations. Also, the share of self-citation shows significant variations among different scientific disciplines. The results are relevant for the discussion concerning use of citation indicators in research assessments.

? Kot, M., Silverman, E. and Berg, C.A. (2003), Zipf’s law and the diversity of biology newsgroups. *Scientometrics*, **56** (2), 247-257.

Full Text: [2003\Scientometrics56, 247.pdf](2003/Scientometrics56,%20247.pdf)

Abstract: Usenet newsgroups provide a popular means of scientific communication. We demonstrate striking order in the diversity of biology newsgroups: Submissions to newsgroups obey a form of Zipf’s law, a simple power law for the frequency of posts as a function of the rank, by posting, of contributors. We show that a simple stochastic process, due to Gunther et al. (1992, 1996), Levitin and Schapiro (1993), and Schapiro (1994), accounts for this pattern and reproduces many of the properties of newsgroups. This model successfully predicts the relative contribution from each poster in terms of the size, the number of posters and total posts, of the newsgroup.

Keywords: Biology, Communication, Complexity, Diversity, Function, Law, Model, Pattern, Power, Power Law, Rank, Scientific Communication, Size, Species Abundance, Stochastic, Usenet Newsgroups, Zipf’s Law

Zitt, M., Ramanana-Rahary, S. and Bassecoulard, E. (2003), Correcting glasses help fair comparisons in international science landscape: Country indicators as a function of ISI database delineation. *Scientometrics*, **56** (2), 259-282.

Full Text: [2003\Scientometrics56, 259.pdf](2003/Scientometrics56,%20259.pdf)

Abstract: the increasing use of bibliometric indicators in science policy calls for a reassessment of their robustness and limits. The perimeter of journal inclusion within ISI databases will determine variations in the classic bibliometric indicators used for international comparison, such as world shares of publications or relative impacts. We show in this article that when this perimeter is adjusted using a natural criterion for inclusion of journals, the journal impact, the variation of the most common country indicators (publication and citation shares; relative impacts) with the perimeter chosen depends on two phenomena. The first one is a bibliometric regularity rooted in the main features of competition in the open space of science, that can be modeled by bibliometric laws, the parameters of which are ‘coverage- independent’ indicators. But this regularity is obscured for many countries by a second phenomenon, the presence of a sub-population of journals that does not reflect the same international openness, the nationally- oriented journals. As a result indicators based on standard SCI or SCISearch perimeters are jeopardized to a certain extent by this sub-population which creates large irregularities. These irregularities often lead to an over-estimation of share and an under-estimation of the impact, for countries with national editorial tradition, while the impact of a few mainstream countries arguably benefits from the presence of this sub-population.

Keywords: Cross-Field Normalization, Scientific Journals, Citation-Index, Distributions, Publication, Model, Performance, Society, Impact, SCI

Drenth, J.P.H. (2003), More reprint requests, more citations? *Scientometrics*, **56** (2), 283-286.

Full Text: [2003\Scientometrics56, 283.pdf](2003/Scientometrics56,%20283.pdf)

Abstract: Reprint requests are commonly used to obtain a copy of an article. This study aims to correlate the number of reprint requests from a 10-year-sample of articles with the number of citations. The database contained 28 articles published in over a 10-year-period (1992-2001). for each separate article the number of citations and and the number of reprint requests were retrieved. In total 303 reprint requests were analysed. Reviews (median 9, range 1 to 95) and original articles (median 8, range 1-36) attracted most reprint requests. There was an excellent correlation between the number of requests and citations to article (two-tailed non-parametric Spearman rank test r = 0.55; 95% confidence interval 0.18-0.78, P < 0.005). Articles that received most reprint requests are cited more often.

Notes: UUniversity

Schloegl, C., Gorraiz, J., Bart, C. and Bargmann, M. (2003), Evaluating two Austrian university departments: Lessons learned. *Scientometrics*, **56** (3), 287-299.

Full Text: [2003\Scientometrics56, 287.pdf](2003/Scientometrics56,%20287.pdf)

Abstract: This paper describes various problems which may occur in quantitative research evaluation. It is shown that problems already arise when trying to define such seemingly simple scientometric elements as ‘personnel’ or ‘budget’. This has major consequences on the construction of indicators. Furthermore, it is demonstrated that different data sources as well as different data and indicators result in different, sometimes even contradicting outcomes.

Keywords: Indicators

Hayashi, T. (2003), Bibliometric analysis on additionality of Japanese R&D programmes. *Scientometrics*, **56** (3), 301-316.

Full Text: [2003\Scientometrics56, 301.pdf](2003/Scientometrics56,%20301.pdf)

Abstract: To justify public investment in R&D activities especially those conducted by private companies, the effect to change their behavior into what could not be realized without public funds is required. This paper studies the ‘additionality’ of Japanese R&D programmes by analyzing the patent applications of five case study projects. Changes and continuations in research themes between the results of the project and the results in five years before and after the project were measured using a similarity index. Also, the similarities between research groups in a project were measured. These show how each project was constituted by researchers with various types of knowledge. As a result, although all projects contained core research groups who continued their research in the project, the effect of mobilizing other researchers into new fields was shown to vary depending on the characteristics of the projects.

Keywords: Science

Notes: CCountry

Figueira, I., Jacques, R. and Leta, J. (2003), A comparison between domestic and international publications in Brazilian psychiatry. *Scientometrics*, **56** (3), 317-327.

Full Text: [2003\Scientometrics56, 317.pdf](2003/Scientometrics56,%20317.pdf)

Abstract: This article assesses the Brazilian psychiatric production and compares the numbers of articles published between 1981 and 1995 in Brazilian domestic journals and published in international journals. From the total number of articles analyzed, 87.2% were published in domestic journals. These probably will never reach the international scientific community. From the articles published in Brazil, 56.8% were review and opinion articles, while from the articles published in international journals, 69.8% were research articles. Publications in both Brazilian and international journals included few prospective research studies and research reports dealing with bipolar disorder and cocaine use. On the other hand, alcohol use disorder and major depressive disorder were the most commonly studied clinical fields published both in domestic and in international psychiatric journals.

Keywords: Journals

? Dahdouh-Guebas, F., Ahimbisibwe, J., Van Moll, R. and Koedam, N. (2003), Neo-colonial science by the most industrialised upon the least developed countries in peer-reviewed publishing. *Scientometrics*, **56** (3), 329-343.

Full Text: [2003\Scientometrics56, 329.pdf](2003/Scientometrics56,%20329.pdf)

Abstract: We are currently experiencing an era that is facing increasing global environmental and societal problems (e. g., climate change, habitat destruction and economic recession). Scientific research projects are often required to emphasize and counter the effects of inequity and globalisation, and prioritise cooperation supported by cooperative research. This paper investigates whether publication of research that is carried out in least developed countries is done in cooperation with research institutes from these countries. The study uses the Current Contents database of peer-reviewed publications from more than 7,000 journals in all sciences (Biology and environmental sciences; Physical, chemical and earth sciences; Engineering, computing and technology; Life sciences; Clinical medicine; Arts and humanities; Social and behavioral sciences) published between 1 January 1999 and 3 November 2000. From a total of 1,601, 196 papers published, 2, 798 articles of research activities carried out in the 48 least developed countries were selected using title information as an indicator. Collaborative relationships between research institutions involved was then analysed within and between countries and sciences. Our results show that publications of research, carried out in the least developed countries, do not have co-authorship of local research institutes in 70% of the cases, and that a majority of the papers is published by research institutes from the most industrialised countries in the world. We employed the use of questionnaires sent to authors from papers in the above-mentioned database to detect possible causes of this high percentage of lack of authorship in the essential academic currency that ‘publications’ are. ‘Neo-colonial science’ is identified as one of them. In addition, there exists a large discrepancy between what the surveyed scientists say they find important in international collaboration and joint publishing, and the way they act to it. However, the interpretation given to the fact that institutional co-authorship is underrepresented for local research institutions in the least developed countries is less important than the fact itself, and future research should concentrate on a scientific way to equilibrate this adverse trend.

Keywords: Authors, Authorship, Chemical, Climate, Climate Change, Co-Authorship, Coauthorship, Collaboration, Concentrate, Cooperation, Cooperative Research, Database, Economic, Effects, Environmental, Global, Habitat, Humanities, Indicator, Information, Institutions, International, Journals, Local, Medicine, Papers, Peer-Reviewed, Publication, Publications, Publishing, Questionnaires, Research, Research Institutions, Science, Sciences, Technology, Trend, World

Notes: JJournal

Ugolini, D. and Casilli, C. (2003), The visibility of Italian journals. *Scientometrics*, **56** (3), 345-355.

Full Text: [2003\Scientometrics56, 345.pdf](2003/Scientometrics56,%20345.pdf)

Abstract: the main purpose of this study was to analyze the Italian journals indexed in the 2000 edition of the Journal Citation Reports (JCR) published by the Institute for Scientific Information (ISI) (Philadelphia, USA). The performance and the visibility of these journals were evaluated in terms of Impact Factor (IF), mean IF from citing journals and cited journals, and self-citing and self-cited rates.

Seventy-three Italian journals were indexed in the JCR, 14 of which achieved an IF equal to or higher than one. Most citing journals were European and American, thus showing a fairly good visibility of the articles published in the 14 journals analyzed. The self-citing and self-cited rates showed a wide variation. The journal that appeared to perform best was the Journal of High Energy Physics, an electronic publication whose success seemingly confirms Internet circulation as an effective means to enhance the visibility and consequently the quality, in term of citations, of a journal.

Italy’s low overall expenditure on research & development (R&D) and low number of researchers compared to countries with longstanding high publishing standards and traditions are no doubt partly to blame for its poor performance in scientific publishing.

Keywords: Impact

? Glänzel, W. and Schubert, A. (2003), A new classification scheme of science fields and subfields designed for scientometric evaluation purposes. *Scientometrics*, **56** (3), 357-367.

Full Text: [2003\Scientometrics56, 357.pdf](2003/Scientometrics56,%20357.pdf)

Abstract: A two-level hierarchic system of fields and subfields of the sciences, social sciences and arts & humanities is proposed. The system was specifically designed for scientometric (evaluation) purposes with the ultimate goal of classifying every single document into a well-defined category. This goal was achieved using a three-step iterative process. The basic concepts and some preliminary results are presented.

Keywords: Item Subject Classification

Notes: JJournal

Al-Qallaf, C.L. (2003), Citation patterns in the Kuwaiti journal Medical Principles and Practice: the first 12 years, 1989-2000. *Scientometrics*, **56** (3), 369-382.

Full Text: [2003\Scientometrics56, 369.pdf](2003/Scientometrics56,%20369.pdf)

Abstract: This study investigates the citation patterns in the journal, Medical Principles and Practice from its inception in 1989 through 2000 (volumes 1-9). The data set includes 4740 references appended to the 221 original research articles. All of the citations were entered into a ProCite database for analysis. Specifically, this study addresses: (1) bibliometric patterns of cited works in terms of publication format, subject scatter, authorship characteristics, age of citations, geographic distribution, and language distribution; (2) productivity of journal titles; (3) the role of self-citation; and (4) how selected bibliometric indicators apply. Some of the findings include: journal articles are most frequently cited; English language publications dominate the literature; there is a trend of multiple authorship; and the pattern of aging is below the norm for medical literature. The results of the study can provide a benchmark to measure the user behavior of a particular group of researchers as well as for the provision of collection development and management decisions.

Keywords: Reference Accuracy, Biologists

? Nagpaul, P.S. and Roy, S. (2003), Constructing a multi-objective measure of research performance. *Scientometrics*, **56** (3), 383-402.

Full Text: [2003\Scientometrics56, 383.pdf](2003/Scientometrics56,%20383.pdf)

Abstract: This paper focuses on the dichotomy between the multifaceted and multidimensional nature of contemporary R&D activity and unidimensional approaches to the measurement of its performance. While publications in refereed journals and citations are the most preferred indicators of research performance, there are also other indicators such as chapters in edited books, research reports, patents, algorithms, prototypes and designs, etc., which cannot be overlooked. Even when multiple indicators are used, they are used in isolation with the result that one gets only partial views of a multidimensional manifold. Here, a major problem is how to construct a composite measure of research performance, without assigning arbitrary weights to different measures of research output. This problem is particularly important for cross-institutional and cross-national comparisons of research performance. In this paper we have demonstrated the feasibility of constructing a multi-objective measure of research performance using Partial Order Scoring (POSCOR) algorithm developed by Hunya (1976). The algorithm is briefly described and applied to the empirical data on research outputs of 1460 research units in different socio-cultural, institutional and disciplinary settings. The potentialities and limitations of using POSCOR algorithm in scientometric analysis are briefly discussed.

Keywords: Algorithm, Algorithms, Analysis, Citation Impact, Citations, Composite, Data, Decision-Making, Eighties, Feasibility, Indicators, Journals, Measure, Measurement, Multidimensional, National Performances, Patents, Performance, Publication Output, Publications, Research, Research Performance, Scientometric, Scientometric Analysis, Scientometric Indicators, World Science

? Nagpaul, P.S. (2003), Exploring a pseudo-regression model of transnational cooperation in science. *Scientometrics*, **56** (3), 403-416.

Full Text: [2003\Scientometrics56, 403.pdf](2003/Scientometrics56,%20403.pdf)

Abstract: This paper reports the results of an empirical study on the impact of three proximity measures: geographical distance, thematic distance and socio-economic distance among the set of 45 scientifically most advanced countries on their cooperation network. In network data, individuals (viz. countries) are linked to one another and the relationships are nested and embedded in groups, with the result that statistical assumptions of independence underlying ordinary least squares regression are systematically violated. Hence, we have used a non-parametric regression procedure, Quadratic Assignment Procedure (QAP), for regressing the matrix of transnational cooperation on the matrices of three proximity measures: geographic proximity, thematic proximity and socio-economic proximity. The results indicate that all the three proximity measures have the expected negative effect on transnational cooperation. Geographic proximity has greater impact than the other proximity measures.

Keywords: 50 Nations, Areas, Assumptions, Cooperation, Data, Impact, Matrix, Model, Nested, Network, Procedure, Regression, Science, Scientometric Weight

Thelwall, M., Tang, R. and Price, L. (2003), Linguistic patterns of academic Web use in Western Europe. *Scientometrics*, **56** (3), 417-432.

Full Text: [2003\Scientometrics56, 417.pdf](2003/Scientometrics56,%20417.pdf)

Abstract: A survey of linguistic dimensions of Web site hosting and interlinking of the universities of sixteen European countries is described. The results show that English is the dominant language both for linking pages and for all pages. In a typical country approximately half the pages were in English and half in one or more national languages. Normalised interlinking patterns showed three trends: 1) international interlinking throughout Europe in English, and additionally in Swedish in Scandinavia; 2) linking between countries sharing a common language, and 3) countries extensively hosting international links in their own major languages. This provides evidence for the multilingual character of academic use of the Web in Western Europe, at least outside the UK and Eire. Evidence was found that Greece was significantly linguistically isolated from the rest of the EU but that outsiders Norway and Switzerland were not.

Keywords: Bibliometrics, Information, Webometrics

? Freeman, C., Patel, P. and Martin, B. (2003), Keith Pavitt (1937-2002) - Obituary. *Scientometrics*, **57** (1), 5-6.

Full Text: [2003\Scientometrics57, 5.pdf](2003/Scientometrics57,%205.pdf)

? Tsay, M.Y., Xu, H. and Wu, C.W. (2003), Journal co-citation analysis of semiconductor literature. *Scientometrics*, **57** (1), 7-25.

Full Text: [2003\Scientometrics57, 7.pdf](2003/Scientometrics57,%207.pdf)

Abstract: the purpose of this study is to map semiconductor literature using journal co-citation analysis. The journal sample was gathered from the INSPEC database from 1978 to 1997. In the co-citation analysis, the data compiled were counts of the number of times two journal titles were jointly cited in later publications. It is assumed that the more two journals are cited together, the closer the relationship between them. The journal set used was the 30 most productive journals in the field of semiconductors. Counts of co-citations to the set of semiconductor journals were retrieved from SciSearch database, accessed through Dialog. Cluster analysis and multi-dimensional scaling were employed to create two-dimensional maps of journal relationships in the cross-citation networks. The following results were obtained through this co-citation study: the 30 journals fall fairly clearly into three clusters. The major cluster of journals, containing 17 titles, is in the subject of physics. The second cluster, consisting of 9 journals, includes journals primarily on material science. The remaining cluster represents research areas in the discipline of electrical and electronic engineering. All co-cited journals share similar co-citation profiles, reflected in high positive Pearson correlation. Two hundred and ninety-six pairs (68%) correlate at greater than 0.70. This shows that there is strong relationship between semiconductor journals. Five individual journals in five paired sets with co-citation frequency over 100,000 times include Physical Review B, Condensed Matter; Physical Review Letters; Applied Physics Letters; Journal of Applied Physics; and Solid State Communications.

Keywords: Analysis, Cluster, Co-Citation, Co-Citation Analysis, Cocitation, Correlation, Data, Database, Engineering, Field, Journal, Journal Co-Citation, Journal Co-Citation Analysis, Journals, Literature, Multidimensional, Multidimensional Scaling, Networks, Profiles, Publications, Purpose, Research, Review, Scaling, Science, Semiconductor, Semiconductor Journals, Semiconductors

? Gmur, M. (2003), Co-citation analysis and the search for invisible colleges: A methodological evaluation. *Scientometrics*, **57** (1), 27-57.

Full Text: [2003\Scientometrics57, 27.pdf](2003/Scientometrics57,%2027.pdf)

Abstract: After 30 years of research, co-citation analysis has become the dominant method for the empirical study of the structures of scientific communication. There is a considerable variety of methods and, at the same time, a lack of methodological evaluation. This paper summarizes the present state of co-citation analysis and presents several methods of clustering references. The database used is a selection of 2,114 documents in the field of organization studies from 1986-2000. The evaluative study shows that the choice of methods has a strong impact on the results created. It also shows that the methods of cluster and factor analysis hitherto used have only a limited value in differentiating clearly between schools of scientific research - the ‘invisible colleges’.

Keywords: Analysis, Author Cocitation Analysis, Choice, Cluster, Clustering, Co-Citation, Co-Citation Analysis, Cocitation, Communication, Competitive Advantage, Context Analysis, Database, Decision-Making, Evaluation, Factor Analysis, Field, Formal-Structure, High-Velocity Environments, Impact, Intellectual Structure, Mapping Authors, Methods, Organization, Organizational Environments, References, Research, Scientific Communication, Scientific Literatures, Scientific Research, State, Value

? Gupta, B.M. and Dhawan, S.M. (2003), India’s collaboration with People’s Republic of China in Science and Technology: A scientometric analysis of coauthored papers during 1994-1999. *Scientometrics*, **57** (1), 59-74.

Full Text: [2003\Scientometrics57, 59.pdf](2003/Scientometrics57,%2059.pdf)

Abstract: the paper describes the need and importance of collaboration on scientific research. It discusses the present status of India’s collaboration with China in S&T, analyses the collaborative research between India and China, as reflected in the co-authored papers, in particular its nature, strong and week areas and its impact in different subject fields and indicates the potential areas in S&T for future collaboration.

Keywords: Analyses, Analysis, China, Collaboration, Collaborative Research, Impact, India, Papers, People’s Republic of China, Potential, Research, Science, Scientific Research, Scientometric, Scientometric Analysis

? Burrell, Q.L. (2003), Defining a core: Theoretical observations on the Egghe-Rousseau proposal. *Scientometrics*, **57** (1), 75-92.

Full Text: [2003\Scientometrics57, 75.pdf](2003/Scientometrics57,%2075.pdf)

Abstract: In a recent paper EGGHE & ROUSSEAU (2002) have readdressed the problem of defining the “core” of a subject’s literature by focussing on the productivity of the contributing sources as measured by their influence on an overall concentration value. Here we generalise Egghe & Rousseau’s empirical approach, based upon the Gini index, to a more theoretical setting. This allows a simple visualisation of the geometry of the procedure and a complete analysis in certain classic cases. We conclude that, without additional empirical support, the approach does not appear to offer real improvement on more established and intuitively appealing schemes.

Keywords: Analysis, Approach, Concentration, Gini, Gini Index, Improvement, Index, Library, Literature, Procedure, Productivity, Recent, Sources, Support, Value

? Zitt, M., Ramanana-Rahary, S. and Bassecoulard, E. (2003), Bridging citation and reference distributions: Part I - the referencing-structure function and its application to co-citation and co-item studies. *Scientometrics*, **57** (1), 93-118.

Full Text: [2003\Scientometrics57, 93.pdf](2003/Scientometrics57,%2093.pdf)

Abstract: Citations networks are a core topic of informetrics and science studies. This article proposes to bridge the cited and citing side of citation transactions by using a disaggregated form, the “referencing-structure” function (RSF). The RSF may be also seen as the “retrieval-structure” which, in a stylized co-citation or co-word model, gives the maximum retrieval that can be expected from the bibliometric characteristics of the field (retrieval and recall features are key issues in co-citation studies). The usual citation and reference distributions may be derived from aggregates or cuts respectively, of the RSF. The RSF representation also generates new points of views on the citing-cited distributions, such as the “iso-retrieval function”. A rank version of RSF is also introduced. Part I is devoted to the definition and construction of the RSF, and to the general interpretation of its various aspects in the context of co-citation studies. Generalization to other co-item (co-word, hyperlinks” co-sitations”) studies is discussed briefly. We also introduce a general form kindred to the Weibull distribution that can be used to fit cuts of the function. The forthcoming Part II will detail empirical fits, using a few experimental files.

Keywords: Aggregates, Application, Bibliometric, Bridge, Characteristics, Citation, Citations, Co-Citation, Cocitation, Construction, Context, Distribution, Experimental, Field, Function, General, Informetrics, Model, Networks, Rank, Recall, Reference, Representation, Science, Version

? Glaser, J. (2003), Untitled. *Scientometrics*, **57** (1), 141-142.

Full Text: [2003\Scientometrics57, 141.pdf](2003/Scientometrics57,%20141.pdf)

Keywords: Matthew

? Braun, T., Glänzel, W. and Schubert, A. (2003), Untitled - Response. *Scientometrics*, **57** (1), 143.

Full Text: [2003\Scientometrics57, 143.pdf](2003/Scientometrics57,%20143.pdf)

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Full Text: [2003\Scientometrics57, 145.pdf](2003/Scientometrics57,%20145.pdf)

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Full Text: [2003\Scientometrics57, 151.pdf](2003/Scientometrics57,%20151.pdf)

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Full Text: [2003\Scientometrics57, 155.pdf](2003/Scientometrics57,%20155.pdf)

Keywords: Conference, Indicators, Papers, Science

? Bordons, M., Morillo, F., Fernandez, M.T. and Gomez, I. (2003), One step further in the production of bibliometric indicators at the micro level: Differences by gender and professional category of scientists. *Scientometrics*, **57** (2), 159-173.

Full Text: [2003\Scientometrics57, 159.pdf](2003/Scientometrics57,%20159.pdf)

Abstract: Productivity and impact of the Spanish Council for Scientific Research scientists in Natural Resources and Chemistry by gender and professional category are analysed. Scientific publications were downloaded from the Science Citation Index, years 1994-1999. A total of 260 Natural Resources scientists (24% of females) and 219 Chemistry ones (38% of females) were studied. Productivity tended to increase as professional category improved in the two areas. Within each category no significant differences in productivity were found between genders, but the outliers with the highest production were mostly males. Distribution of females by professional categories and number of years at the institution were analysed to detect possible gender discrimination in the promotion system. A more positive picture e merges in Chemistry than in Natural Resources, since a process of feminization of that area has started in the lowest professional categories and females’ progression to the upper ranks is expected in the near future.

Keywords: Bibliometric, Bibliometric Indicators, Citation, Discrimination, Gender, Impact, Indicators, One Step, Outliers, Productivity, Promotion, Publications, Research, Science, Science Citation Index, Sex-Differences, Women

? Lacasa, I.D., Grupp, H. and Schmoch, U. (2003), Tracing technological change over long periods in Germany in chemicals using patent statistics. *Scientometrics*, **57** (2), 175-195.

Full Text: [2003\Scientometrics57, 175.pdf](2003/Scientometrics57,%20175.pdf)

Abstract: This contribution deepens the feasibility issues of building state-of-the-art patent indicators wit h historical patent documents available in electronic form from the German Patent Office since the introduction of the Patent Law for the German Empire in 1877. The paper is divided into two parts : a methodological discussion and a case study on the chemical sector in Germany. The development of the technology sector defined matches remarkably well with stylised facts that institutional analysis in the chemical sector have provided us with so far. Moreover, the possibility of varying the level of aggregation in the analysis of technological are as discloses empirical evidence for the path-dependent development in the chemical sector after the advent of the organic chemistry and its application in the chemical synthesis of dye stuffs. Our findings enhance institutional and historical contributions about technological change in the chemical sector and suggest new research questions for innovation studies.

Keywords: Aggregation, Analysis, Application, Building, Case Study, Chemical, Chemical Synthesis, Chemicals, Chemistry, Development, Dye, Evidence, Feasibility, Germany, Indicators, Innovation, Institutional Analysis, Organic, Patent, Research, Sector, Statistics, Synthesis, Technological Change, Technology

? Glänzel, W., Danell, R. and Persson, O. (2003), The decline of Swedish neuroscience: Decomposing a bibliometric national science indicator. *Scientometrics*, **57** (2), 197-213.

Full Text: [2003\Scientometrics57, 197.pdf](2003/Scientometrics57,%20197.pdf)

Abstract: Recent studies have reported on a steady decline of Sweden’s relative citation impact in almost all science fields, above all in the life sciences. The authors attempt to shed light on the observed decline in Swedish neuroscience through a detailed citation analysis at different level of aggregations. Thus national citation data are de composed to the institutional, departmental and individual level. Both, the decomposition of national science indicators and changing collaboration patterns in Swedish neuroscience reveal interesting details on the ‘anatomy’ of a decline.

Keywords: Analysis, Anatomy, Authors, Bibliometric, Citation, Citation Analysis, Collaboration, Data, Decomposition, Impact, Indicator, Indicators, Life, Life Sciences, Recent, Science, Science Indicators, Sciences

? Laudel, G. (2003), Study the brain drain: Can bibliometric methods help? *Scientometrics*, **57** (2), 215-237.

Full Text: [2003\Scientometrics57, 215.pdf](2003/Scientometrics57,%20215.pdf)

Abstract: Today science policy makers in many countries worry about a brain drain, i.e., about permanently losing their best scientists to other countries. However, such a brain drain has proven to be difficult to measure. This article reports a test of bibliometric methods that could possibly be used to study the brain drain on the micro-level. An investigation of elite mobility must solve the three methodological problems of delineating a specialty, identifying a specialty’s elite and identifying international mobility and migration. The first two problems were preliminarily solved by combining participant lists from elite conferences (Gordonconferences) and citation data. Mobility was measured by using the address information of publication data bases. The delineation of specialties has been identified as the crucial problem in studying elite mobility on the micro-level. Policy concerns of a brain drain were confirmed by measuring the mobility of the biomedical Angiotensin specialty.

Keywords: Bibliometric, Bibliometric Methods, Biomedical, Brain, Citation, Conferences, Data, First, Geographic-Mobility, Information, International, Investigation, Measure, Methods, Migration, Mobility, Policy, Publication, Science, Science Policy, Scientists, Specialty

? Li, X.M., Thelwall, M., Musgrove, P. and Wilkinson, D. (2003), The relationship between the WIFs or inlinks of Computer Science Departments in UK and their RAE ratings or research productivities in 2001. *Scientometrics*, **57** (2), 239-255.

Full Text: [2003\Scientometrics57, 239.pdf](2003/Scientometrics57,%20239.pdf)

Abstract: Previous research has shown that Weblink based metrics can correlate with traditional research assessment at the university level. In this study, we test whether the same is true for the computer science departments in the UK. The relevant Web Impact Factors (WIFs) were calculated from the link data collected both from Alta Vista and the special academic crawler of the University of Wolverhampton.The numbers of staff members and Web pages in each computer science department were used as denominators for the WIFs calculation. The number of inlinks to the computer science departments correlated significantly with their research productivities, and WIFs with numbers of staff members as denominators correlated significantly with their Research Assessment Exercise (RAE) ratings.The number of staff members was confirmed to be a better indicator of departmental size than the number of Web pages within the department’s domain.

Keywords: Assessment, Calculation, Data, Impact, Indicator, Information, Metrics, Rae, Research, Research Assessment, Science, Size, UK, University, Web Impact Factors, Webometrics

? van Leeuwen, T.N., Visser, M.S., Moed, H.F., Nederhof, T.J. and van Raan, A.F.J. (2003), Holy Grail of science policy: Exploring and combining bibliometric tools in search of scientific excellence. *Scientometrics*, **57** (2), 257-280.

Full Text: [2003\Scientometrics57, 257.pdf](2003/Scientometrics57,%20257.pdf)

Abstract: Evaluation studies of scientific performance conducted during the past years more and more focus on the identification of research of the ‘highest quality’, ‘top’ research, or ‘scientific excellence’. This shift in focus has lead to the development of new bibliometric methodologies and indicators. Technically, it meant a shift from bibliometric impact scores based on average values such as the average impact of all papers published by some unit to be evaluated towards indicators reflecting the top of the citation distribution, such as the number of ‘highly cited’ or ‘top’ articles. In this study we present a comparative analysis of a number of standard and new indicators of research performance or ‘scientific excellence’, using techniques applied in studies conducted by CWTS in recent years. It will be shown that each type of indicator reflects a particular dimension of the general concept of research performance. Consequently, the application of one single indicator only may provide an incomplete picture of a unit’s performance. It is argued that one needs to combine the various types of indicators in order to offer policy makers and evaluators valid and useful assessment tools.

Keywords: Analysis, Application, Assessment, Bibliometric, Citation, Development, Distribution, Evaluation, General, Highly Cited, Highly-Cited, Identification, Impact, Indicator, Indicators, Lead, Methodologies, Needs, Papers, Performance, Policy, Quality, Recent, Research, Research Performance, Science, Science Policy, Scientific Performance, Single Indicator, Standard, Techniques

? Yglesias, E. (2003), Porter vs. Porter: Modeling the technological competitiveness of nations. *Scientometrics*, **57** (2), 281-293.

Full Text: [2003\Scientometrics57, 281.pdf](2003/Scientometrics57,%20281.pdf)

Abstract: the author evaluates two major models of technological competitiveness of nations, and proposes a synthesized model based on their strengths and then complements it with additional measures. The paper addresses definition distinctions between the terms “competition” and “innovation”, discusses the differing views on whether certain statistics are either input or output indicators, and reconsiders the relevance of the unit of analysis.

Keywords: Analysis, Indicators, Model, Modeling, Models, Nations, Patterns, Relevance, Statistics

? Zitt, M., Ramanana-Rahary, S., Bassecoulard, E. and Laville, F. (2003), Potential science-technology spillovers in regions: An insight on geographic co-location of knowledge activities in the EU. *Scientometrics*, **57** (2), 295-320.

Full Text: [2003\Scientometrics57, 295.pdf](2003/Scientometrics57,%20295.pdf)

Abstract: This article depicts some features of the geography of science and technology outputs in the EU, with a particular attention to regional “co-location” of these two pillars of the “knowledge-based society”. Economists have, for a decade, paid great attention to local “spillovers” stating that industrial firms often draw advantages from the presence of nearby academic centres. The presence in the same areas of strong academic and technological resources is both a condition and a result of science-technology interactions. Concentrating on publications and patents as proxies of the science and technology level in regions, we built a typology of regions according to their commitment to the two knowledge-base activities and then analysed the co-locations of science and technology from several points of view. A fine-grain lattice, mainly based on standard Nuts3 level, was used. Co-location, at the EU level, is not a general rule. A strong potential for spillover/interaction does exist in the top-class regions which concentrate a high proportion of European S and T output. But for regions with a small/medium level of S&T activity, a divergence of orientations appears between a science-oriented family and a technology-oriented family, indicating an imbalance between local S and T resources. If we look at the S-oriented regions, whilst controlling for underlying factors, such as population and regional economic product, a significant geographic linkage between T and S appears. This suggests a trajectory of science-based technological development. A careful examination of S&T thematic alignments and specialisation is necessary to develop the hypothesis that fostering academic resources could increase the technological power along a growth path.

Keywords: Commitment, Concentrate, Development, Economic, Eu, Examination, Family, General, Geography, Growth, Innovation, Knowledge, Knowledge Base, Linkage, Local, Patent Statistics, Patents, Population, Potential, Power, Publications, Regional, Resources, Science, Science and Technology, Standard, Technology, Trajectory

? Goldfinch, S., Dale, T. and DeRouen, K. (2003), Science from the periphery: Collaboration, networks and ‘Periphery Effects’ in the citation of New Zealand Crown Research Institutes articles, 1995-2000. *Scientometrics*, **57** (3), 321-337.

Full Text: [2003\Scientometrics57, 321.pdf](2003/Scientometrics57,%20321.pdf)

Abstract: While collaboration is associated with higher article citation rates, a body of research has suggested that this is, in part, related to the access to a larger social network and the increased visibility of research this entails, rather than simply a reflection of greater quality. We examine the role of networks in article citation rates by investigating article publication by the nine New Zealand Government-owned Crown Research Institutes (CRIs), drawing on the Science Citation Index. We analyse an aggregate data set of all CRI publications with duplicates removed, and, in addition, investigate each CRI. We find that a greater number of authors, countries and institutions involved in co-publication increases expected citation rates, although there are some differences between the CRIs. However, the type of co-publication affects the expected citation rates. We discover a ‘periphery effect’ where greater levels of co-publication with domestic institutions decreases expected citation rates. We conclude that scientists working on the periphery looking to increase the visibility of their research should strive to link their research to the international research community, particularly through co-publication with international authors.

Keywords: Access, Authors, Citation, Collaboration, Community, Data, Institutions, International, Network, Networks, New Zealand, Publication, Publications, Quality, Rates, Reflection, Research, Role, Science, Science Citation Index, Social, Visibility

Leta, J. and Lewison, G. (2003), The contribution of women in Brazilian science: A case study in astronomy, immunology and oceanography. *Scientometrics*, **57** (3), 339-353.

Full Text: [2003\Scientometrics57, 339.pdf](2003/Scientometrics57,%20339.pdf)

Abstract: the performance of Brazilian male and female scientists in three scientific fields was assessed through their publications in the Science Citation Index from 1997-2001. Information on their sex and their ages, positions, and fellowship status was obtained from a census on all Brazilian scientists. The results showed that women participated most in immunology, moderately in oceanography and least in astronomy. Men and women published similar numbers of papers, and they were also of similar potential impact; they were also equally likely to collaborate internationally their salaries, suggesting that some sexual discrimination may still be occurring in the Brazilian peer- review process.

Keywords: Europe, International Collaboration, Scientific Cooperation

? Van Looy, B., Zimmermann, E., Veugelers, R., Verbeek, A., Mello, J. and Debackere, K. (2003), Do science-technology interactions pay off when developing technology? An exploratory investigation of 10 science-intensive technology domains. *Scientometrics*, **57** (3), 355-367.

Full Text: [2003\Scientometrics57, 355.pdf](2003/Scientometrics57,%20355.pdf)

Abstract: We investigate the relationship between the science intensity of technology domains and country’s performance within these domains. The number of references in patents to scientific articles is considered as an approximation of the science intensity of a technology domain whereas a country’s technological performance is measured in terms of its technological productivity (i.e. number of patents per capita). We use USPTO patent-data for eight European countries in ten technological domains. A variance analysis (ANOVA) is applied. Country as an independent variable does not explain a significant portion of the observed variance in science intensity (p=0.25). Technology domain, however, explains a significant portion of the observed variance (p<0.001). Moreover, in science intensive fields we find a positive relation between the science linkage intensity of these fields and the technological productivity of the respective countries involved. These findings seem to suggest the relevancy of designing innovation policies, aimed at fostering interaction between knowledge generating actors and technology producers, in a field specific manner.

Keywords: Analysis, Anova, Citations, Developing, Field, Indicators, Industry-Government Relations, Innovation, Interaction, Investigation, Knowledge, Linkage, Patents, Performance, Policies, Productivity, References, Science, Technology, Triple-Helix

Notes: TTopic

Ho, Y.S., Chiu, C.H., Tseng, T.M. and Chiu, W.T. (2003), Assessing stem cell research productivity. *Scientometrics*, **57** (3), 369-376.

Full Text: [2003\Scientometrics57, 369.pdf](2003/Scientometrics57,%20369.pdf)

Abstract: Honour Index (HoI), a method to evaluate research performance within different research fields, was derived from the impact factor (IF). It can be used to rate and compare different categories of journals. HoI was used in this study to determine the scientific productivity of stem cell research in the Asian Four Dragons (Hong Kong, Singapore, South Korea and Taiwan) from 1981 to 2001. The methodology applied in this study represents a synthesis of universal indicator studies and bibliometric analyses of subfields at the micro-level. We discuss several comparisons, and conclude the developmental trend in stem cell research for two decades.

Keywords: Analyses, Asian, Bibliometric, Bibliometric Analyses, Fields, Hong Kong, Impact, Impact Factor, Indicator, Journals, Korea, Methodology, Performance, Productivity, Publications, Research, Research Performance, Research Productivity, Science, Scientific Productivity, South Korea, Stem Cell, Synthesis, Taiwan, Trend

Miettunen, J. and Nieminen, P. (2003), The effect of statistical methods and study reporting characteristics on the number of citations: A study of four general psychiatric journals. *Scientometrics*, **57** (3), 377-388.

Full Text: [2003\Scientometrics57, 377.pdf](2003/Scientometrics57,%20377.pdf)

Abstract: This paper investigates how the use of different statistical methods and study design characteristics affected the number of citations in psychiatric journals. Original research articles (N = 448) from four psychiatric journals were reviewed. Aspects measured included the use of statistical methodology, presentation of results, description of procedures, country of the corresponding author and number of the authors. The use of statistical methods was not strongly associated with the further utilisation of an article. The effect was low compared to the impact of correspondence address or number of authors. Extended description of statistical procedures and an experimental study design had a positive effect to the received citations.

Keywords: Medical Journals, Trends

? Hartley, J., Pennebaker, J.W. and Fox, C. (2003), Abstracts, introductions and discussions: How far do they differ in style? *Scientometrics*, **57** (3), 389-398.

Full Text: [2003\Scientometrics57, 389.pdf](2003/Scientometrics57,%20389.pdf)

Abstract: Two computer-based style programs were used to analyse the Abstracts, Introductions and Discussions of 80 educational psychology journal articles. Measures were made of the overall readability of the texts as well as of sentence lengths, difficult and unique words, articles, prepositions and pronouns. The results showed that the Abstracts scored worst on most of these measures of readability, the Introductions came next, and the Discussions did best of all. However, although the mean scores between the sections differed, the authors wrote in stylistically consistent ways across the sections. Thus readability was variable across the sections but consistent within the authors.

Keywords: Articles, Authors, Educational Psychology, Journal, Journal Articles, Journals, Psychology, Readability, Text

Xu, W., Chen, Y.Z. and Shen, Z.C. (2003), Neuroscience output of China: A MEDLINE-based bibliometric study. *Scientometrics*, **57** (3), 399-409.

Full Text: [2003\Scientometrics57, 399.pdf](2003/Scientometrics57,%20399.pdf)

Abstract: Neuroscience is one of the most active research fields in many countries including China, an economically and scientifically emerging country, where a rapid development has been occurred since the 1970s. In this study, a MEDLINE-based bibliometric analysis of Chinese international output in neuroscience was conducted for the period from 1984 through 2001. An attempt was made to identify the pattern of the growth and to obtain some quantitative indicators over the literature studied in order to review at the developing steps of neuroscience in China during the period.

Wallner, B., Fieder, M. and Iber, K. (2003), Age profile, personnel costs and scientific productivity at the University of Vienna. *Scientometrics*, **58** (1), 143-153.

Full Text: [2003\Scientometrics58, 143.pdf](2003/Scientometrics58,%20143.pdf)

Abstract: This study analyzes the age profile of scientific employees and its relation to personnel costs and scientific productivity within eight faculties at the University of Vienna. The age demography can overall be divided into two main categories: Category one faculties represent an increased number of younger aged researchers (Catholic-, Protestant Theology, Law, Economics, Information Sciences, and Medicine), category two faculties show an increased number of older aged researchers (Social Sciences, Humanities, and Science). In addition, it can be demonstrated that the personnel costs for full professors are higher within four faculties (Catholic-, Protestant Theology, Law, and Economics and Information Sciences). Inevitably, this leads to savings for habilitated and non- habilitated researchers at these faculties. The faculty of Medicine represents a well-balanced use of personnel costs. Three faculties (Social Sciences, Humanities, and Sciences) have to pay dramatically more for their older aged habilitated and non-habilitated personnel. for the entire university and two faculties, Medicine and Humanities, a positive and significant relationship between age and the average weekly teaching performance is shown. This study suggests that institutions with a high percentage of older researchers, mainly in the categories of habilitated and non- habilitated personnel, must change their policy to become more flexible and attractive for new talented young people. Due to the fact, that this cannot only be realized through the introduction of new laws, each faculty must establish a scientific plan combined with reorganizations of the personnel structure and personnel costs.

Thelwall, M. and Tang, R. (2003), Disciplinary and linguistic considerations for academic Web linking: An exploratory hyperlink mediated study with Mainland China and Taiwan. *Scientometrics*, **58** (1), 155-181.

Full Text: [2003\Scientometrics58, 155.pdf](2003/Scientometrics58,%20155.pdf)

Abstract: the Web has become an important means of academic information exchange and can be used to give new insights into patterns of informal scholarly communication. This study develops new methods to examine patterns of university Web linking, focusing on Mainland China and Taiwan, and including language considerations. Multiple exploratory investigations into Web links were conducted between universities in these two places. Firstly, inlinks were counted to each university Web site from its national peers using four alternative Web document models. The results were shown to correlate significantly with research productivity in Taiwan but not in the Mainland, although in the latter case less reliable institutional data could have been the cause. for Taiwan, this is the first evidence of a scholarly association with academic linking for a non-English speaking region. It was then ascertained that the same link counts associated more strongly with scientific than social scientific research productivity in Taiwan. This confirms the general assumption of greater Web use by the hard sciences. We then investigated Taiwan-Mainland university cross-links, and found that although English is extensively used on the Web, there was no evidence that it was the language of preference for informal scholarly communication between the two areas.

Keywords: Bibliometrics, Communication, Crawler, Departments, Impact Factors, Information, Journals, Science, Site Interlinking, University

? Eto, H. (2003), Interdisciplinary information input and output of a nano-technology project. *Scientometrics*, **58** (1), 5-33.

Full Text: [2003\Scientometrics58, 5.pdf](2003/Scientometrics58,%205.pdf)

Abstract: the input and output information of a national project of Japan for nano-technology will be analysed. In 1996 Japanese government stipulated a guideline to evaluate national technology projects on economic criteria as well as technological ones. In addition to the criteria intrinsic to economy but extrinsic to technology and unfriendly to technologists, however, another view more intrinsic to technology may be useful as well. This study will attempt to complement the governmentally stipulated evaluation method with a bibliometric one. Considering the interdisciplinary approach as a merit of national projects, this study will analyse how interdisciplinary information was used as input and was published as output by the project. Focussing on the publication behaviours of the project, information flow from technology to science or a development pattern of science pulled by technology will be discussed. Finally, the matching of the evaluation criteria to technology development and the friendliness of evaluation methods to technologists will be discussed.

Keywords: Approach, Authorship Patterns, Bibliometric, Citation Patterns, Collaboration, Criteria, Development, Economic, Economic Criteria, Economy, Evaluation, Evaluation Methods, Flow, Guideline, Information, Interdisciplinary, Japan, Journals, Methods, Nanotechnology, Operational-Research, Pattern, Publication, Science, Scientific Literature, Self-Citations, Stationary Scientometric Distributions, Technology, Theoretical Population-Genetics

? Kyvik, S. (2003), Changing trends in publishing behaviour among university faculty, 1980-2000. *Scientometrics*, **58** (1), 35-48.

Full Text: [2003\Scientometrics58, 35.pdf](2003/Scientometrics58,%2035.pdf)

Abstract: This article analyses changes in publication patterns over a twenty-year period at Norwegian universities. Based on three surveys among academic staff; 1982, 1992 and 2001. covering all kinds of publications, the following general conclusions are drawn: (a) co-authorship has become more common, (b) the extent of publishing directed towards an international audience has increased, (c) the scientific article in an international journal has enhanced its position as the dominating type of publication, and (d) the number of publications per academic staff member has increased. The largest changes have taken place within the social sciences, which to an increasing extent approaches the publication pattern in the natural sciences. On the other hand, the large productivity differences between individual researchers have remained remarkably stable over the two decades in all fields of learning.

Keywords: Analyses, Behaviour, Changes, Co-Authorship, Coauthorship, Faculty, General, International, Journal, Journals, Law, Learning, Natural, Pattern, Productivity, Publication, Publications, Publishing, Science, Sciences, Social, Social Sciences, Surveys, Trends, Universities, University

? Bonaccorsi, A. and Daraio, C. (2003), Age effects in scientific productivity: the case of the Italian National Research Council (CNR). *Scientometrics*, **58** (1), 49-90.

Full Text: [2003\Scientometrics58, 49.pdf](2003/Scientometrics58,%2049.pdf)

Abstract: Age effects in scientific production are a consolidated stylised fact in the literature. At the level of scientist productivity declines with age following a predictable pattern. The problem of the impact of age structure on scientific productivity at the level of institutes in much less explored. The paper examines evidence from the Italian National Research Council. The path of hiring of junior researchers along the history of the institution is reconstructed. We find that age structure has a depressing effect on productivity and derive policy implications. The dynamic of growth of research institutes is introduced as a promising research field.

Keywords: Age, Dynamic, Economics, Effects, Evidence, Field, Growth, Hiring, History, Impact, Literature, Pattern, Policy, Productivity, Research, Science, Scientific Production, Scientific Productivity, Structure

? Wagner, C.S. and Leydesdorff, L. (2003), Seismology as a dynamic, distributed area of scientific research. *Scientometrics*, **58** (1), 91-114.

Full Text: [2003\Scientometrics58, 91.pdf](2003/Scientometrics58,%2091.pdf)

Abstract: Seismology has several features that suggest it is a highly internationalized field: the subject matter is global, the tools used to analyse seismic waves are dependent upon information technologies, and governments are interested in funding cooperative research. We explore whether an emerging field like seismology has a more internationalised structure than the older, related field of geophysics. Using aggregated journal-journal citations, we first show that, within the citing environment, seismology emerged from within geophysics as its own field in the 1990s. The bibliographic analysis, however, does not show that seismology is more internationalised than geophysics: in 2000, seismology had a lower percentage of all articles co-authored on an international basis. Nevertheless, social network analysis shows that the core group of cooperating countries within seismology is proportionately larger and more distributed than that within geophysics. While the latter exhibits an established network with a hierarchy, the formation of a field in terms of new partnership relations is ongoing in seismology.

Keywords: Analysis, Citations, Cooperative Research, Distributed, Dynamic, Environment, Field, First, Funding, Global, Information, International, Network, Network Analysis, Relations, Research, Scientific Research, Social, Social Network Analysis, Structure, Technologies

? Choung, J.Y., Min, H.G. and Park, M.C. (2003), Patterns of knowledge production: the case of information and telecommunication sector in Korea. *Scientometrics*, **58** (1), 115-128.

Full Text: [2003\Scientometrics58, 115.pdf](2003/Scientometrics58,%20115.pdf)

Abstract: In recent years, the topic of knowledge production has been widely investigated in the advanced countries. However, the process by which knowledge is produced in the developing countries has not been fully explored or characterized. In Korea, the science and engineering fields strongly reflect systems of knowledge production in the universities and demonstrate the dynamics of systems of innovation for knowledge production. Through using a case study including data for knowledge production, in the field of information and telecommunication, the following general knowledge production, via domestic and foreign collaboration. Secondly, there has been an increasing trends towards the diversification of knowledge sources such as university-industry, and university-public research institutes. Finally, the establishment of a nation’s knowledge base is influenced by governmental research and development policies.

Keywords: Capabilities, Case Study, Collaboration, Data, Developing, Developing Countries, Development, Dynamics, Engineering, Field, General, Industry, Information, Innovation, Knowledge, Knowledge Base, Korea, Latecomer Firms, Policies, Recent, Research, Research and Development, Science, Sector, Sources, Systems, Taiwan, Technology, Trends, Universities

? Song, C.H. (2003), Interdisciplinarity and knowledge inflow/outflow structure among science and engineering research in Korea. *Scientometrics*, **58** (1), 129-141.

Full Text: [2003\Scientometrics58, 129.pdf](2003/Scientometrics58,%20129.pdf)

Abstract: Interdisciplinary research has been encouraged through the policies of many governmental and institutional funding agencies in Korea. This paper measured the degrees of interdisciplinary in individual and collaborative researches and analyzes the factors affecting it. This paper also examined flow of knowledge among different disciplines in science and engineering research using a database obtained from research proposals submitted to Korea Science and Engineering Foundation (KOSEF). The analysis indicated that 54.6% of collaborative research proposals were interdisciplinary, while 35.8% of individual research proposals were interdisciplinary. The analysis of knowledge inflow/outflow structure showed that Natural science served as a link between Life science and Engineering.

Keywords: Analysis, Collaborative Research, Database, Engineering, Fields, Flow, Funding, Interdisciplinarity, Interdisciplinary, Knowledge, Korea, Physics, Policies, Research, Science, Structure

? Wallner, B., Fieder, M. and Iber, K. (2003), Age profile, personnel costs and scientific productivity at the University of Vienna. *Scientometrics*, **58** (1), 143-153.

Full Text: [2003\Scientometrics58, 143.pdf](2003/Scientometrics58,%20143.pdf)

Abstract: This study analyzes the age profile of scientific employees and its relation to personnel costs and scientific productivity within eight faculties at the University of Vienna. The age demography can overall be divided into two main categories: Category one faculties represent an increased number of younger aged researchers. (Catholic-, Protestant Theology, Law, Economics, Information Sciences, and Medicine), category two faculties show an increased number of older aged researchers (Social Sciences, Humanities, and Science). In addition, it can be demonstrated that the personnel costs for full professors are higher within four faculties (Catholic-, Protestant Theology, Law, and Economics and Information Sciences). Inevitably, this leads to savings for habilitated and non- habilitated researchers at these faculties. The faculty of Medicine represents a well-balanced use of personnel costs. Three faculties (Social Sciences, Humanities, and Sciences) have to pay dramatically more for their older aged habilitated and non-habilitated personnel. for the entire university and two faculties. Medicine and Humanities, a positive and significant relationship between age and the average weekly teaching performance is shown. This study suggests that institutions with a high percentage of older researchers, mainly in the categories of habilitated and non- habilitated personnel, must change their policy to become more flexible and attractive for new talented young people. Due to the fact, that this cannot only be realized through the introduction of new laws, each faculty must establish a scientific plan combined with reorganizations of the personnel structure and personnel costs.

Keywords: Age, Aged, Costs, Demography, Faculty, Humanities, Institutions, Laws, Management, Medicine, Performance, Personnel, Policy, Productivity, Science, Scientific Productivity, Social Sciences, Structure, Teaching, University

? Thelwall, M. and Tang, R. (2003), Disciplinary and linguistic considerations for academic Web linking: An exploratory hyperlink mediated study with Mainland China and Taiwan. *Scientometrics*, **58** (1), 155-181.

Full Text: [2003\Scientometrics58, 155.pdf](2003/Scientometrics58,%20155.pdf)

Abstract: the Web has become an important means of academic information exchange and can be used to give new insights into patterns of informal scholarly communication. This study develops new methods to examine patterns of university Web linking, focusing on Mainland China and Taiwan, and including language considerations. Multiple exploratory investigations into Web links were conducted between universities in these two places. Firstly, inlinks were counted to each university Web site from its national peers using four alternative Web document models. The results were shown to correlate significantly with research productivity in Taiwan but not in the Mainland, although in the latter case less reliable institutional data could have been the cause. for Taiwan, this is the first evidence of a scholarly association with academic linking for a non-English speaking region. It was then ascertained that the same link counts associated more strongly with scientific than social scientific research productivity in Taiwan. This confirms the general assumption of greater Web use by the hard sciences. We then investigated Taiwan-Mainland university cross-links, and found that although English is extensively used on the Web, there was no evidence that it was the language of preference for informal scholarly communication between the two areas.

Keywords: Alternative, Association, Bibliometrics, China, Communication, Crawler, Data, Departments, Evidence, First, General, Hyperlink, Impact Factors, Information, Investigations, Journals, Language, Mainland China, Methods, Models, Preference, Productivity, Region, Research, Research Productivity, Scholarly Communication, Science, Sciences, Scientific Research, Site, Site Interlinking, Social, Taiwan, Universities, University

? Braun, T. and Schubert, A. (2003), A quantitative view on the coming of age of interdisciplinarity in the sciences 1980-1999. *Scientometrics*, **58** (1), 183-189.

Full Text: [2003\Scientometrics58, 183.pdf](2003/Scientometrics58,%20183.pdf)

Keywords: Age, Interdisciplinarity, Sciences

? Leydesdorff, L. and Meyer, M. (2003), The Triple Helix of university-industry-government relations. *Scientometrics*, **58** (2), 191-203.

Full Text: [2003\Scientometrics58, 191.pdf](2003/Scientometrics58,%20191.pdf)

Abstract: the Triple Helix of university-industry-government relations provides a neo-evolutionary model of the process of innovation that is amenable to measurement. Economic exchange, intellectual organization, and geographical constraints can be considered as different dynamics that interact in a knowledge-based economy as a complex system. Differentiation spans the systems of innovation, while performative integration enables organizations to retain wealth from knowledge. Because of the systematic organization of interfaces among the subsystems under study, different perspectives can be expected in the reflection. Consequences for the heuristics, the research design, and normative implications are specified and the organization of the issue is further explained.

Keywords: Design, Dynamics, Economy, Heuristics, Innovation, Integration, Interfaces, Knowledge, Knowledge-Based, Measurement, Model, Organization, Reflection, Relations, Research, Research Design, Science, Systems, Technical Change, Trajectories, Wealth

? Danell, R. and Persson, O. (2003), Regional R&D activities and interactions in the Swedish Triple Helix. *Scientometrics*, **58** (2), 205-218.

Full Text: [2003\Scientometrics58, 205.pdf](2003/Scientometrics58,%20205.pdf)

Abstract: the Swedish innovation system is analysed in terms of the interaction between academia, government and the private sector. for each of 21 Swedish regions we analyse the distribution of research activities, doctoral employment, and publication output, as well as the flow of doctoral graduates and the distribution of co-authorship links across regions and sectors. The three main urban regions have about 75 percent of all R&D activities and outputs. They also have a more balanced supply of academic, governmental and private research activities than the smaller regions, and the interactions among sectors with in these regions are more intense. The inter-regional flow of PhDs is also to the advantage of the big regions. So far, decentralization of the academic sector does not seem to have had as similar decentralizing effect on private R&D. Unless this imbalance changes, smaller regions will continue to be net exporters of skill and knowledge to the big region.

Keywords: Changes, Co-Authorship, Coauthorship, Distribution, Employment, Flow, Innovation, Innovation System, Interaction, Knowledge, Private Sector, Publication, Region, Research, Sector, Urban

? Goktepe, D. (2003), The Triple Helix as a model to analyze Israeli Magnet Program and lessons for late-developing countries like Turkey. *Scientometrics*, **58** (2), 219-239.

Full Text: [2003\Scientometrics58, 219.pdf](2003/Scientometrics58,%20219.pdf)

Abstract: Although the systemic changes towards innovation networking between university-industry and governmental actors have recently found a place on the international policy and literature agenda, networking between the organizations and people - for the national survival, production and growth - has been deeply rooted in the Israeli system even before the establishment of the Israeli State in 1948. Internal and international constraints fostered the formation of personal links, as did institutional settings that promoted networking. This paper reviews the interaction of societal, organizational and cultural features that render innovation networks in Israel successful. The research focuses on the impacts of the Israeli Magnet Program on the Israeli R&D growth and performance. The implications of innovation networks for a late-developing country like Turkey are reviewed in the contexts of catching-up and cross-regional collaboration between the Israeli and Turkish industries and academics.

Keywords: Academics, Changes, Collaboration, Competitors, Country, Cultural, Future, Growth, Impacts, Innovation, Interaction, International, Israel, Literature, Model, Networks, Organizational, Performance, Policy, Research, Reviews, Survival, Turkey, University-Industry-Government

? Verbeek, A., Debackere, K. and Luwel, M. (2003), Science cited in patents: A geographic “flow” analysis of bibliographic citation patterns in patents. *Scientometrics*, **58** (2), 241-263.

Full Text: [2003\Scientometrics58, 241.pdf](2003/Scientometrics58,%20241.pdf)

Abstract: the interplay and cross-fertilization between science and technology, but also the specific role of science for technological development, have received ample attention in both the research and the policy communities. It is in this context that the concepts of “absorptive capacity” and “knowledge spillovers” play an important role. We operationalize the science-technology link by quantifying and modeling bibliographic references to the scientific literature as they occur in patents. This approach allows exploring the associative patterns between science creation (as emerging from the scientific literature) and technology development (as emerging from the patent literature). In the current paper, we focus on an analysis of the geographic distribution of the science citation patterns in patents, singling out two (different) fields of technological development, namely biotechnology and information technology. In both fields, the science citation flows from the European, Japanese and US science bases into USPTO and EPO-patents are explored and modeled. Intensive geographic citation flows between the regions are identified, pointing (amongst others) to the strength of both the US and the European science bases as sources for technological activity and creativity around the world.

Keywords: Analysis, Approach, Biotechnology, Citation, Citation Patterns, Context, Creativity, Development, Distribution, Indicators, Industry-Government Relations, Information, Information Technology, Innovation, Linkage, Literature, Modeling, Patent, Patents, Policy, References, Research, Role, Science, Science and Technology, Scientific Literature, Sources, Strength, Technical Change, Technological Activity, Technology, Triple-Helix, US, World

? Bhattacharya, S. and Meyer, M. (2003), Large firms and the science-technology interface: Patents, patent citations, and scientific output of multinational corporations in thin films. *Scientometrics*, **58** (2), 265-279.

Full Text: [2003\Scientometrics58, 265.pdf](2003/Scientometrics58,%20265.pdf)

Abstract: Firms operating in science-based technological fields reflect some of the complexities of the science-technology interaction. The present study attempts to investigate these interactions by analyzing patent citations, publications and patent outputs of multinational corporations (MNCs) in ‘thin film’ technology. In particular we explore different characteristics of knowledge production and knowledge utilization of these firms. The results indicate no correlation between intensity of research activity and patents produced by the MNCs. The relationship between scientific and technological knowledge generation as well as the linkage between science and technology appear to be firm-specific rather than dependent on a technological or industrial sector. The dispersion of journal sources for the majority of patent citations of scientific literature as well as for the majority of scientific outputs is narrow. Basic journals play an important role in patent citation as well as in addressing research of MNCs in thin-film technology.

Keywords: Characteristics, Citation, Citations, Correlation, Dispersion, Generation, Innovation, Interaction, Interface, Journal, Journals, Knowledge, Knowledge-Generation, Linkage, Literature, Patent, Patent Citations, Patents, Publications, Research, Role, Science, Science and Technology, Scientific Literature, Scientific Output, Sector, Sources, Technology, Thin Film, Utilization

? Gray, D.O. and Steenhuis, H.J. (2003), Quantifying the benefits of participating in an industry university research center: An examination of research cost avoidance. *Scientometrics*, **58** (2), 281-300.

Full Text: [2003\Scientometrics58, 281.pdf](2003/Scientometrics58,%20281.pdf)

Abstract: the challenges to conducting valid and complete outcome evaluations of cooperative research activities, like the National Science Foundation Industry/University Cooperative Research Centers (IUCRC) Program, are daunting. The current study tries to make a small but important contribution to this area by attempting to develop quantitative estimates of one center benefit - R&D cost avoidance. Cost avoidance is operationalized as R&D costs industrial members would have incurred but did not, because they participated in university-based industrial consortia, minus the costs of belonging to the consortia. Data were collected from a total of 18 industrial sponsors from three IUCRCs on 35 different research projects. Findings indicate that some firms do avoid R&D costs by participating in an IUCRC but the prevalence of this benefit varies across centers and across firms. The implications of these findings for policy, practice and future research are discussed.

Keywords: Cooperative Research, Cost, Costs, Estimates, Examination, Outcome, Policy, Practice, Prevalence, Research, Science, Small, University

? Ranga, L.M., Debackere, K. and von Tunzelmann, N. (2003), Entrepreneurial universities and the dynamics of academic knowledge production: A case study of basic vs. applied research in Belgium. *Scientometrics*, **58** (2), 301-320.

Full Text: [2003\Scientometrics58, 301.pdf](2003/Scientometrics58,%20301.pdf)

Abstract: This paper explores issues related to the impact of Science-Industry relationships on the knowledge production of academic research groups, in particular on the alleged shift to the more applied research end under the influence of business partners’ needs. Our findings from a case study of the Belgian Katholieke Universiteit Leuven ((K.U. Leuven) show a significant steady growth over time of publications produced by academic research groups involved in University-Industry linkages, closely related to factors both internal and external to the university that have stimulated academic entrepreneurial behaviour. On an aggregated level for 1985-2000, basic research publications appear to be more present than applied ones, both in total numbers and in growth rates. Our findings show that applied and basic research publications generally rose together in the same year. No clear and generalised evidence of a shift towards the applied research end determined by the involvement in U-I linkages was found, the weak indications of such a shift within groups coming only for groups that have already high applied versus basic orientation. These results suggest that the academic research groups examined have developed a record of applied publications without affecting their basic research publications and, rather than differentiating between applied and basic research publications, it is the combination of basic and applied publications that consolidate the group’s R&D potential. Accordingly, critical assessments of the University side of the emerging ‘Triple Helix’ need to take into account the dynamic nature of the research dimension.

Keywords: Applied Research, Assessments, Behaviour, Belgium, Business, Case Study, Dynamic, Dynamics, Evidence, Growth, Impact, Indications, Knowledge, Needs, Norms, Potential, Publications, Rates, Record, Research, Science, Social-Contract, Society, Universities, University

? Meyer, M., Sinilainen, T. and Utecht, J.T. (2003), Towards hybrid Triple Helix indicators: A study of university-related patents and a survey of academic inventors. *Scientometrics*, **58** (2), 321-350.

Full Text: [2003\Scientometrics58, 321.pdf](2003/Scientometrics58,%20321.pdf)

Abstract: This paper presents work directed at capturing the entrepreneurial and collaborative activity of university researchers. The Triple Helix points to the emergence of the entrepreneurial university as well as to an increasing overlay of activities in universities, industry and government. This study explores ways in which patent-based metrics could be utilized in a Triple Helix context, and how hybrid indicators could be developed by combining patent with survey data. More specifically, it aims to develop indicators that connect technological inventiveness of university researchers to both funding organizations and users, as well as to entrepreneurial activities by academics. The paper develops a simplified model of the innovation process to benchmark the relevance of the indicators to the Triple Helix. An analysis of Finnish academic patents illustrates that patent data can already provide useful indicators but, on its own, cannot provide information about how academic patents are interconnected with government or industry through funding or utilization links. An exclusive analysis of patents can point to patent concentrations on certain universities, to inventors and assignees, or to potential gaps in translating applied science into industrial technology. However, the patent data had to be combined with an inventor survey in order to relate academic patents more to their Triple Helix environment. The survey indicated that most patented academic inventions are connected to (often publicly funded) scientific research by the inventors and tend to be utilized in large firms rather than in start-up companies founded by academic entrepreneurs.

Keywords: Academics, Analysis, Context, Data, Environment, Funding, Hybrid, Indicators, Information, Innovation, Inventions, Metrics, Model, Patent, Patents, Potential, Relevance, Research, Science, Scientific Research, Survey, Systems, Technology, Universities, University, Utilization, Work

? Cozzens, S.E. and Bobb, K. (2003), Measuring the relationship between high technology development strategies and wage inequality. *Scientometrics*, **58** (2), 351-368.

Full Text: [2003\Scientometrics58, 351.pdf](2003/Scientometrics58,%20351.pdf)

Abstract: Growing income and wage inequality in a range of countries has raised concern. High-technology development may be contributing to this inequality, by encouraging higher wages at the upper end of the income distribution. Most studies of the possibility of this effect have used generic, aggregated data. In this paper, we introduce the possibility of linking wage inequality directly to specific industrial strategies using the Theil Index of inequality. This measure portrays the portion of wage inequality that is attributable to wages in specific industries. We illustrate this concept with data from U.S. states.

Keywords: Data, Development, Distribution, Economic-Development, Growth, Income Inequality, Inequality, Labor, Measure, Technology

? Bhattacharya, S., Kretschmer, H. and Meyer, M. (2003), Characterizing intellectual spaces between science and technology. *Scientometrics*, **58** (2), 369-390.

Full Text: [2003\Scientometrics58, 369.pdf](2003/Scientometrics58,%20369.pdf)

Abstract: the paper presents a methodology for studying the interactions between science and technology. Our approach rests mostly on patent citation and co-word analysis. In particular, this study aims to delineate intellectual spaces in thin-film technology in terms of science/technology interaction. The universe of thin-film patents can be viewed as the macro-level and starting point of our analysis. Applying a bottom-up approach, intellectual spaces at the micro-level are defined by tracing prominent concepts in publications, patents, and their citations of scientific literature. In another step, co-word analysis is used to generate meso-level topics and sub-topics. Overlapping structures and specificities that emerge are explored in the light of theoretical understanding of science-technology interactions. In particular, one can distinguish prominent concepts among patent citations that either co-occur in both thin-film publications and patents or reach out to one of the two sides. Future research may address the question to what extent one can interpret directionality into this.

Keywords: Analysis, Approach, Citation, Citations, Co-Word Analysis, Interaction, Literature, Methodology, Patent, Patent Citations, Patents, Publications, Research, Science, Science and Technology, Scientific Literature, Technology, Thin Film, Understanding

? Heimeriks, G., Hörlesberger, M. and Van den Besselaar, P. (2003), Mapping communication and collaboration in heterogeneous research networks. *Scientometrics*, **58** (2), 391-413.

Full Text: [2003\Scientometrics58, 391.pdf](2003/Scientometrics58,%20391.pdf)

Abstract: the aim of this mainly methodological paper is to present an approach for researching the triple helix of university-industry-government relations as a heterogeneous and multi-layered communication network. The layers included are: the formal scholarly communication in academic journals, the communication network based on project collaborations, and finally the communication of information over the ‘virtual’ network of web links. The approach is applied on typical ‘Mode 2’ fields such as biotechnology, while using a variety of data sources. We present some of the initial findings, which indicate the different structures and functions of the three layers of communication.

Keywords: Approach, Biotechnology, Collaboration, Collaborations, Communication, Data, Functions, Information, Journals, Links, Mapping, Network, Networks, Relations, Research, Scholarly Communication, Sources, Web, Web Sites

? Glänzel, W. and Meyer, M. (2003), Patents cited in the scientific literature: An exploratory study of ‘reverse’ citation relations. *Scientometrics*, **58** (2), 415-428.

Full Text: [2003\Scientometrics58, 415.pdf](2003/Scientometrics58,%20415.pdf)

Abstract: This paper reports on a new approach to study the linkage between science and technology. Unlike most contributions to this area we do not trace citations of scientific literature in patents but explore citations of patents in scientific literature. Our analysis is based on papers recorded in the 1996-2000 annual volumes of the CD-Edition of Science Citation Index (SCI) of the Institute for Scientific Information (ISI) and patent data provided by the US Patent and Trademark Office. Almost 30,000 US patents were cited by scientific research papers. We analysed the citation links by scientific fields and technological sectors. Chemistry-related subfields tended to cite patents more than other scientific area. Among technological sectors, chemical clearly dominates followed by drugs and medical patents as the most frequently cited categories. Further analyses included a country-ranking based on inventor-addresses of the cited patents, a more detailed inspection of the ten most cited patents, and an analysis of class-field transfers. The paper concludes with the suggestions for future research. One of them is to compare our ‘reverse’ citation data with ‘regular’ patent citation data within the same classification system to see whether citations occur, irrespectively of their directionality, in the same fields of science and technology. Another question is as to how one should interpret reverse citation linkages.

Keywords: Analyses, Analysis, Approach, Chemical, Citation, Citations, Classification, Data, Drugs, Inspection, Institute for Scientific Information, ISI, Linkage, Literature, Medical, Papers, Patent, Patents, Relations, Research, SCI, Science, Science and Technology, Science Citation Index, Science Fields, Scientific Literature, Scientific Research, Technology, US

? Ortega, J.L. (2003), A Vector Space Model as a methodological approach to the Triple Helix dimensionality: A comparative study of Biology and Biomedicine Centres of two European National Research Councils from a Webometric view. *Scientometrics*, **58** (2), 429-443.

Full Text: [2003\Scientometrics58, 429.pdf](2003/Scientometrics58,%20429.pdf)

Abstract: the aim of this paper is to propose a Vector Space Model as a new methodological approach which allows us to present the relationships between the elements of the Triple Helix Model (University, Industry, Government) in a spacial model by using the webpages of the National Research Councils of Germany and Spain as examples. Outlinks of the Biomedicine and Biology centres of these national councils were analysed with the intention of representing graphically these relationships through the Vector Space Model that allows for Multidimensional Scaling in three dimensions. Results show a map with the differences and similarities between the Spanish and German cases. It may be concluded that these results could become a qualitative indicator of a scientific and technical reality.

Keywords: Approach, Cocitation, Comparative Study, Germany, Indicator, Model, Qualitative, Research, Spain, University

? Leydesdorff, L. (2003), The mutual information of university-industry-government relations: An indicator of the Triple Helix dynamics. *Scientometrics*, **58** (2), 445-467.

Full Text: [2003\Scientometrics58, 445.pdf](2003/Scientometrics58,%20445.pdf)

Abstract: University-industry-government relations provide a networked infrastructure for knowledge-based innovation systems. This infrastructure organizes the dynamic fluxes locally and the knowledge base remains emergent given these conditions. Whereas the relations between the institutions can be measured as variables, the interacting fluxes generate a probabilistic entropy. The mutual information among the three institutional dimensions provides us with an indicator of this entropy. When this indicator is negative, self-organization can be expected. The self-organizing dynamic may temporarily be stabilized in the overlay of communications among the carrying agencies. The various dynamics of Triple Helix relations at the global and national levels, in different databases, and in different regions of the world, are distinguished by applying this indicator to scientometric and webometric data.

Keywords: Communications, Data, Databases, Dynamic, Dynamics, Entropy, Fluxes, Global, Indicator, Information, Infrastructure, Innovation, Institutions, Knowledge, Knowledge Base, Knowledge-Based, Relations, Scientometric, Self-Organization, Systems, World

? Bengisu, M. (2003), Critical and emerging technologies in Materials, Manufacturing, and Industrial Engineering: A study for priority setting. *Scientometrics*, **58** (3), 473-487.

Full Text: [2003\Scientometrics58, 473.pdf](2003/Scientometrics58,%20473.pdf)

Abstract: Technologies that were assumed to be critical or emerging in Materials, Manufacturing, and Industrial Engineering were combined from different sources. These were compared to recent data and trends based on publications as well as patents in these fields. Some of these technologies were found to be non-critical or non-emergent. Top-ten lists of critical and emerging technologies were derived using simple statistical tools and easily accessible databases. The present methodology is proposed as an effective procedure for priority setting in science and technology policy making.

Keywords: Data, Databases, Emerging Technologies, Methodology, Patents, Policy, Policy Making, Procedure, Publications, Recent, Science, Science and Technology, Science and Technology Policy, Sources, Technologies, Technology, Trends

? Huang, M.H., Chiang, L.Y. and Chen, D.Z. (2003), Constructing a patent citation map using bibliographic coupling: A study of Taiwan’s high-tech companies. *Scientometrics*, **58** (3), 489-506.

Full Text: [2003\Scientometrics58, 489.pdf](2003/Scientometrics58,%20489.pdf)

Abstract: This paper uses bibliographic coupling analysis to plot out a patent citation map. It explores the current research and development in the high-tech electronic companies in Taiwan, and the relationship between companies and industries. Fifty-eight high-tech electronic companies under this study, between 1998 and 2000, obtained 4,162 patents from U.S., and cited 24,852 patents during these years. Through the data from bibliographic coupling analysis, the paper categorizes these companies into 6 major groups: semiconductor, peripheral, scanner, notebook/monitor, system, IC design/packaging. This research also uses multidimensional scaling to plot out a patent citation map, graphically displaying the association among the groups. The result shows a higher similarity among companies in semiconductor sector, whereas the distinction between industries grows more and more ambivalent, even overlapping in some cases.

Keywords: Analysis, Association, Bibliographic Coupling, Citation, Data, Development, Multidimensional, Multidimensional Scaling, Overlapping, Patent, Patents, Research, Research and Development, Scaling, Science, Sector, Semiconductor, Similarity, Taiwan, Technology

? Hullmann, A. and Meyer, M. (2003), Publications and patents in nanotechnology - An overview of previous studies and the state of the art. *Scientometrics*, **58** (3), 507-527.

Full Text: [2003\Scientometrics58, 507.pdf](2003/Scientometrics58,%20507.pdf)

Abstract: Nanotechnology and the sciences that are associated with it have attracted much attention. Experts from various fields believe that nanotechnology will be one of the key technologies affecting almost every aspect of the economy. While there are considerable efforts underway that aim to commercialise nanotechnology - carried by start-up companies as well as large internationally operating firms - most of the activity seems to focus on research and development activities. There have been a number of technology studies and investment reports that describe the opportunities associated with this emerging area. Over the years there have also been a number of bibliometric and patent studies that examined the field. This paper provides an overview of measuring nanotechnology with commonly used indicators of bibliometric and patent analyses.

Keywords: Analyses, Art, Bibliometric, Development, Economy, Field, Indicators, Nanotechnology, Patent, Patents, Publications, Research, Research and Development, Science, Sciences, State, Technologies, Technology

? Tsay, M.Y., Xu, H. and Wu, C.W. (2003), Author co-citation analysis of semiconductor literature. *Scientometrics*, **58** (3), 529-545.

Full Text: [2003\Scientometrics58, 529.pdf](2003/Scientometrics58,%20529.pdf)

Abstract: the purpose of this study is to map semiconductor literature by author co-citation analysis in order to highlight major subject specializations in semiconductors and identify authors and their relationships within these specialties and within the field. Forty-six of the most productive authors were included in the sample list. Author samples were gathered from the INSPEC database from 1978 to 1997. The relatively low author co-citation frequencies indicate that there is a low connection among authors who publish in semiconductor journals and big differences among authors’ research areas. Six sets of authors with co-citation greater than 100 times are M. Cardona and G. Lucovsky; T. Ito and K. Kobayashi; M. Cardona and G. Abstreiter; A. Y. Cho and H. Morkoc; C. R. Abernathy and W. S. Hobson; H. Morkoc and I. Akasaki. The Pearson correlation coefficient of author co-citation varies widely, i.e., from -0.17 to 0.92. This shows that some authors with high positive correlations are related in certain ways and co-cited, while other authors with high negative correlations may be rarely or never related and co-cited. Cluster analysis and multi-dimensional scaling are employed to create two-dimensional maps of author relationships in the cross-citation networks. It is found that the authors fall fairly clearly into three clusters. The first cluster covers authors in physics and its applications. The authors in the second group are experts in electrical and electronic engineering. The third group includes specialists in materials science. Because of its interdisciplinary nature and diverse subjects, semiconductor literature lacks a strong group of core authors. The field consists of several specialties around a weak center.

Keywords: Analysis, Author Co-Citation Analysis, Author Cocitation Analysis, Authors, Cluster, Co-Citation, Co-Citation Analysis, Cocitation, Correlation, Correlation Coefficient, Correlations, Database, Engineering, Experts, Field, First, Interdisciplinary, Journals, Literature, Multidimensional, Multidimensional Scaling, Networks, Purpose, Research, Scaling, Science, Semiconductor, Semiconductor Journals, Semiconductors, Trails

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Full Text: [2003\Scientometrics58, 547.pdf](2003/Scientometrics58,%20547.pdf)

Abstract: the scientific production measured by the number of mainstream joint publications, resulting from the cooperative research efforts between Chile and Spain, considering disciplines, application field, type of journal, impact factor, and research institutions involved, was analyzed for the 1991 2000 period. Databases from several institutions, such as the Institute for Scientific Information (ISI) in USA and other national organizations, were employed to quantify the number of publications and to determine the profile of the mutual-collaboration research groups of both countries. It was possible to establish the strong points of the mutual work in some disciplines and the formation of a critical mass of researchers, showing that the scientific cooperation between countries of emerging-economies, like Chile, and developed nations, as Spain, is possible and leads to mutual benefits.

Keywords: Application, Chile, Cooperation, Cooperative Research, Field, Impact, Impact Factor, Institute for Scientific Information, Institutions, ISI, Journal, Latin-America, Nations, Publications, Research, Research Institutions, Scientific Cooperation, Scientific Production, Spain, USA, Work

? Dang, Y. and Zhang, W.L. (2003), Internationalization of mathematical research. *Scientometrics*, **58** (3), 559-570.

Full Text: [2003\Scientometrics58, 559.pdf](2003/Scientometrics58,%20559.pdf)

Abstract: Using sample data from the MathSciNet database from 1985 to 2000, we constructed the database and computer searching system of China’s international cooperation in publication with other countries (or regions), and applied the international standard measure indexes of cooperation. The paper gives systematic scientific measure and evaluation of international mathematical research, especially for China. It also presents a matrix model of the cooperation network. During the 16 years, the trend toward cooperation of international mathematical research has increased substantially. The number of internationally co-authored papers increased at a speed of 6.99% per year in the word and at 15.91% per year in China.

Keywords: China, Constructed, Cooperation, Data, Database, Evaluation, International, International Cooperation, Internationalization, Matrix, Measure, Model, Network, Papers, Publication, Research, Standard, Trend

? Glänzel, W., Schlemmer, B. and Thijs, B. (2003), Better late than never? On the chance to become highly cited only beyond the standard bibliometric time horizon. *Scientometrics*, **58** (3), 571-586.

Full Text: [2003\Scientometrics58, 571.pdf](2003/Scientometrics58,%20571.pdf)

Abstract: According to GARFIELD (1980), most scientists can name an example of an important discovery that had little initial impact on contemporary research. and he uses by Mendel’s work as a classical example. Delayed recognition is sometimes used by scientists as an argument against citation-based indicators based on citation windows defined for a short- or medium-term initial period beginning with the paper’s publication year. This study is focussed on a large-scale analysis of the citation history of all papers indexed in the 1980 annual volume of the Science Citation Index. The objective is two-fold, particularly, to analyse whether the share of delayed recognition papers is significant and whether such papers are typical of the work of their authors at that time. In a first step, the background of advanced bibliometric models by Glänzel, Egghe, Rousseau and Burrell of stochastic citation processes and first-citation distributions is described briefly. The second part is devoted to the bibliometric analysis of first-citation statistics and of the phenomenon of citation delay. In a third step, finally, delayed reception publications have been studied individually. Their topics and the citation patterns of other papers by the same authors have been studied to uncover principles of regularity or exceptionality of delayed reception publications.

Keywords: Analysis, Authors, Bibliometric, Bibliometric Analysis, Citation, Citation Patterns, Citation Processes, Discovery, First, Garfield, Highly Cited, Highly-Cited, History, Impact, Indicators, Models, Papers, Principles, Publication, Publications, Research, Science, Science Citation Index, Scientific Literature, Standard, Statistics, Stochastic, Stochastic-Model, Volume, Work

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Full Text: [2003\Scientometrics58, 587.pdf](2003/Scientometrics58,%20587.pdf)

Abstract: Since their arrival in the 1960s, electronic databases have been an invaluable tool for informetricians. Databases and their delivery mechanism have provided both the source of raw data, as well as the analytical tools for many informetric studies. In particular, the citation databases produced by the Institute for Scientific Information have been the key source of data for a whole range of citation-based research. However, there are also many problems and challenges associated with the use of online databases. Most of the problems arise because databases are designed primarily for information retrieval purposes, and informetric studies represent only a secondary use of the systems. The sorts of problems encountered by informetricians include: errors or inconsistency in the data itself, problems with the coverage, overlap and changeability of the databases; as well as problems and limitations in the tools provided by the database hosts such as DIALOG. for some informetric studies, the only viable solution to these problems is to download the data and perform offline correction and data analysis.

Keywords: Analysis, Bibliometrics, Citation, Citation Analysis, Coverage, Data, Data Analysis, Data-Bases, Database, Databases, Delivery, Errors, Information, Information Retrieval, Institute for Scientific Information, Issues, Mechanism, Online Databases, Quality, Research, Retrieval, Science, Selection, Solution, Source, Standardization, Systems

? Hudomalj, E. and Vidmar, G. (2003), OLAP and bibliographic databases. *Scientometrics*, **58** (3), 609-622.

Full Text: [2003\Scientometrics58, 609.pdf](2003/Scientometrics58,%20609.pdf)

Abstract: the application of online analytical processing (OLAP) technology to bibliographic databases is addressed. We show that OLAP tools can be used by librarians for periodic and ad hoc reporting, quality assurance, and data integrity checking, as well as by research policy makers for monitoring the development of science and evaluating or comparing disciplines, fields or research groups. It is argued that traditional relational database management systems, used mainly for day-to-day data storage and transactional processing, are not appropriate for performing such tasks on a regular basis. for the purpose, a fully functional OLAP solution has been implemented on Biomedicina Slovenica, a Slovenian national bibliographic database. We demonstrate the system’s usefulness by extracting data for studying a selection of scientometric issues: changes in the number of published papers, citations and pure citations over time, their dependence on the number of co-operating authors and on the number of organisations the authors are affiliated to, and time-patterns of citations. Hardware, software and feasibility considerations are discussed and the phases of the process of developing bibliographic OLAP applications are outlined.

Keywords: Application, Assurance, Authors, Bibliographic Databases, Changes, Citation Age Data, Citations, Data, Database, Databases, Developing, Development, Feasibility, Fish-Oil, Information, Knowledge, Literature-Based Discovery, Management, Monitoring, Obsolescence, Papers, Policy, Purpose, Quality, Quality Assurance, Raynauds, Relational Database, Reporting, Research, Research Policy, Science, Scientometric, Software, Solution, Storage, Systems, Technology

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Full Text: [2003\Scientometrics58, 623.pdf](2003/Scientometrics58,%20623.pdf)

Abstract: the need to understand the fabric of relationships that are building up on the World Wide Web calls for the application of tools that allow one to extract the underlying knowledge. Some of the most interesting relationships are those that are brought to light by co-linking analysis (the Web analogue of cocitation analysis). We here propose such an analysis based on the co-links that are generated within a closed web environment, using multivariate statistics (Principal Component Analysis, and Multidimensional Scaling) and a connection-based technique (Kohonen’s Self-Organizing Maps). An application was made to a generic thematic environment, and the underlying relationships and structures were manifest in the interpretation of the results.

Keywords: Analysis, Application, Author Cocitation Analysis, Bibliometrics, Building, Citation Analysis, Cocitation, Environment, Information-Retrieval, Internet, Knowledge, Map, Mining, Multivariate, Multivariate Statistics, Science, Space, Statistics, Web, Webometrics, World Wide Web, World-Wide-Web

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Full Text: [2003\Scientometrics58, 641.pdf](2003/Scientometrics58,%20641.pdf)

Abstract: Brazil is considered to have an immature national innovation system. One significant situation that contributes to it is that Brazil concentrates its research efforts and inventiveness in academic environments, while the private sector has very little access to this activity. Measures are being taken to correct this situation. Nevertheless, scientists’ attitudes towards the new situation will be instrumental for the success of such measures. for this reason, we have studied the behavior of Brazilian scientists from the biotechnological fields concerning Intellectual Property Rights. In this research 1032 researchers were electronically contacted and 150 responded. The 41 questions include indicators about the interviewees’ perceptions about their institutions’ support for patenting research results, their attitudes towards recent changes in Intellectual Property Rights legislation and about the interaction of researchers with demands from external interests.

Keywords: Access, Attitudes, Behavior, Biotechnology, Brazil, Changes, Faculty, Indicators, Industry, Innovation, Innovation System, Institutions, Interaction, Legislation, Private Sector, Property, Public, Recent, Recent Changes, Research, Research Results, Sector, Support, Technology-Transfer, University

? Musgrove, P.B., Binns, R., Page-Kennedy, T. and Thelwall, M. (2003), A method for identifying clusters in sets of interlinking Web spaces. *Scientometrics*, **58** (3), 657-672.

Full Text: [2003\Scientometrics58, 657.pdf](2003/Scientometrics58,%20657.pdf)

Abstract: A technique is presented for the identification of patterns from the links between large Web spaces and is applied to data concerning the interlinking of university Web sites in fifteen European countries. This is based upon a procedure for normalising the data so that it can be analysed using standard multivariate statistical techniques and is less susceptible to individual outliers than standard methods. The approach was successfully able to identify clusters of European countries based upon data for their universities’ interlinking patterns. for example, the northern countries were differentiated from the southern with this method.

Keywords: Approach, Bibliometrics, Cocitation, Data, Identification, Impact, Links, Methods, Multivariate, Outliers, Procedure, Site Interlinking, Standard, Techniques, Universities, University, World-Wide-Web

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Full Text: [2003\Scientometrics58, 673.pdf](2003/Scientometrics58,%20673.pdf)

Abstract: In this paper, the internal law of delay in the secondary literature publishing process is presented. The process is demonstrated to abide by the partial differential equation of periodical literature publishing process. A definite solution of the publishing delay process is derived. Accordingly, the expression of average publication delay indicator based on the particular solution is deduced. Then the problem is studied that some information of primary literatures is missed in information retrieval, and the relationship is established between the average delay indicator and the miss ratio of primary literatures in the index periodicals or databases. Also it is proposed that the primary literature should be used as a supplemental tool in information retrieval to guarantee the recall ratio.

Keywords: Databases, Expression, Index, Indicator, Information, Information Retrieval, Law, Literature, Mathematical Model, Model, Periodical, Periodicals, Primary, Publication, Publication Delay, Publishing, Recall, Solution

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Full Text: [2003\Scientometrics58, 687.pdf](2003/Scientometrics58,%20687.pdf)

Abstract: Relative indicators are preferably used for the comparative evaluation of thematically different sets of journal papers. The Relative Publication Strategy and Relative Subfield Citedness (RPS/RW) function referring to a set of papers selected was found to be identical with the Mean Expected Citation Rate and Mean Observed Citation Rate (MECR/MOCR) function.

Keywords: Citation, Evaluation, Function, Impact, Indicators, Journal, Papers, Performance, Publication, Publication Output, Rate, Scientometric, World

? Gu, Y.N. (2003), Comments on the paper “Developing English-language academic journals of China”. *Scientometrics*, **58** (3), 695-696.

Full Text: [2003\Scientometrics58, 695.pdf](2003/Scientometrics58,%20695.pdf)

Keywords: Journals

? Li, L. and Zhang, F.L. (2003), Understanding academic journals of China. Response to Yinian Gu. *Scientometrics*, **58** (3), 697-700.

Full Text: [2003\Scientometrics58, 697.pdf](2003/Scientometrics58,%20697.pdf)

Keywords: China, Journals

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Full Text: [2004\Scientometrics59, 3.pdf](2004/Scientometrics59,%203.pdf)

Abstract: To determine the capability and resources of the Spanish R & D system to produce knowledge useful for the Biotechnology industries, an analysis of indicators derived from published work, scientific papers cited in US patents and inventions patented, has been carried out. The results show that the number of publications compares well with that of other European countries. The visibility of those publications seems evident as about two thirds of the authors studied have been cited in patents assigned to foreign enterprises, but very few of them have applied for patents. This is analysed in connection with the existing policies.

Keywords: Analysis, Authors, Biotechnology, Flows, Indicators, Industries, Innovation, Knowledge, Papers, Patents, Policies, Publications, Science, Technology, US, Visibility

Dastidar, P.G. (2004), Ocean Science & Technology research across the countries: A global scenario. *Scientometrics*, **59** (1), 15-27.

Full Text: [2004\Scientometrics59, 15.pdf](2004/Scientometrics59,%2015.pdf)

Abstract: In this paper attempt has been made to unfold the intellectual base in ocean science and technology. The articles appeared in Science Citation Index (SCI) under Oceanography in the year 2000 were analyzed to decipher the scientist to scientist, organization to organization and country to country network structures. The caUSAl linkages between the knowledge productivity function and the socio-economic imperatives of knowledge production units were studied.

Keywords: Ocean, Science, Marine Engineering, Scientometrics, Policy, Bibexcel, Ucinet, Network Analysis, Centrality, Research, Dynamics

? Bar-Ilan, J. (2004), Self-linking and self-linked rates of academic institutions on the Web. *Scientometrics*, **59** (1), 29-41.

Full Text: [2004\Scientometrics59, 29.pdf](2004/Scientometrics59,%2029.pdf)

Abstract: In this paper we introduce two measures self-linked and self-linking that are the analogues of self-citing and self-cited rates for scientific journals. These rates are calculated for a sample of sites to assess their meaning and utility. Self-linked is the more meaningful measure for the sample sites. As a first step towards a better understanding of self-linking (linking within a site), a sample of pages from an academic site was characterized using the method of content analysis. Even though most of the links serve navigational or other technical purposes, the percentage of content-bearing links among the self-links is significant, and even the portion of research oriented links is non-negligible.

Keywords: Analysis, Bibliometrics, Citation, Content Analysis, Impact Factors, Information, Journals, Research, Scientific Journals, Sites

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Full Text: [2004\Scientometrics59, 43.pdf](2004/Scientometrics59,%2043.pdf)

Abstract: Using data sampled from top-level Web pages across five high-level domains and from sample pages within individual websites, the authors investigate the frequency distribution of outlinks in Web pages. The observed distributions were fitted to different theoretical distributions to determine the best-fitting model for representing outlink frequency across Web pages. Theoretical models tested include the modified power law (MPL), Mandelbrot (MDB), generalized Waring (GW), generalized inverse Gaussian-Poisson (GIGP), and generalized negative binomial (GNB) distributions. The GIGP and GNB provided good fits for data sets for top-level pages across the high level domains tested, with the GIGP performing slightly better. The lumpiness and bimodal nature of two of the observed outlink distributions from Web pages within a given website resulted in poor fits of the theoretical models. The GIGP was able to provide better fits to these data sets after the top components were truncated. The ability to effectively model Web page attributes, such as the distribution of the number of outlinks per page, paves the way for simulation models of Web page structural content, and makes it possible to estimate the number of outlinks that may be encountered within Web pages of a specific domain or within individual websites.

Keywords: Authors, Frequency, Generalized Waring Distribution, Internet, Model, Modified, Power, Search Engines, Simulation, Theoretical Models, Websites, World-Wide-Web

Glänzel, W., Thijs, B. and Schlemmer, B. (2004), A bibliometric approach to the role of author self-citations in scientific communication. *Scientometrics*, **59** (1), 63-77.

Full Text: [2004\Scientometrics59, 63.pdf](2004/Scientometrics59,%2063.pdf)

Abstract: the present paper analyses the role of author self-citations aiming at finding basic regularities of self-citations within the process of documented scientific communication and thus laying the methodological groundwork for a possible critical view at self-citation patterns in empirical studies at any level of aggregation. The study consists of three parts; the first part of the study is concerned with the comparative analysis of the ageing of self-citations and of non-self citations, in the second part the possible interdependence between self-citations and foreign citations is analysed and in the third part the interrelation of the share of self-citations in all citations with other citation-based indicators is studied. The outcomes of this study are two-fold; first, the results characterise author self-citations - at least at the macro level - as an organic part of the citation process obeying rules that can be measured and described with the help of mathematical models. Second, these rules can be used in evaluative micro and meso analyses to identify significant deviations from the reference standards.

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Full Text: [2004\Scientometrics59, 79.pdf](2004/Scientometrics59,%2079.pdf)

Abstract: This study, based on the premise that references are a social product that reflects the social environment of a society, is an attempt to explore the co-existence of Korean and non-Korean literature in the references to Korean papers. 321 authors (papers) who published in 43 issues of 24 Korean journals focused on the social sciences were surveyed about their research channels and citation motivations, and the 11,358 references in the papers were analyzed. The findings were as follows : (1) the extent of the co-existence was that non-Korean literature was cited 1.9 times (65.3%) more often than Korean literature; (2) Research channel was the most common non-Korean channel orientation (55.8%); (3) the motivation for citations was significantly dependent on whether the literature cited was Korean or non-Korean. Non-Korean literature was chiefly cited for conceptual (20.7%), perfunctory (16.0%), and persuasive (15.1%) motivations; (4) the citations and citation motivations behind non-Korean literature were significantly influenced by research channel, discipline, focus of research, publishing career, and type of paper. of these variables, research channel was frequently related to the citation of non-Korean literature. Finally, this study is very suggestive on two counts: (1) Citation motivation might constitute a new approach for exploring the production of knowledge by researchers. (2) This study has demonstrated, in particular, an empirical relationship between knowledge produced by Korean social scientists and non-Korean knowledge through the analysis of citation motivation.

Keywords: Analysis, Authors, Citation, Citations, Classification, Environment, Indicators, Journals, Knowledge, Literature, Model, Motivation, Papers, Publishing, Research, Researchers, Sciences, Social, Social Environment, Social Sciences, Social Scientists

? Rey-Rocha, J. and Martin-Sempere, M.J. (2004), Patterns of the foreign contributions in some domestic vs. international journals on Earth Sciences. *Scientometrics*, **59** (1), 95-115.

Full Text: [2004\Scientometrics59, 95.pdf](2004/Scientometrics59,%2095.pdf)

Abstract: Patterns of the foreign contributions published in six scientific journals on Earth Sciences published in different countries, have been studied as an approach for testing their level of internationalisation. Two of the multiple dimensions that determine the internationalisation of scientific journals are considered: the geographical distribution pattern of authors and the co-authorship linkages among them. The potential of the said journals to attract manuscripts by foreign authors and to promote international collaboration, through the publishing of co-authored papers involving or not scientists by its own country of publication, is investigated. Some other indicators on the degree of internationalisation of scientific journals, such as, language of publication, publishing institution, and national structure of editorial boards, are also considered. Finally, the geographic areas, the journal papers deal with, can be introduced as a new aspect of internationalisation. Three categories of journals clearly differentiated are identified and characterised: domestic, regional and international journals. The effect on publication and collaboration patterns, of geopolitical, cultural, economic and linguistic bonds among countries is discussed. The important role of domestic European journals on Earth Sciences is noted, as they are not only the main information source on the research carried out by local scientists whose study is focused on the geologic features of their country, but also, as an excellent vehicle of international diffusion for works by foreign scientists from developing countries. On the other hand, international collaborative articles in domestic journals constitute an indicator of the interest of the international community on the scientific studies in the publishing country.

Keywords: Authors, Citation, Co-Authorship, Coauthorship, Collaboration, Cooperation, Developing Countries, Diffusion, Geographically-Oriented Disciplines, Hand, Information, Interest, International Collaboration, Internationalisation, Journal, Journals, Papers, Publication, Publishing, Quality, Research, Sciences, Scientific Journals

Robert, C., Arreto, C.D., Azerad, J. and Gaudy, J.F. (2004), Bibliometric overview of the utilization of artificial neural networks in medicine and biology. *Scientometrics*, **59** (1), 117-130.

Full Text: [2004\Scientometrics59, 117.pdf](2004/Scientometrics59,%20117.pdf)

Abstract: the distribution of articles involving artificial neural networks (ANN) in the fields of medicine and biology and appearing in the ISI (Institute for Scientific Information) databases during the period 2000-2001 was analysed. The following parameters were considered: the number of articles, the total impact factor, the ISI journal category, the source country population, and the gross domestic product. Among the 803 articles and the 49 countries considered, the 5 most prolific (in term of the number of publications) were the USA, the United Kingdom, Germany, Italy, and Canada; other active countries included Sweden, Netherlands, Spain, France, Japan, and China. Comparison between the USA and the European Union, and the distribution of ANN publications among the subdisciplines of the life sciences and clinical medicine are also presented.

Keywords: European-Union

? Guan, J.C. and Wang, J.X. (2004), Evaluation and interpretation of knowledge production efficiency. *Scientometrics*, **59** (1), 131-155.

Full Text: [2004\Scientometrics59, 131.pdf](2004/Scientometrics59,%20131.pdf)

Abstract: We propose an improved Data Envelopment Analysis (DEA) model to evaluate the efficiency of research groups in the area of information science in PR China. By taking the research groups as Decision Making Units (DMUs), The budget of the projects and size of the groups as inputs and the quantity and quality of publications produced by the groups as outputs of the model, the relative efficiencies of 21 research projects are evaluated. Then, we move to focus on the issues of knowledge management of the organizations that undertook these projects and attempt to explore the underlying reasons of high research efficiency. Through integrating the evaluation outcomes into research process, three indicators of knowledge management are identified for the best practice groups with highest research efficiency. The findings verify that the proposed model is valid and practical to assess research performances on the basis of bibliometric indicators.

Keywords: Bibliometric, Bibliometric Indicators, China, Citation Analysis, Data Envelopment Analysis, Dea, Evaluation, Index, Information, Information Science, Interpretation, Japanese, Knowledge, Management, Model, Organization, Outcomes, Practice, Publications, Quality, Quality of Publications, Research, Research Performance, Science, State, Units

? Koenig, M.E.D. and Mezick, E.M. (2004), Impact of mergers & acquisitions on research productivity within the pharmaceutical industry. *Scientometrics*, **59** (1), 157-169.

Full Text: [2004\Scientometrics59, 157.pdf](2004/Scientometrics59,%20157.pdf)

Abstract: Several major econometric studies have looked at mergers and acquisitions (M&As) across various industries and concluded that, in general, there is no synergy created or released by M&A activity. This investigation concentrates upon research and development (R&D) performance in the pharmaceutical industry to examine the impact of M&A activity on corporate productivity. Findings indicate that, when compared to those companies within the pharmaceutical industry that did not experience merger activity during comparable time periods, as well as to the industry as a whole, pharmaceutical companies that merged were able to achieve more favorable post-merger productivity scores than were attained prior to their merger.

Keywords: Development, Impact, Industries, Industry, Pharmaceutical Companies, Productivity, Research, Research and Development, Research Productivity, Technical Change, Too Big

Notes: highly cited

Ho, Y.S. (2004), Citation review of Lagergren kinetic rate equation on adsorption reactions. *Scientometrics*, **59** (1), 171-177.

Full Text: [2004\Scientometrics59, 171.pdf](2004/Scientometrics59,%20171.pdf)

Abstract: This stud presents a literature review concerning the preciseness of over 170 publications citing the original Lagergren.s paper in kinetics equation for solute adsorption on various adsorbents. This equation applies to a range of solid-liquid systems such as metal ions, dyestuffs and several organic substances in aqueous systems onto various adsorbents. The main objectives are to manifest different forms of citations presented and offers a correct reference style for citing the original Lagergren.s paper published in 1898.

Chan, F., Marinova, D. and McAleer, M. (2004), Modelling the asymmetric volatility of anti-pollution patents in the USA. *Scientometrics*, **59** (2), 179-197.

Full Text: [2004\Scientometrics59, 179.pdf](2004/Scientometrics59,%20179.pdf)

Abstract: the paper analyses the asymmetric volatility of patents related to pollution prevention and abatement (hereafter, anti-pollution) technologies registered in the USA. Ecological and pollution prevention technology patents have increased steadily over time, with the 1990’s having been a period of intensive patenting of technologies related to the environment. The time-varying nature of the volatility of anti-pollution technology patents registered in the USA is examined using monthly data from the US Patent and Trademark Office for the period January 1975 to December 1999. Alternative symmetric and asymmetric volatility models, such as GARCH, GJR and EGARCH, are estimated and tested against each other using full sample and rolling windows estimation.

Chen, C. and Hicks, D. (2004), Tracing knowledge diffusion. *Scientometrics*, **59** (2), 199-211.

Full Text: [2004\Scientometrics59, 199.pdf](2004/Scientometrics59,%20199.pdf)

Abstract: Knowledge diffusion is the adaptation of knowledge in a broad range of scientific and engineering research and development. Tracing knowledge diffusion between science and technology is a challenging issue due to the complexity of identifying emerging patterns in a diverse range of possible processes. In this article, we describe an approach that combines complex network theory, network visualization, and patent citation analysis in order to improve the means for the study of knowledge diffusion. In particular, we analyze patent citations in the field of tissue engineering. We emphasize that this is the beginning of a longer-term endeavor that aims to develop and deploy effective, progressive, and explanatory visualization techniques for us to capture the dynamics of the evolution of patent citation networks. The work has practical implications on resource allocation, strategic planning, and science policy.

Aksnes, D.W. and Sivertsen, G. (2004), The effect of highly cited papers on national citation indicators. *Scientometrics*, **59** (2), 213-224.

Full Text: [2004\Scientometrics59, 213.pdf](2004/Scientometrics59,%20213.pdf)

Abstract: Citation distributions are extremely skewed. This paper addresses the following question: To what extent are national citation indicators influenced by a small minority of highly cited articles? This question has not been studied before at the level of national indicators. Using the scientific production of Norway as a case, we find that the average citation rates in major subfields are highly determined by one or only a few highly cited papers. Furthermore, there are large annual variations in the influence of highly cited papers on the average citation rate of the subfields. We conclude that an analysis of the underlying data for national indicators may be useful in creating awareness towards the occurrence of particular articles with great influence on what is normally considered an indicator of ‘national performance’, and that the common interpretation of the indicator on research policy level needs to be informed by this fact.

? Egghe, L. (2004), Solution of a problem of Buckland on the influence of obsolescence on scattering. *Scientometrics*, **59** (2), 225-232.

Full Text: [2004\Scientometrics59, 225.pdf](2004/Scientometrics59,%20225.pdf)

Abstract: In an old paper [M.K. Buckland. Are obsolescence and scattering related? Journal of Documentation 28 (3) (1972) 242-246] Buckland poses the question if certain types of obsolescence of scientific literature (in terms of age of citations) implies certain types of journal scattering (in terms of cited journals). This problem is reformulated in terms of one- and two-dimensional obsolescence and linked with one- and two-dimensional growth, the latter being studied by Naranan. Naranan shows that two-dimensional exponential growth (i.e. of the journals and of the articles in journals) implies Lotka’s law, a law belonging to two-dimensional informetrics and describing scattering of literature in a concise way. In this way we obtain that exponential aging of journal citations and of article citations imply Lotka’s law and a relation is given between the exponent U, in Lotka’s law and the aging rates of the two obsolescence processes studied.

Keywords: Aging, Breeds-Success Principle, Citations, Growth, Informetrics, Journal, Journal of Documentation, Journals, Literature, Lotka’s Law, Scientific Literature

? Egghe, L. and Rousseau, R. (2004), How to measure own-group preference? A novel approach to a sociometric problem. *Scientometrics*, **59** (2), 233-252.

Full Text: [2004\Scientometrics59, 233.pdf](2004/Scientometrics59,%20233.pdf)

Abstract: In this article we present a precise definition of the notion “own-group preference” and characterize all functions capable of correctly measuring it. Examples of such functions are provided. The weighted Lorenz curve and the theory developed for it will be our main tools for reaching this goal. We further correct our earlier articles on this subject. In the context of own-language preference, Bookstein and Yitzhaki proposed the logarithm of the odds-ratio as an acceptable measure of own-group preference. We now present a general framework within which the concept of own-group preference, and its opposite, namely own-group aversion, can be precisely pinpointed. This framework is derived form inequality theory and is based on the use of the weighted Lorenz curve. The concept of own-group preference is an interesting notion with applications in different fields such as sociology, political sciences, economics, management science and of course, the information sciences. Some examples are provided.

Keywords: Economics, Information, Journals, Language Self-Citation, Management, Science, Sciences, Sociology, Theory

Debackere, K. and Glänzel, W. (2004), Using a bibliometric approach to support research policy making: the case of the Flemish BOF-key. *Scientometrics*, **59** (2), 253-276.

Full Text: [2004\Scientometrics59, 253.pdf](2004/Scientometrics59,%20253.pdf)

Abstract: In this paper, we describe the development of a methodology and an instrument to support a major research funding allocation decision by the Flemish government. Over the last decade, and in parallel with the decentralization and the devolution of the Belgian federal policy authority towards the various regions and communities in the country, science and technology policy have become a major component of regional policy making. In the Flemish region, there has been an increasing focus on basing the funding allocation decisions that originate from this policy decentralization on ‘objective, quantifiable and repeatable’ decision parameters. One of the data sources and indicator bases that have received ample attention in this evolution is the use of bibliometric data and indicators. This has now led to the creation of a dedicated research and policy support staff, called ‘Steunpunt O&O Statistieken,’ and the first time application of bibliometric data and methods to support a major inter-university funding allocation decision. In this paper, we analyze this evolution. We show how bibliometric data have for the first time been used to allocate 93 million Euro of public research money between 6 Flemish universities for the fiscal year 2003, based on Web-of-Science SCI data provided to ‘Steunpunt O&O Statistieken’ via a license agreement with Tbomson-ISI. We also discuss the limitations of the current approach that was based on inter-university publication and citation counts. We provide insights into future adaptations that might make it more representative of the total research activity at the universities involved (e.g., by including data for the humanities) and of its visibility (e.g., by including impact measures). Finally, based on our current experience and interactions with the universities involved, we speculate on the future of the specific bibliometric approach that has now been adopted. More specifically, we hypothesize that the allocation method now developed and under further improvement will become more criticized if it turns out that it (1) also starts influencing intra-university research allocation decisions and, as a consequence (2) introduces adverse publication and citation behaviors at the universities involved.

Keywords: Research Performance, Flanders, Science

Lewison, G. (2004), James Bond and citations to his books. *Scientometrics*, **59** (3), 311-320.

Full Text: [2004\Scientometrics59, 311.pdf](2004/Scientometrics59,%20311.pdf)

Abstract: This paper investigates two bibliometric problems: the listing of books in a specialist area (ornithology) and the determination of the citation pattern to individual authors, who often re-issue their books in later editions. James Bond, a Philadelphia ornithologist, who specialised in the birds of the West Indies, is used as an example of a naturalist whose long career led to many journal articles and enduring scientific fame through a well-known book. He also attained some unexpected notoriety through the use of his name by a popular novelist. Methods for the evaluation of his book and associated bird checklists in comparison with other similar works are presented on the basis of their citations.

Keywords: Circulation, Library

? Aleixandre, R., Valderrama, J.C., Desantes, J.M. and Torregrosa, A.J. (2004), Identification of information sources and citation patterns in the field of reciprocating internal combustion engines. *Scientometrics*, **59** (3), 321-336.

Full Text: [2004\Scientometrics59, 321.pdf](2004/Scientometrics59,%20321.pdf)

Abstract: Processes and technology of reciprocating internal combustion engines (ICE) constitute a research field whose characteristics regarding information production and diffusion are determined by multidisciplinarity, the existence of pseudo-technical literature and the influence of confidentiality on the presentation of research outputs. The objective of this study is to provide a quantitative and objective basis for the evaluation of research in this field. This has been accomplished by identifying the most productive journals and the most cited sources, using the SCI and citation analysis. From this analysis, core journals have been identified, showing that their importance in this research area does not correlate with their impact factor. Moreover, conference proceedings (particularly those published by the Society of Automotive Engineers) are shown to be the most important information source in this field.

Keywords: Analysis, Citation, Citation Analysis, Combustion, Communication, Competition, Core Journals, Database, Diffusion, Evaluation, Impact, Impact Factor, Index, Information, Journals, Literature, Publication, Quantitative, Research, SCI, Science, Scientists, Self-Citation

? Shirabe, M. and Tomizawa, H. (2004), Likelihood of inbound/outbound access to co-authorship. *Scientometrics*, **59** (3), 337-344.

Full Text: [2004\Scientometrics59, 337.pdf](2004/Scientometrics59,%20337.pdf)

Abstract: We shall generalize the concept of our previous paper (SHIRABE & TOMIZAWA, 2002), which proposed an index for international scientific co-authorship. Based on a simple model of domestic and international co-authorships, we focused on likelihood of overseas access to co-authorships in the paper. Here, in consideration of bidirectionality of international co-authorship, we shall extend our previous index to two symmetrical indices. The indices can draw a reasonably clear picture of international co-authorship, with regard to difference in patterns of international co-authorship among countries.

Keywords: Co-Authorship, Co-Authorships, Coauthorship, Impact, International Scientific Collaboration, Model, Universities

? Wilson, C.S. and Markusova, V.A. (2004), Changes in the scientific output of Russia from 1980 to 2000, as reflected in the Science Citation Index, in relation to national politico-economic changes. *Scientometrics*, **59** (3), 345-389.

Full Text: [2004\Scientometrics59, 345.pdf](2004/Scientometrics59,%20345.pdf)

Abstract: Three features of the output of scientific papers from Russia which are covered by SCI are reported for the period 1980 to 2000. Changes are related to the major politico-economic developments in the USSR and Russia, and contrasted with similar data from France, Canada and Italy. The problems of isolating Russian papers in the output of the USSR and of estimating the proportion of Russian papers without stated addresses are treated. The Russian annual output grew from 1980 to 1990, but fell by 20-24% after the dissolution of the USSR in late 1991; from 1994 there has been an inconsistent partial recovery, and by 2000 the annual output had approximately regained its 1980 value. The reduced output in the 1990s derives mainly from low government funding for science. The proportion of Russian papers produced in collaboration with other nations has grown from six percent in the early 1980s to 31% in 2000, while the principal regions of collaboration shifted rapidly after 1990 from other republics in the USSR and East Europe to Western Europe and North America. These changes were initiated by glasnost and the end of the Cold War, and more recently have been driven in part by a need for foreign support. Russia’s annual output in the physical sciences in the 1980s was approximately twice, and from 1995 to 2000, approximately four times, that in the life sciences. This continuing dominance, which contrasts with the comparison countries, derives from the high priority given by the central governments to defense spending and related prestige projects.

Keywords: Alive, Canada, Citation, Collaboration, Cooperation, Countries, Discipline, Dissolution, Europe, France, Funding, International Collaboration, Italy, Journals, Life Sciences, Low, Papers, Physics, Recovery, Researchers, Russia, SCI, Science, Science Citation Index, Sciences, Scientific Output, State

? Bar-Ilan, J. (2004), A microscopic link analysis of academic institutions within a country - the case of Israel. *Scientometrics*, **59** (3), 391-403.

Full Text: [2004\Scientometrics59, 391.pdf](2004/Scientometrics59,%20391.pdf)

Abstract: Links analysis proved to be very fruitful on the Web. Google’s very successful ranking algorithm is based on link analysis. There are only a few studies that analyzed links qualitatively, most studies are quantitative. Our purpose was to characterize these links in order to gain a better understanding why links are created. We limited the study to the academic environment, and as a specific case we chose to characterize the interlinkage between the eight Israeli universities.

Keywords: Analysis, Environment, Impact Factors, Information, Interlinking, Pages, Quantitative, Ranking, Universities, University Web Sites

Ingwersen, P. and Jacobs, D. (2004), South African research in selected scientific areas: Status 1981-2000. *Scientometrics*, **59** (3), 405-423.

Full Text: [2004\Scientometrics59, 405.pdf](2004/Scientometrics59,%20405.pdf)

Abstract: the paper is a bibliometric study of the publication and citation patterns and impact of South African research 1981-2000 in five selected research fields: Animal Plant sciences; Chemistry; Biochemistry; Microbiology & molecular biology, including genetics; and Physics, excluding Space science. Data are collected from Science Citation Index via the ISI product National Science Indicators. With the exception of Microbiology & molecular biology and Physics the results demonstrate a decrease of SA publications from 1986-1990. The SA world share declines for all five fields. First from the period 1994-1998 the Animal & plant sciences and Microbiology & molecular biology turn the decline into an increase.

Absolute citation impact is increasing for all the fields from 1989-1993, except for Chemistry. One reason for the increase is a lower publication output. General & internal medicine, as an supplementary volume-heavy field observed, declines in citations until that same period from which it becomes stable, also in impact, but with a marked decrease in cited paper proportion.

In citation world shares the five fields combined show positive signs also since 1989-1993, after which period the international eco-political embargo of SA was lifted. However, Biochemistry and Chemistry continue to decline during the 1990s. Citation impact relative to the world shows a similar pattern, but stagnation appears towards the end of the 1990s in all the observed fields combined. The trends are quite similar to those of Mexico and New Zealand. It is thus highly uncertain if a general citation embargo of SA occurred; yet, in some fields like the Animal & plant sciences, Veterinary science, Chemistry, and General & internal medicine there are signs that a mild citation embargo might have occurred. However, the economic embargo, combined with a significant brain drain, may have had an effect on the publication productivity, after it was lifted. for all indicators Chemistry is undergoing a marked decline during the last decade. This is in line with the negative trends for General & internal medicine, whereas some other medical specialities, biology, economics and other social sciences, the engineering fields and materials sciences keep stable or increase their production. SA is in line with the Mexican development but below that of New Zealand, seemingly losing ground to the developed countries.

Keywords: Science

? Schummer, J. (2004), Multidisciplinarity, interdisciplinarity, and patterns of research collaboration in nanoscience and nanotechnology. *Scientometrics*, **59** (3), 425-465.

Full Text: [2004\Scientometrics59, 425.pdf](2004/Scientometrics59,%20425.pdf)

Abstract: This paper first describes the recent development that scientists and engineers of many disciplines, countries, and institutions increasingly engage in nanoscale research at breathtaking speed. By co-author analysis of over 600 papers published in “nano journals” in 2002 and 2003, I investigate if this apparent concurrence is accompanied by new forms and degrees of multi- and interdisciplinarity as well as of institutional and geographic research collaboration. Based on a new visualization method, patterns of research collaboration are analyzed and compared with those of classical disciplinary research. I argue that current nanoscale research reveals no particular patterns and degrees of interdisciplinarity and that its apparent multidisciplinarity consists of different largely mono-disciplinary fields which are rather unrelated to each other and which hardly share more than the prefix “nano”.

Keywords: Analysis, Collaboration, Development, Field, Indicators, Interdisciplinarity, Multidisciplinarity, Nanoscience, Nanotechnology, Papers, Research, Research Collaboration, Science, Technology, Visualization

? van Raan, A.F.J. (2004), Sleeping Beauties in science. *Scientometrics*, **59** (3), 467-472.

Full Text: [2004\Scientometrics59, 467.pdf](2004/Scientometrics59,%20467.pdf)

Abstract: A ‘Sleeping Beauty in Science’ is a publication that goes unnoticed (‘sleeps’) for a long time and then, almost suddenly, attracts a lot of attention (‘is awakened by a prince’). We here report the -to our knowledge- first extensive measurement of the occurrence of Sleeping Beauties in the science literature. We derived from the measurements an ‘awakening’ probability function and identified the ‘most extreme Sleeping Beauty so far’.

Keywords: Attention, Knowledge, Literature, Measurement, Publication, Science

Snizek, W.E. (2004), A view from sociology. *Scientometrics*, **60** (1), 11-12.

Full Text: [2004\Scientometrics60, 11.pdf](2004/Scientometrics60,%2011.pdf)

McCain, K. (2004), A view from information science. *Scientometrics*, **60** (1), 12-18.

Full Text: [2004\Scientometrics60, 11.pdf](2004/Scientometrics60,%2011.pdf)

? Bonitz, M. (2004), Self-emancipation proclamation and a light-hearted but nevertheless deeply-felt exception. *Scientometrics*, **60** (1), 19-24.

Full Text: [2004\Scientometrics60, 19.pdf](2004/Scientometrics60,%2019.pdf)

? Brown, C. (2004), The Matthew effect of the *Annual Reviews* series and the flow of scientific communication through the World Wide Web. *Scientometrics*, **60** (1), 25-36.

Full Text: [2004\Scientometrics60, 25.pdf](2004/Scientometrics60,%2025.pdf)

Abstract: Authors of the well-regarded Annual Reviews series incorporate URLs to in the text, figures, tables, and reference sections of their articles. Despite the lack of peer review, the number of pointers to scientific information on the World Wide Web in the biomedical and physical science reviews increased five fold between 1997 and 2001. However, only 34% and 76% of the URLs from 1997 and 2001, respectively, remain viable in 2003. This is disconcerting as the stability of the highly cited Annual Reviews series is integral to the flow of scientific information. In fact, the citation rate for the URL containing Annual Reviews articles was found to be less than half that observed for all the review articles analyzed. Taken together these data suggest that the viability of web information may influence the citation rate of authors who have previously basked in the halo of R.K. Merton’s Matt hew Effect.

Keywords: Acceptance, Authors, Biomedical, Citation, Citation Patterns, Communication, Electronic Preprints, Highly-Cited, Information, Matthew Effect, Peer Review, Peer-Review, Review, Science, Scientific Communication, Scientific Information, Stability, Usage, Viability, World Wide Web

? Cole, J.R. (2004), Robert K. Merton, 1910-2003. *Scientometrics*, **60** (1), 37-40.

Full Text: [2004\Scientometrics60, 37.pdf](2004/Scientometrics60,%2037.pdf)

? Cronin, B. (2004), Normative shaping of scientific practice: the magic of Merton. *Scientometrics*, **60** (1), 41-46.

Full Text: [2004\Scientometrics60, 41.pdf](2004/Scientometrics60,%2041.pdf)

Keywords: Citation, Practice

? Fox, M.F. (2004), R.K. Merton - Life time of influence. *Scientometrics*, **60** (1), 47-50.

Full Text: [2004\Scientometrics60, 47.pdf](2004/Scientometrics60,%2047.pdf)

Abstract: In this article, “Life time of influence” refers to Robert K. Merton’s impact broadly, and emblematically, to his influence upon my work. The article discusses 1) the scope and influence of Merton’s ideas about social structure and explanations of social processes; 2) his vast scholarship establishing the study of science as a social institution, with implications for theory and research; and 3) his fostering of the social study of science through immense published work, and through impact upon an inter-generational network of scholars.

Keywords: Impact, Life-Time, Network, Research, Scholarship, Science, Social, Theory

? Garfield, E. (2004), The intended consequences of Robert K. Merton. *Scientometrics*, **60** (1), 51-61.

Full Text: [2004\Scientometrics60, 51.pdf](2004/Scientometrics60,%2051.pdf)

Keywords: Author, Scientometrics

? Hargens, L.L. (2004), What is Mertonian sociology of science? *Scientometrics*, **60** (1), 63-70.

Full Text: [2004\Scientometrics60, 63.pdf](2004/Scientometrics60,%2063.pdf)

Abstract: In order to investigate the nature of Merton’s contribution to the sociology of science, I examine how his work has been cited by groups of authors who are highly co-cited with Merton. The groups differ substantially both in terms of which of Merton’s publications they cite,and how they cite them. This implies that subsequent scholars have found Merton’s sociology of science work valuable for many different reasons. This pattern is probably true for Merton’s sociological oeuvre as a whole, and suggests that scholarly preeminence in the social sciences consists of making contributions that many different groups of scholars judge to be useful in justifying the importance of their own research.

Keywords: Authors, Contribution, Publications, Research, Science, Sciences, Social, Social Sciences, Sociology, Sociology of Science

? Small, H. (2004), On the shoulders of Robert Merton: Towards a normative theory of citation. *Scientometrics*, **60** (1), 71-79.

Full Text: [2004\Scientometrics60, 71.pdf](2004/Scientometrics60,%2071.pdf)

Abstract: In a series of seminal studies Robert K. Merton created a coherent theoretical view of the social system of science that includes the salient features of the formal publication system, thereby providing a theoretical basis for scientometrics and citationology. A fundamental precept of this system is the view of citations as symbolic payment of intellectual debts. When this concept is merged with a complementary theory of the conceptual symbolism of citations, the possibility for a rapprochement of the normative and constructivist theories is achieved, where the dual function of citations as vehicles of peer recognition and constructed symbols for specific original achievements in science is realized. This new synthesis is embodied in a citation classification system,the citation cube, with dimensions of normative compliance, symbolic consensus, and disinterestedness (self-citation).

Keywords: Chapter, Citation, Citations, Compliance, Publication, Science, Scientific Discovery, Scientometrics, Self-Citation, Social, Sociology, Synthesis, Theories, Theory

? Stephan, P.E. (2004), Robert K. Merton’s perspective on priority and the provision of the public good knowledge. *Scientometrics*, **60** (1), 81-87.

Full Text: [2004\Scientometrics60, 81.pdf](2004/Scientometrics60,%2081.pdf)

Abstract: This essay examines Robert K. Merton’s perspective on how priority relates to the provision of the public good knowledge. Economists have long been interested in the provision of the class of goods that are referred to as “public.” By definition, public goods are not used up when consumed and are goods from which it is difficult to exclude potential users. The provision of public goods presents special challenges to the market that do not exist in the provision of private goods. Scientific research has properties of a public good. Merton recognized the public nature of science. In this he was not alone. The genius of Merton is that he not only recognized that science has properties of a public good but stood the public-private distinction on its head, proposing that the reward structure of science, based on priority, functioned to make a public good private. In economic terms, Merton recognized that it is the public nature of knowledge that facilitates establishing the idea as the private property of the scientist.

Keywords: Chapter, Economics, Knowledge, Property, Public Goods, Research, Science, Scientific Discovery, Scientific Research, Sociology

? Stigler, S.M. (2004), Robert K. Merton: Memorial. *Scientometrics*, **60** (1), 89-92.

Full Text: [2004\Scientometrics60, 89.pdf](2004/Scientometrics60,%2089.pdf)

? White, H.D. (2004), Reward, persuasion, and the Sokal Hoax: A study in citation identities. *Scientometrics*, **60** (1), 93-120.

Full Text: [2004\Scientometrics60, 93.pdf](2004/Scientometrics60,%2093.pdf)

Abstract: A citation identity is a list of an author’s citees ranked by how frequently that author has cited them in publications covered by the Institute for Scientific Information. The same Dialog software that creates identities can simultaneously show the overall citation counts of citees, which indicate their reputations. Using identities for 28 authors in several disciplines of science and scholarship, I show that the reputational counts of their citees always have an approximately log-normal distribution:citations to very famous names are roughly balanced by citations to obscure ones, and most citations go to authors of middling reputation. These results undercut claims by constructivists that the main function of citation is to marshal “big-name” support for arguments at the expense of crediting lesser-known figures. The results are better explained by Robert K. Merton’s norm of universalism, which holds that citers are rewarding use of relevant intellectual property, than by the constructivists’ particularism, which holds that citers are trying to persuade through manipulative rhetoric. A universalistic citation pattern appears even in Alan Sokal’s famous hoax article, where some of his citing was deliberately particularistic. In fact, Sokal’s basic adherence to universalism probably helped his hoax succeed, which suggests the strength of the Mertonian norm. In specimen cases, the constructivists themselves are shown as conforming to it.

Keywords: Adherence, Author, Author Cocitation Analysis, Authors, Behavior, Citation, Citation Counts, Citations, Citer Motivations, Facts, Identity, Model, Ortega Hypothesis, Publications, Scholarship, Science, Scientific Information, Software, Strength

? Yu, G., Yu, D. and Li, Y. (2004), The universal expression of periodical average publication delay at steady state. *Scientometrics*, **60** (2), 121-129.

Full Text: [2004\Scientometrics60, 121pdf](2004/Scientometrics60,%20121pdf)

Abstract: the steady state solution of differential equations of periodical publication process is deduced, and based on this, the indicator of periodical publication delay, which reflects the degree of information ageing in editorial board of a periodical, is established. The indicator is proved to be the sum of two items: the pure publication delay, which reflects the editing rapidity of a periodical, and the ratio of deposited contribution quantity to the publishing quantity in one year, which reflects the waiting period of adopted papers deposited in editorial board. As a demonstration, the delay indicators of seven periodicals are calculated. Finally, the application of this indicator is discussed.

Keywords: Ageing, Contribution, Information, Papers, Periodical, Periodicals, Publication, Publishing, Ratio

Collazo-Reyes, F., Luna-Morales, M.E. and Russell, J.M. (2004), Publication and citation patterns of the Mexican contribution to a ‘Big Science’ discipline: Elementary particle physics. *Scientometrics*, **60** (2), 131-143.

Full Text: [2004\Scientometrics60, 131.pdf](2004/Scientometrics60,%20131.pdf)

Abstract: the publication and citation patterns of the Mexican community in elementary particle physics (MEPP) were determined by bibliometric analysis of the scientific production and citations registered in the SPIRES-HEP system from 1971 to 2000. All papers, both citing and cited, were classified as theoretical, phenomenological or experimental according to the type of study carried out and citing papers as local (Mexican) or foreign. The growth dynamics of the citation patterns over the thirty-year period was also studied. Results show that the Mexican scientific community in EPP follow the pre-publication and pre-citation communication patterns typical of a Big Science field.

Keywords: Preprints, Library, Prints

Lewison, G. and Paraje, G. (2004), The classification of biomedical journals by research level. *Scientometrics*, **60** (2), 145-157.

Full Text: [2004\Scientometrics60, 145.pdf](2004/Scientometrics60,%20145.pdf)

Abstract: A new method of classification of biomedical research journals by research level (RL) into clinical or basic, or somewhere in between, is described that updates the system developed by CHI Research Inc. nearly 30 years ago. It is based on counting articles that have one of about 100 ‘clinical’ title words, or one of a similar number of ‘basic’ title words, or both. It allows over 3000 journals in the Science Citation Index (or other databases) to be classified rapidly and transparently, for changes in their research level with time, and for many individual papers in ‘mixed’ journals to be categorised as clinical or basic.

Keywords: Impact

Leydesdorff, L. (2004), Top-down decomposition of the *Journal Citation Report* of the *Social Science Citation Index*: Graph- and factor-analytical approaches. *Scientometrics*, **60** (2), 159-180.

Full Text: [2004\Scientometrics60, 159.pdf](2004/Scientometrics60,%20159.pdf)

Abstract: the aggregated journal-journal citation matrix of the Journal Citation Report 2001 of the Social Science Citation Index is analyzed as a single domain in terms of both its eigenvectors and the bi-connected components contained in it. The traditional disciplines (e.g., economics, psychology, or political science) can be retrieved using both methods. These main disciplines do interact marginally. The space between them is occupied by a large number of small clusters of journals indicating specialties that gravitate among the major disciplines. These specialties operate in a mode different from that of the disciplines. for example, the impact factors are low on average and the developments remain volatile. Factor analysis enables us to study how the smaller bi-connected components are related to the larger ones. Factor analysis also highlights methodological differences among groups which may be theoretically connected in a single bicomponent.

Keywords: Scientific Journals, Indicators, Networks

Trueba, F.J. and Guerrero, H. (2004), A robust formula to credit authors for their publications. *Scientometrics*, **60** (2), 181-204.

Full Text: [2004\Scientometrics60, 181.pdf](2004/Scientometrics60,%20181.pdf)

Abstract: We have developed a formula that assigns relative values to each author of the list of authors in any publication according to the authors’ relative positions. The formula satisfies several criteria of theoretical and practical significance. We tested the formula’s validity and usefulness with bibliographical references from the INSPEC database, mainly from the physical sciences. Enforced alphabetical sorting, different names of single authors and other statistical disturbances are accounted for. Our results demonstrate that our formula, or any other that satisfies several objective and quantitative criteria, can and often should be used as an additional criterion in the processes of evaluating relative scientific productivity, detecting experts in a given discipline, etc.

Keywords: Multiple Authorship, Citation Measures, Productivity, Performance, Counts, Psychology

Notes: TTopic

Hsieh, W.H., Chiu, W.T., Lee, Y.S. and Ho, Y.S. (2004), Bibliometric analysis of patent ductus arteriosus treatments. *Scientometrics*, **60** (2), 205-215.

Full Text: [2004\Scientometrics60, 205.pdf](2004/Scientometrics60,%20205.pdf)

Abstract: A bibliometric analysis was performed to assess the quantitative trend of Patent Ductus Arteriosus (PDA) treatment research, including intravenous injection of indomethacin and surgery. The documents studied were retrieved from the *Science Citation Index* (SCI) for the period from 1991 to 2002. The publication pattern concerning authorship, collaboration, original countries, citation frequency, document type, language of publication, distribution of journals, page count and the most frequently cited papers were performed. The results indicated that either treatment was not the recent emphasis of PDA research. The publishing countries of both treatments have also denoted that these researches were mostly done in Europe and North America. Both surgery and drug treatments had few international collaboration papers. English was the dominant language, and collaboration of two to six authors was the most popular level of co-authorship.

Keywords: America, Analysis, Authors, Authorship, Bibliometric, Bibliometric Analysis, Citation, Citation Frequency, Citations, Co-Authorship, Coauthorship, Collaboration, Distribution, Drug, Ductus Arteriosus, Europe, Indomethacin, International, Intravenous, Journals, Language, North, Papers, Patent, Patent Ductus Arteriosus, Pattern, Publication, Publications, Publishing, References, Research, SCI, Science, Science Citation Index, Surgery, Treatment, Trend

Sombatsompop, N., Markpin, T. and Premkamolnetr, N. (2004), A modified method for calculating the Impact Factors of journals in ISI Journal Citation Reports: Polymer Science Category in 1997-2001. *Scientometrics*, **60** (2), 217-235.

Full Text: [2004\Scientometrics60, 217.pdf](2004/Scientometrics60,%20217.pdf)

Abstract: his article introduces a new modified method for calculating the impact factor of journals based on the current ISI practice in generating journal impact factor values. The impact factor value for a journal calculated by the proposed method, the so-called Cited Half-Life Impact Factor (CHAL) method, which is based on the ratio of the number of current year citations of articles from the previous X years to that of articles published in the previous X years, the X value being equal to the value of the cited half-life of the journal in the current year. Thirty-four journals in the Polymer Science Category from the ISI Subject Heading Categories were selected and examined. Total citations, impact factors and cited half-life of the 34 journals during the last five years (19972001) were retrieved from the ISI Journal Citation Reports and were used as the data source for the calculations in this work, the impact factor values from ISI and CHAL methods then being compared. The positions of the journals ranked by impact factors obtained from the ISI method were different from those from the CHAL method. It was concluded that the CHAL method was more suitable for calculating the impact factor of the journals than the existing ISI method.

Zhu, X., Wu, Q., Zheng, Y.Z. and Ma, X. (2004), Highly cited research papers and the evaluation of a research university: A case study: Peking University 1974-2003. *Scientometrics*, **60** (2), 237-247.

Full Text: [2004\Scientometrics60, 237.pdf](2004/Scientometrics60,%20237.pdf)

Abstract: the academic level and scientific reputation is the most important merit of a research university. Publication of the scientific achievement in the world leading scientific journals is the key to asses a university’s overall performance. Peking University is a leading university among the Chinese research universities, and the number of papers published in Science Citation Index (SCI) indexed journals has been on the top of the national list.

In this paper, based on our long-term experience and practice in scientific management, we use scientometrics and informetrics method to analyze the academic performance of the researchers, departments and schools of Peking University, mainly using the citations of publications. Highly cited papers are specially important to the reputation of our university. We compare those data with some selected world well-known universities, hence, some important information can be deduced for the policy decision of the university. The results presented here is not only an academic survey, but also a guideline for the future strategic development of Peking University.

Dewett, T. and Denisi, A.S. (2004), Exploring scholarly reputation: It’s more than just productivity. *Scientometrics*, **60** (2), 249-272.

Full Text: [2004\Scientometrics60, 249.pdf](2004/Scientometrics60,%20249.pdf)

Abstract: We explore perceived creativity in scholarship as it relates to scholarly reputation in the field of management. The effects of quantity (total refereed publications, national paper presentations) and quality (proportion of articles in premier journals, editorial activity, research awards) dimensions of scholarly activity are also considered. Our results suggest that the quality dimensions are positively associated with reputation, but that the perceived creativity of a scholar’s work further influences reputation, and partially mediates the relationship between some quality measures and reputation. These results suggest that quality, creativity in particular, is more important than quantity for the accumulation of reputation.

Keywords: Creativity, Performance, Determinants, Recognition, Psychology, Science, Satisfaction, Competition, Innovation, Journals

? Rousseau, R. (2004), Loet Leydesdorff : Recipient of the 2003 Derek de Solla Price Award. *Scientometrics*, **60** (3), 275-277.

Full Text: [2004\Scientometrics60, 275.pdf](2004/Scientometrics60,%20275.pdf)

? Glänzel, W., Jiang, G.H., Rousseau, R. and Wu, Y.S. (2004), Preface. *Scientometrics*, **60** (3), 281-282.

Full Text: [2004\Scientometrics60, 281.pdf](2004/Scientometrics60,%20281.pdf)

Havemann, F., Heinz, M. and Wagner-Döbler, R. (2004), Growth dynamics of German university enrolments and of scientific disciplines in the 19th century: Scaling behaviour under weak competitive pressure. *Scientometrics*, **60** (3), 283-294.

Full Text: [2004\Scientometrics60, 283.pdf](2004/Scientometrics60,%20283.pdf)

Abstract: According to authors like H. E. Stanley and others, growth dynamics of university research displays a quantitative behaviour similar to the growth dynamics of firms acting under competitive pressure. Features of such behaviour are probability distributions of annual growth rates or the standard deviation of growth rates. We show that a similar statistical behaviour can be observed in the growth dynamics of German university enrolments or in the growth dynamics of physics and mathematics, both for the 19th century. Since competitive pressure was generally weak at that time, interpretations of statistical similarities as to pointing to a ‘firm-like behaviour’ are questionable.

? Moed, H.F. and Garfield, E. (2004), In basic science the percentage of ‘authoritative’ references decreases as bibliographies become shorter. *Scientometrics*, **60** (3), 295-303.

Full Text: [2004\Scientometrics60, 295.pdf](2004/Scientometrics60,%20295.pdf)

Abstract: the empirical question addressed in this contribution is: How does the relative frequency at which authors in a research field cite ‘authoritative’ documents in the reference lists in their papers vary with the number of references such papers contain? ‘Authoritative’ documents are defined as those that are among the ten percent most frequently cited items in a research field. It is assumed that authors who write papers with relatively short reference lists are more selective in what they cite than authors who compile long reference lists. Thus, by comparing in a research field the fraction of references of a particular type in short reference lists to that in longer lists, one can obtain an indication of the importance of that type. Our analysis suggests that in basic science fields such as physics or molecular biology the percentage of ‘authoritative’ references decreases as bibliographies become shorter. In other words, when basic scientists are selective in referencing behavior, references to ‘authoritative’ documents are dropped more readily than other types. The implications of this empirical finding for the debate on normative versus constructive citation theories are discussed.

Keywords: Analysis, Authors, Behavior, Biology, Citation, Contribution, Frequency, Indication, Molecular, Molecular Biology, Papers, Research, Science, Theories

Small, H. (2004), Why authors think their papers are highly cited. *Scientometrics*, **60** (3), 305-316.

Full Text: [2004\Scientometrics60, 305.pdf](2004/Scientometrics60,%20305.pdf)

Abstract: A survey of authors of highly cited papers in 22 fields was undertaken in connection with a new bibliometric resource called Essential Science Indicators (ESI®). Authors were asked to give their opinions on why their papers are highly cited. They generally responded by describing specific internal, technical aspects of their work, relating them to external or social factors in their fields of study. These self-perceptions provide clues to the factors that lead to high citation rate, and the importance of the interaction between internal and external factors. Internal factors are revealed by the technical terminology used to describe the work, and how it is situated in the problem domain for the field. External factors are revealed by a different vocabulary describing how the work has been received within the field, or its implications for a wider audience. Each author’s response regarding a highly cited work was analyzed on four dimensions: the author perception of its novelty, utility, significance, and interest. A co-occurrence analysis of the dimensions revealed that interest, the most socially based dimension, was most often paired with one of the other more internal dimensions, suggesting a synergy between internal and external factors.

? Yue, W.P. and Wilson, C.S. (2004), Measuring the citation impact of research journals in clinical neurology: A structural equation modelling analysis. *Scientometrics*, **60** (3), 317-332.

Full Text: [2004\Scientometrics60, 317.pdf](2004/Scientometrics60,%20317.pdf)

Abstract: This study develops and tests an integrated conceptual model of journal evaluation from varying perspectives of citation analysis. The main objective is to obtain a more complete understanding of the external factors affecting journal citation impact; that is, a theoretical construct measured by a number of citation indicators. Structural equation modelling (SEM) with partial least squares (PLS) is used to test the conceptual model with empirical data from journals in clinical neurology. Interrelationships among journal citation impact and four external factors (journal characteristics, journal accessibility, journal visibility and journal internationality) have been successfully explored, and the conceptual model of journal evaluation has been examined.

Keywords: Analysis, Business, Citation, Citation Analysis, Citation Impact, Evaluation, Impact, Index, Journal, Journals, Model, Modelling, Performance, PLS, Research, Science, Scientific Journals, SEM, Visibility

Negishi, M., Sun, Y. and Shigi, K. (2004), Citation database for Japanese papers: A new bibliometric tool for Japanese academic society. *Scientometrics*, **60** (3), 333-351.

Full Text: [2004\Scientometrics60, 333.pdf](2004/Scientometrics60,%20333.pdf)

Abstract: the paper describes the construction and functions of the Citation Database for Japanese Papers (CJP) developed at the National Institute of Informatics, Japan (NII), and the Impact Factors of CJP’s source journals. Then statistical analyses of multidimensional scaling on citation counts for the academic society journals to measure relationship among the societies are described. We also introduce a new citation navigation system, CiNii, which enables users to access various resources provided by NIL such as NACSIS Electronic Library Service (NACSIS-ELS) to get electronic full-text of journal articles through citation links. Recent political developments in Japan towards enhancement of scientific information infrastructure are also introduced with its implication to research evaluation systems incorporating citation analyses.

Keywords: Index

Shelton, R.D. and Holdridge, G.M. (2004), The US-EU race for leadership of science and technology: Qualitative and quantitative indicators. *Scientometrics*, **60** (3), 353-363.

Full Text: [2004\Scientometrics60, 353.pdf](2004/Scientometrics60,%20353.pdf)

Abstract: Both the United States and the European Union have set goals for worldwide leadership of science and technology. While the U. S. leads in most input quantitative indicators, output indicators may be more specific for determining present leadership. They show that the EU has taken the lead in important metrics and is challenging the U. S. in others. Qualitative indicators of fields of research and development, based on expert review studies organized by the authors, confirm that many EU labs are equal or better than those in the U. S.

Markusova, V.A., Minin, V.A., Libkind, A.N., Jansz, C.N.M., Zitt, M. and Bassecoulard-Zitt, E. (2004), Research in non-metropolitan universities as a new stage of science development in Russia. *Scientometrics*, **60** (3), 365-383.

Full Text: [2004\Scientometrics60, 365.pdf](2004/Scientometrics60,%20365.pdf)

Abstract: the tremendous social and political changes that culminated in the Soviet Union’s dissolution had a great impact on the Russian science community. Due to the Russian transformation to a market economy a new model of R&D emerged on the basis of the higher education system (R&D in universities). This paper is part of a project, the main goals of which were to analyse the impact of competitive funding on R&D in provincial universities, the distribution of funding by the Russian Foundation for Basic Research, and the level of cross-sectoral and international collaboration. This paper gives a descriptive overview of R&D conducted at the 380 provincial universities, looking at 9,800 applications, 1,950 research projects, 19,981 individuals, and more than 29,600 publications for the period 1996-2001. Our data demonstrated a positive tendency in demographic statistics in the provinces. A map of intra-national collaboration taking place in 1995 2002 in provincial universities situated in different economic regions was designed. Our data show a strong collaboration within the regions, which is an important factor of sustainability. Publication output grew by a factor two or two-and half in six years. The share in output on mathematics was the highest at about 45%, physics and chemistry had equal shares of about 20% each. Researchers from the Ural and Povolzh’e regions were more active in knowledge dissemination than their colleagues from the other nine economic-geographic regions. Bibliometric analysis of more than 1,450 international collaborative publications for 1999 2001 demonstrated a strong shift in collaboration partners from Former East Block and former USSR countries to Western Europe, USA and Japan. Among the regions, Povolzh’e, Ural, Volgo-Vyatsky and Central Chemozem’e demonstrated a stronger tendency to collaborate. This collaboration depends heavily on financial support from foreign countries.

? Wu, Y.S., Pan, Y.T., Zhang, Y.H., Ma, Z., Pang, J.G., Guo, H., Xu, B. and Yang, Z.Q. (2004), China Scientific and Technical Papers and Citations (CSTPC): History, impact and outlook. *Scientometrics*, **60** (3), 385-397.

Full Text: [2004\Scientometrics60, 385.pdf](2004/Scientometrics60,%20385.pdf)

Abstract: This paper traces the history of China Scientific and Technical Papers and Citations database (CSTPC) since its founding in 1988. The fact that most Chinese scientists publish their research results in Chinese journals requires that China establish SCI counterparts dedicated to domestic S & T journals. The article describes the selection criteria for source journals, the approach used to adjust the structure of source journals, the criteria for selecting items to be included in the database, and the indexing method. Then it discusses the impact upon government R & D administration agencies and the science community in general by both CSTPC team and CSTPC database. Finally, the article analyzes the main factors that lead to the primary success of CSTPD. The authors encourages information workers in other non-English developing countries to build up similar databases.

Keywords: Authors, China, Chinese Journals, Citations, Databases, Developing Countries, History, Impact, Indexing, Information, Journals, Lead, Primary, Research, SCI, Science, Success

? Beaver, D.D. (2004), Does collaborative research have greater epistemic authority? *Scientometrics*, **60** (3), 399-408.

Full Text: [2004\Scientometrics60, 399.pdf](2004/Scientometrics60,%20399.pdf)

Abstract: This paper presents qualitative philosophical, sociological, and historical arguments in favor of collaborative research having greater epistemic authority than research performed by individual scientists alone. Quantitatively, epistemic authority is predicted to correlate with citations, both in number, probability of citation, and length of citation history. Data from a preliminary longitudinal study of 33 researchers supports the predicted effects, and, despite the fallacy of asserting the consequent, is taken to confirm the hypothesis that collaborative research does in fact have greater epistemic authority.

Keywords: Citation, Citations, History, Longitudinal Study, Research, Researchers

? Kretschmer, H. (2004), Author productivity and geodesic distance in bibliographic co-authorship networks, and visibility on the Web. *Scientometrics*, **60** (3), 409-420.

Full Text: [2004\Scientometrics60, 409.pdf](2004/Scientometrics60,%20409.pdf)

Abstract: the increasing cooperation in science, which has led to larger co-authorship networks, requires the application of new methods of analysis of social networks in bibliographic co-authorship networks as well as in networks visible on the Web. In this context, a number of interesting papers on the “Erdos Number”, which gives the shortest path (geodesic distance) between an author and the well-known Hungarian mathematician Erdos in a co-authorship network, have been published recently. This paper develops new methods concerning the position of highly productive authors in the network. Thus a relationship of distribution of these authors among the clusters in the co-authorship network could be proved to be dependent upon the size of the clusters. Highly productive authors have, on average, low geodesic distances and thus shorter length of paths to all the other authors of a specialism compared to low productive authors, whereas the influencing possibility of highly productive scientists gets distributed amongst others in the development of the specialism. A theory on the stratification in science with respect to the over random similarity of scientists collaborating with one another, previously covered with other empirical methods, could also be confirmed by the application of geodesic distances. The paper proposes that the newly developed methodology may also be applied to visible networks in future studies on the Web. Further investigation is warranted into whether co-authorship and web networks have similar structures with regards to author productivity and geodesic distances.

Keywords: Analysis, Author, Authors, Bibliographic, Co-Authorship, Co-Authorship Networks, Coauthorship, Cooperation, Development, Low, Methodology, Network, Papers, Patterns, Productivity, Science, Social, Social Networks, Theory, Visibility

Persson, O., Glänzel, W. and Danell, R. (2004), Inflationary bibliometric values: the role of scientific collaboration and the need for relative indicators in evaluative studies. *Scientometrics*, **60** (3), 421-432.

Full Text: [2004\Scientometrics60, 421.pdf](2004/Scientometrics60,%20421.pdf)

Abstract: Several research studies and reports on national and European science and technology indicators have recently presented figures reflecting intensifying scientific collaboration and increasing citation impact in practically all science areas and at all levels of aggregation. The main objective of this paper is twofold, namely first to analyse if the number or weight of actors in scientific communication has increased, if patterns of documented scientific communication and collaboration have changed in the last two decades and if these tendencies have inflationary features. The second question is concerned with the role of scientific collaboration in this context. In particular, the question will be answered to what extent co-authorship and publication activity, on one hand, and co-authorship and citation impact, on the other hand, do interact.

The answers found to these questions have strong implication for the application of bibliometric indicators in research evaluation, moreover, the construction of indicators applied to trend analyses and studies based on medium-term or long-term observations have to be reconsidered to guarantee the validity of conclusions drawn from bibliometric results.

Keywords: Co-Authorship, Patterns

? Yoshikane, F. and Kageura, K. (2004), Comparative analysis of coauthorship networks of different domains: the growth and change of networks. *Scientometrics*, **60** (3), 433-444.

Full Text: [2004\Scientometrics60, 433.pdf](2004/Scientometrics60,%20433.pdf)

Abstract: Many studies have tried to describe patterns of research collaboration through observing coauthorship networks. Those studies mainly analyze static networks, and most of them do not consider the development of networks. hi this study, we turn our attention to the development of personal collaboration networks. On the basis of an analysis from two viewpoints, i.e., growth in the number of collaborating partners and change in the relationship strength with partners, we describe and compare the characteristics of four different domains, i.e., electrical engineering, information processing, polymer science, and biochemistry.

Keywords: Analysis, Attention, Authorship Patterns, Coauthorship, Collaboration, Countries, Development, Growth, Information, Information Processing, International Collaboration, Journals, Multiple Authorship, Polymer, Research, Research Collaboration, Science, Scientific Collaboration, Strength

? Lamirel, J.C., Francois, C., AL Shehabi, S. and Hoffmann, M. (2004), New classification quality estimators for analysis of documentary information: Application to patent analysis and web mapping. *Scientometrics*, **60** (3), 445-462.

Full Text: [2004\Scientometrics60, 445.pdf](2004/Scientometrics60,%20445.pdf)

Abstract: the information analysis process includes a cluster analysis or classification step associated with an expert validation of the results. In this paper, we propose new measures of Recall/Precision for estimating the quality of cluster analysis. These measures derive both from the Galois lattice theory and from the Information Retrieval (IR) domain. As opposed to classical measures of inertia, they present the main advantages to be both independent of the classification method and of the difference between the intrinsic dimension of the data and those of the clusters. We present two experiments on the basis of the MultiSOM model, which is an extension of Kohonen’s SOM model, as a cluster analysis method. Our first experiment on patent data shows how our measures can be used to compare viewpoint-oriented classification methods, such as MultiSOM, with global cluster analysis method, such as WebSOM Our second experiment, which takes part in the EICSTES EEC project, is an original Webometrics experiment that combines content and links classification starting from a large non-homogeneous set of web pages. This experiment highlights the fact that break-even points between our different measures of Recall/Precision can be used to determine an optimal number of clusters for web data classification. The content of the clusters obtained when using different break-even points are compared for determining the quality of the resulting maps.

Keywords: Analysis, Application, Information, Ir, Mapping, Model, Patent, Points, Quality, Self-Organizing-Maps, Theory, Validation, Webometrics

? Qiu, J.P., Chen, J.Q. and Wang, Z. (2004), An analysis of backlink counts and Web Impact Factors for Chinese university websites. *Scientometrics*, **60** (3), 463-473.

Full Text: [2004\Scientometrics60, 463.pdf](2004/Scientometrics60,%20463.pdf)

Abstract: This article aims to study the total backlink counts, external backlink counts and the Web Impact Factors (WIFs) for Chinese university websites. By studying whether the backlink counts and WIFs of websites associate with the comprehensive ratings and the research ratings for Chinese universities, the article demonstrates that the external backlink count can be a better evaluation measure for university websites than WIF. The study also investigated issues about data collection by using different search engines. It shows that data collected by Alta Vista are more stable than AllTheWeb.

Keywords: Analysis, Data Collection, Evaluation, Factors, Impact, Information, Research, Universities, University, Websites

Tang, R. and Thelwall, M. (2004), Patterns of national and international Web inlinks to US academic departments: An analysis of disciplinary variations. *Scientometrics*, **60** (3), 475-485.

Full Text: [2004\Scientometrics60, 475.pdf](2004/Scientometrics60,%20475.pdf)

Abstract: An investigation of links to 89 US academic departments from three different disciplines gave insights into the kinds of international regions and national domains that linked to them. While significant correlations were found between total counts of international inlinks and total publication impact in Psychology and Chemistry, counts of international inlinks to History departments were too small to give a significant result. The correlations suggest that international links may reflect, to a certain extent, patterns of scholarly communication. Even though History departments attracted a significantly lower percentage of international inlinks than those of Chemistry and Psychology, the main source of links for all three disciplines was from Europe. Analyses of national inlinks, characterized by gTLDs (generic Top Level Domains), showed that the major source of links for all disciplines was .edu sites, followed by .com, .org, .net. As a whole, international regional differences in disciplines were stronger than gTLD differences, although in both cases discrepancies were not of a large scale.

Keywords: Impact Factors, Site Interlinking, Critical-View, Links, Communication, Bibliometrics, Webometrics, Science

? Vaughan, L.W. and Wu, G.Z. (2004), Links to commercial websites as a source of business information. *Scientometrics*, **60** (3), 487-496.

Full Text: [2004\Scientometrics60, 487.pdf](2004/Scientometrics60,%20487.pdf)

Abstract: Websites of China’s top 100 information technology (IT) companies were examined. Link count to a company’s website was found to correlate with the company’s revenue, profit, and research and development expenses. This suggests that Web hyperlinks to commercial sites can be a business performance indicator and thus a source of business information. This information is useful for Web business intelligence and Web data mining. As a comparison to IT companies, China’s top 100 privately owned companies were also studied. No relationship between link count and the business performance measure was found for these companies due probably to the heterogeneous nature of this group. Data collection issues for webometrics research were also explored in the study.

Keywords: Data Mining, Development, Information, Information Technology, Performance Measure, Research, Research and Development, Sites, Web Impact Factors, Webometrics, Websites

? Egghe, L. (2004), Positive reinforcement and 3-dimensional informetrics. *Scientometrics*, **60** (3), 497-509.

Full Text: [2004\Scientometrics60, 497.pdf](2004/Scientometrics60,%20497.pdf)

Abstract: We show that the composition of two information production processes (IPPs), where the items of the first IPP are the sources of the second, and where the ranks of the sources in the first IPP agree with the ranks of the sources in the second IPP, yields an IPP which is positively reinforced with respect to the first IPP. This means that the rank-frequency distribution of the composition is the composition of the rank-frequency distribution of the first IPP and an increasing function phi, which is explicitly calculable from the two IPPs’ distributions. From the rank-frequency distribution of the composition, we derive its size-frequency distribution in terms of the size-frequency distribution of the first IPP and of the function phi. The paper also relates the concentration of the reinforced IPP to that of the original one. This theory solves part of the problem of the determination of a third IPP from two given ones (so-called three-dimensional informetrics). In this paper we solved the “linear” case, i.e., where the third IPP is the composition of the other two IPPs.

Keywords: Information, Informetrics, Laws, Productivity, Systems, Theory

? Glänzel, W. (2004), Towards a model for diachronous and synchronous citation analyses. *Scientometrics*, **60** (3), 511-522.

Full Text: [2004\Scientometrics60, 511.pdf](2004/Scientometrics60,%20511.pdf)

Abstract: This paper gives an overview of the diachronous (prospective) and synchronous (retrospective) approach to ageing studies of scientific literature from the perspective of technical reliability, visualising the different aspects that can be analysed by the two approaches. The main objective is to deepen the understanding of the mechanism and the theory underlying the two aproaches, and is to show that the difference between the diachronous and synchronous model is not “Just counting into opposite directions”. In this context, a stochastic model is presented showing that one and the same model can be used to describe both diachronous and synchronous perspectives of citation processes. On the basis of this model, it is explained how some diachronous and synchronous citation-based indicators can be re-calculated for changing publication periods and citation windows underlying their construction. The paper is concluded by several applications such as the definition and calculation of diachronous (prospective) and synchronous (retrospective) journal impact measures and other citation indicators used in research evaluation.

Keywords: Age Data, Ageing, Citation, Evaluation, Growth, Impact, Journal, Journal Impact, Literature, Mechanism, Model, Obsolescence, Overview, Publication, Reliability, Research, Research Evaluation, Scientific Literature, Social-Sciences, Theory

? Shan, S., Jiang, G.H. and Jiang, L. (2004), The multivariate Waring distribution and its application. *Scientometrics*, **60** (3), 523-535.

Full Text: [2004\Scientometrics60, 523.pdf](2004/Scientometrics60,%20523.pdf)

Abstract: the multivariate Waring distribution is developed and investigated. A special case, the bivariate Waring distribution, is considered. It is shown that the distributions have some nice properties as multivariate distribution. Some applications to the distribution of scientific productivity are discussed.

Keywords: Productivity, Scientific Productivity

Liang, L.M., Liu, J.W. and Rousseau, R. (2004), Name order patterns of graduate candidates and supervisors in Chinese publications: A case study of three major Chinese universities. *Scientometrics*, **61** (1), 3-18.

Full Text: [2004\Scientometrics61, 3.pdf](2004/Scientometrics61,%203.pdf)

Abstract: Studying three Chinese major universities of different type, this article attempts to validate earlier results related to authors’ name order in papers co-authored by graduate candidates and their supervisors. Candidates for the doctoral degree as well as the master’s degree are considered. Defining the g-ratio as the fraction of co-authored publications where the graduate student’s name precedes that of the supervisor’s we obtain the following results. 1) Generally, master’s level g-ratios are smaller than the corresponding doctoral level g-ratios. 2) the three doctoral g-ratio time series have a common characteristic: they tend to a limiting target value of somewhat more than 80%. The master’s time series of the three universities extend themselves in parallel with the doctoral time series. 3) the g-ratio of collaborative papers related to the dissertation is higher than the g-ratio of collaborative papers not related to the dissertation. This is true on the doctoral level as well as on the master’s level. 4) Different disciplines have different g-ratios, representing disciplinary customs in graduate candidate-supervisor collaboration, the highest g-ratio in the doctoral case occurring in biology (except for Tsinghua University that does not offer courses in biology). 5) There exist only small differences between the g-ratios of different kinds of universities. 6) In recent years, the same candidate-supervisor collaboration patterns exist in international publications as in domestic ones. The fact that the doctoral g-ratios of all three universities are as high as 80% reflects a universal regularity in the structure of scientific collaboration between doctoral candidates and their supervisors in China.

Keywords: Scientific Productivity, Authors, Citation, Age, Collaboration, Science

? Bornmann, L. and Enders, J. (2004), Social origin and gender of doctoral degree holders - Impact of particularistic attributes in access to and in later career attainment after achieving the doctoral degree in Germany. *Scientometrics*, **61** (1), 19-41.

Full Text: [2004\Scientometrics61, 19.pdf](2004/Scientometrics61,%2019.pdf)

Abstract: Within the scope of this article we went further into the question to what extent particularistic attributes - social origin and gender - can affect selection processes (1) in access to and (2) in later career attainment after achieving the doctoral degree. The analyses are based on a questionnaire survey (n = 2 244) among doctoral degree holders achieving the doctoral degree in six selected disciplines (biology, electrical engineering, German studies, mathematics, social sciences, and business studies/economics) at German universities. In terms of our first object of investigation, the analyses show that in four out of six disciplines doctoral degree holders are a selected group compared to university graduates with regard to both social origin and gender. In terms of our second object of investigation - the impact of particularistic attributes on several indicators of further career attainment after achieving the doctoral degree (career inside or outside higher education and science, career position and income) - the results point to a stronger impact of gender compared to social origin.

Keywords: Association, Biology, Cross Classifications, Education, Gender, Germany, Higher Education, Impact, Income, Men, Questionnaire, Questionnaire Survey, Science, Sciences, Social, Social Sciences, Survey, Tests, Universalism, Universities, University, Women

? Kim, M.S. and Park, Y.T. (2004), The evolving patterns of inter-industrial knowledge structure: Case of Korean manufacturing in the 1980s. *Scientometrics*, **61** (1), 43-54.

Full Text: [2004\Scientometrics61, 43.pdf](2004/Scientometrics61,%2043.pdf)

Abstract: the notion of knowledge-based economy premises that technological knowledge be created, accumulated and disseminated through the interactive learning among principal actors in the national system. This paper analyzes, from a dynamic perspective, the structure of inter-industrial technological knowledge. Both human-driven disembodied channel and capital-driven embodied channel are investigated based on network analysis. The set of empirical data covers the Korean manufacturing sector during the 1980s. Overall, density of network tends to be increasing over time, implying that knowledge network becomes expanded and intensified. A number of distinctive features are identified between knowledge types and industrial categories. The findings in turn render important policy implications that should be addressed when developing technology policy. Clearly, the policy framework needs to be industry-specific and country-specific in accordance with the development stage and industrial structure of reference time.

Keywords: Analysis, Development, Knowledge, Learning, Network, Policy, Systems, Taxonomy

? Upadhye, R.P., Kalyane, V.L., Kumar, V. and Prakasan, E.R. (2004), Scientometric analysis of synchronous references in the Physics Nobel lectures, 1981-1985: A pilot study. *Scientometrics*, **61** (1), 55-68.

Full Text: [2004\Scientometrics61, 55.pdf](2004/Scientometrics61,%2055.pdf)

Abstract: Scientometric analysis of synchronous references in the nine Physics Nobel lectures by Nicolaas Bloembergen (1981), Arthur L. Schawlow (1981), Kai M. Siegbalm (1981), Kenneth G. Wilson (1982), Subrahmanyan Chandrasekhar (1983), William A. Fowler (1983), Carlo Rubbia (1984), Simon van der Meer (1984), and Klaus von Klitzing (1985) indicated high variations: No. of Synchronous References ranged from 24 (Meer) to 283 (Siegbahn); Synchronous Self-References ranged from 5 (Rubbia) to 88 (Siegbahn); synchronous references to others ranged from 10 (Chandrasekhar) to 255 (Wilson); Synchronous Self-Reference Rates ranged from 6.66% (Rubbia) to 65.51% (Chandrasekhar); Single-Authored References ranged from 15 (Klitzing) to 160 (Wilson); Multi-Authored References ranged from 4 (Chandrasekhar) to 194 (Siegbahn); Collaboration Coefficient in the synchronous references ranged from 0.14 (Chandrasekhar) to 0.75 (Klitzing); and Recency (age of 50% of the latest references) ranged from 2 (Klitzing) to 18 (Chandrasekhar) years. Seventy five per cent of the references belonged to journal articles. Highly referred journals were Astrophysical Journal, Physical Review B, Physical Review Letters, Arkiv, Fuer, Fysik, Surface Science, Physics Letters, and IEEE Transactions on Nuclear Science.

Keywords: Analysis, Collaboration, Indicators, Journal, Journals, Physics, References, Review, Science, Self-Citations

Notes: TTopic

Chiu, W.T., Huang, J.S. and Ho, Y.S. (2004), Bibliometric analysis of severe acute respiratory syndrome-related research in the beginning stage. *Scientometrics*, **61** (1), 69-77.

Full Text: [2004\Scientometrics61, 69.pdf](2004/Scientometrics61,%2069.pdf)

Abstract: Severe acute respiratory syndrome (SARS) has become the major of health issues since its outbreak early 2003. No analyses by bibliometric technique that have examined this topic exist in the literature. The objective of this study is to conduct a bibliometric analysis of all SARS-related publications in Science Citation Index (SCI) in the early stage. A systematic search was performed using the SCI for publications since SARS outbreak early 2003. Selected documents included ‘severe acute respiratory syndrome’ or ‘SARS’ as a part of its title, abstract, or keyword from the beginning stage of SARS outbreak, March till July 8, 2003. Analysis parameters included authorship, patterns of international collaboration, journals, language, document type, research institutional address, times cited, and reprint address. Citation analysis was mainly based on impact factor as defined by Journal Citation Reports (JCR) issued in 2002 and on the actual citation impact (ACI), which has been used to assess the impact relative to the whole field and has been defined as the ratio between individual citation per publication value and the total citation per publication value. Thirty-two percent of total share was published as news features, 25% as editorial materials, 22% as articles, 13% as letters, and the remaining being biographic items, corrections, meeting abstracts, and reprints. The US dominated the production by 30% of the total share followed closely by Hong Kong with 24%. Sixty-three percent of publication was published by the mainstream countries. The SARS publication pattern in the past few months suggests immediate citation, low collaboration rate, and English and mainstream country domination in production. We observed no associations of research Indexes with the number of cases.

Keywords: Abstracts, Analyses, Analysis, Articles, Authorship, Bibliometric, Bibliometric Analysis, Cases, Citation, Citation Analysis, Citation Impact, Collaboration, Country, Domination, Field, Health, Hong Kong, Impact, Impact Factor, Indexes, Institutional, Institutional Address, International, Journal Citation Reports, Journals, Language, Literature, Meeting, Meeting Abstracts, News, Objective, Pattern, Production, Publication, Publications, Research, SAR, SARS, SCI, Science, Science Citation Index, Search, Severe Acute Respiratory Syndrome, Syndrome, Systematic, Technique, Till, US, Value

Mehrdad, M., Heydari, A., Sarbolouki, M.N. and Etemad, S. (2004), Basic science in the Islamic Republic of Iran. *Scientometrics*, **61** (1), 79-88.

Full Text: [2004\Scientometrics61, 79.pdf](2004/Scientometrics61,%2079.pdf)

Abstract: the population of Iran has nearly doubled in less than 25 years, while the number of university students has increased more than 10 times and 720 Ph. D. degrees have been awarded in basic science in the past 10 years. Despite the great difficulties that the Iranian scientists have been facing for more than two decades (as a consequence of a social revolution, 8 years of a destructive war imposed by Iraq, excessive brain drain, discriminatory practices by some international journals in publishing the Iranian articles, and unfair sanctions imposed by the industrialized countries) Iran’s science is still thriving and the current number of yearly scientific publications exceeds 1500. When normalized with respect to the number of researchers and the research budget, the Iranian scientists seem to outperform most of their counterparts in the advanced industrialized nations. Main reason: total engagement in truncated research activities (basic or applied) leading solely to pure publications; lack of infrastructure for developmental research activities leading to new technologies. The average impact factor of the papers in various fields of basic science seems quite satisfactory considering the difficult conditions the Iranian scientists are working under. Should the research budgets and conditions improve and the unfair sanctions currently imposed by the world politics be eliminated, a far better contribution to the world science can be expected.

Alfaraz, P.H. and Calvino, A.M. (2004), Bibliometric study on food science and technology: Scientific production in Iberian-American countries (1991-2000). *Scientometrics*, **61** (1), 89-102.

Full Text: [2004\Scientometrics61, 89.pdf](2004/Scientometrics61,%2089.pdf)

Abstract: This study presents a bibliometric analysis of the scientific production in the food science and technology (EST) field for the period 1991-2000, in Iberian-America (IA). Eight selected IA countries contributed 97.6% of the IA production and accounted for a 6.6% of the world production. The most frequent document type is journal article published in English. Retrieved records display characteristical authorship patterns and preferred subject areas. Spain, Brazil, Mexico, Argentina and Portugal determine the IA pattern of sources of publication. The fifty top ranked journals, 80% of which were indexed by the SCIE, encompass two-thirds of the IA production.

Keywords: Impact, Indicators, Output, Index

? Egghe, L. (2004), The source-item coverage of the Lotka function. *Scientometrics*, **61** (1), 103-115.

Full Text: [2004\Scientometrics61, 103.pdf](2004/Scientometrics61,%20103.pdf)

Abstract: the following problem has never been studied : Given A, the total number of items (e.g. articles) and T, the total number of sources (e.g. journals that contain these articles) (hence A>T), when is there a Lotka function f(j) = D/j(alpha) that represents this situation (i.e. where to) denotes the density of the sources in the item-density j)? And, if it exists, what are the formulae for D and alpha? This problem is solved in both cases with j is an element of [1, rho]: where (a) rho = infinity and where (b) rho < &INFIN;. Note that p = the maximum density of the items. If &rho; = &INFIN;, then A and T determine uniquely D and &alpha;. If &rho; < infinity, then we have, for every alpha less than or equal to 2, a solution for D and rho, hence for f. If rho < &INFIN; and &alpha; > 2 then we show that a solution exists if and only if mu = A/T < &alpha;-1/&alpha;-2. This sheds some light on the source-item coverage power of Lotka’s law.

Keywords: Coverage, Journals, Lotka’s Law, Power

Wray, K.B. (2004), An examination of the contributions of young scientists in new fields. *Scientometrics*, **61** (1), 117-128.

Full Text: [2004\Scientometrics61, 117.pdf](2004/Scientometrics61,%20117.pdf)

Abstract: I examine whether or not new scientific specialties present young scientists with better opportunities to make significant discoveries than established specialties by examining a series of significant discoveries in the first 22 years of the field of bacteriology. I found that it was middle aged scientists, not young scientists, who were responsible for a disproportionate number of significant discoveries. I argue that in order to make significant discoveries scientists need to work their way into the center of the social network of a scientific research community. Only then will they have access to the material and social resources necessary to make such discoveries.

Keywords: Creative Productivity, Age, Achievement, Acceptance, Science, Model

? Moya-Anegon, F., Vargas-Quesada, B., Herrero-Solana, V., Chinchilla-Rodriguez, Z., Corera-Alvarez, E. and Munoz-Fernandez, F.J. (2004), A new technique for building maps of large scientific domains based on the cocitation of classes and categories. *Scientometrics*, **61** (1), 129-145.

Full Text: [2004\Scientometrics61, 129.pdf](2004/Scientometrics61,%20129.pdf)

Abstract: Our objective is the generation of schematic visualizations as interfaces for scientific domain analysis. We propose a new technique that uses thematic classification (classes and categories) as entities of cocitation and units of measure, and demonstrate the viability of this methodology through the representation and analysis of a domain of great dimensions. The main features of the maps obtained are discussed, and proposals are made for future improvements and applications.

Keywords: Analysis, Citation Analysis, Cocitation, Digital Libraries, Domain Analysis, Information-Science, Interfaces, Knowledge Domains, Literatures, Methodology, Pathfinder Networks, Viability, Visualization, Word Analysis

Ahmed, T., Johnson, B., Oppenheim, C. and Peck, C. (2004), Highly cited old papers and the reasons why they continue to be cited. Part II. The 1953 Watson and Crick article on the structure of DNA. *Scientometrics*, **61** (2), 147-156.

Full Text: [2004\Scientometrics61, 147.pdf](2004/Scientometrics61,%20147.pdf)

Abstract: Reports the results of a citation study on Watson and Crick’s 1953 paper announcing the discovery of the double helix structure of DNA. The paper has been cited more than 2,000 times since 1961, and there is no sign of any obsolescence to this article. An analysis was undertaken of the journals in which the citations appeared, and of mistakes in the bibliographic citations provided by citing articles. Watson and Crick themselves have only cited their own paper twice since 1961. An analysis was also undertaken of the reasons why the paper was cited; 100 citing articles were identified and read. The reasons for citing were then categorised using the Oppenheim and Renn method. Compared to earlier studies, it was found that a greater proportion of citations were for historical reasons, a smaller proportion of citing articles were actively using the Watson and Crick article, and a similar, but low proportion were criticising the Watson and Crick article.

Keywords: Citation Behavior, Library, Motivations, Research Assessment Exercise

Notes: TTopic

? Rai, L.P. and Kumar, N. (2004), S&T education in India: Prospects and challenges. *Scientometrics*, **61** (2), 157-169.

Full Text: [2004\Scientometrics61, 157.pdf](2004/Scientometrics61,%20157.pdf)

Abstract: With the globalisation of the job market, higher education is undergoing structural changes and education scenario worldwide is experiencing dramatic and accelerating changes in patterns of creation of new knowledge. Similar activities are being witnessed in India as regards to the production of highly qualified S&T personnel in different disciplines. In this paper a comparative analysis of doctorates produced in India during 1974 to 1999 in different fields is carried out with the help of mathematical models. Besides analysing the trends of highly qualified S&T personnel with the help of known mathematical models, a few new substitution models have been proposed and applied to explain the movement of researchers from one discipline to the other. Findings suggest that arts, commerce, education and medicine depict growing trends, whereas agriculture, science and veterinary science are traversing a declining path. Further, proposed models are found to be flexible in nature and can capture and explain the shifting patterns very well. These models are comparable to other known models dealing with technology substitution.

Keywords: Activities, Analysis, Diffusion, Education, Globalisation, Higher Education, India, Knowledge, Medicine, Models, Movement, Researchers, Science, Substitution, Trends

Gu, Y.N. (2004), Global knowledge management research: A bibliometric analysis. *Scientometrics*, **61** (2), 171-190.

Full Text: [2004\Scientometrics61, 171.pdf](2004/Scientometrics61,%20171.pdf)

Abstract: the present study characterizes the dynamic publication activity of global knowledge management (KM) by data collected through a search restricted to articles in ISI Web of Science. A total of 2727 unique authors had contributed 1407 publications since 1975. The overwhelming majority (2349 or 86%) of them wrote one publication. The productive authors, their contribution and authorship position are listed to indicate their productivity and degree of involvement in their research publications. The sum of research output of the first or responsible authors from USA, UK and Germany reaches 57% of the total productivity. The distribution of articles is rather widespread - they published in 462 titles of serials, spanning 110 Journal Citation Reports subject categories. The higher quality journals make publication of findings more visible. A Pearson’s correlation coefficient is statistically found to be significant between citation frequency of article and impact factor of journal, instead of authorship pattern. The results also indicate that R&D expenditures were actually not proportional to research productivity or citation counts. As the subject highly interacts with other disciplines, the field of KM has not yet developed its own body of literature. KM might have been evolving an interdisciplinary theory that is developing at the boundaries of scientific disciplines.

Keywords: Neural-Networks Research, Research Performance, Modern Science, Impact Factor, Citation, Journals, Collaboration, Indicators, Interdisciplinarity, Productivity

? Karazija, R. and Momkauskaite, A. (2004), The Nobel prize in physics - regularities and tendencies. *Scientometrics*, **61** (2), 191-205.

Full Text: [2004\Scientometrics61, 191.pdf](2004/Scientometrics61,%20191.pdf)

Abstract: Various distributions of the Nobel laureates in physics in the 20th century and their discoveries are considered. It is shown that the time-interval between the discovery and its recognition can be approximately described by a lognormal distribution. The ratio of the numbers of laureates awarded for the experimental and the theoretical discoveries was rather different in various decades; this was determined by some “waves” of discoveries and in the initial period probably by some subjective factors. The probability to obtain this prize for the theorist is larger than for the experimenter. The main part of the awards was given to the scientists working in the main fields of modem physics: small distances and solid state physics. Some fields of physics such as mathematical physics, relativity, statistical physics were ignored completely. The worrying tendency of an increasing average age of laureates towards their retirement age is indicated.

Keywords: Experimental, Nobel Prize, Ratio, Statistical

Notes: UUniversity

Velloso, A., Lannes, D. and de Meis, L. (2004), Concentration of science in Brazilian governmental universities. *Scientometrics*, **61** (2), 207-220.

Full Text: [2004\Scientometrics61, 207.pdf](2004/Scientometrics61,%20207.pdf)

Abstract: Brazilian university-based science has grown rapidly in the last 20 years. Most of the PhD-level teaching, research, and technical publications are based in the government-supported universities, although there are also privately supported universities, which educate a large fraction of Brazilian attorney, business people, and other professions. We investigate here the relationship between type of university, numbers of degree program offered, number of faculty members, and number of published papers. Twelve universities, all government supported, are found to produce a very large fraction of publications and to house the best qualified PhD programs. We find that there is a strong correlation between research carried out with foreign collaborators and rate at which the resulting publications are cited. This trend is characteristic of many developing and less developed nations.

Keywords: International Collaboration

Notes: TTopics, CCountry

Klaic, Z.B. and Klaic, B. (2004), Croatian scientific publications in top journals according to the *Science Citation Index* for the 1980-2000 period. *Scientometrics*, **61** (2), 221-251.

Full Text: [2004\Scientometrics61, 221.pdf](2004/Scientometrics61,%20221.pdf)

Abstract: A top journal is defined as a journal which is within the first 10% of journals ranked by impact factor in the SCI list, within a particular scientific subfield, for the year considered. Journals which were for 11 or more years within the first 10% were considered top journals during the whole period even though they were not within the first 10%, in some of the years covered by this study.

In the period from 1980 to 2000, the Croatian scientists affiliated with research institutions within the Republic of Croatia, published a total of 13,021 papers in journals covered by the Science Citation Index (SCI). Out of these papers, only 2,720 were published in top journals. This amounts to 20.9% of the total, and this is below the world average of 29.5% for the same scientific subfields. Out of the above 2,720 publications, 1,250 (46.0%) were published in international collaboration, and 335 (12.3%) papers were Meeting Abstracts. The Croatian scientists were most productive in the main scientific fields: Physics (875 papers; 32.2%), Medicine (786 papers; 28.9%), and Chemistry (580 papers; 21.3%). All others fields, taken together, comprised 17.6% of the total scientific output. of the 786 medical papers, 290 were Meeting Abstracts, or 36.9% of the total output in the field of Medicine, and medical Meeting Abstracts represent 86.6% of the total number of abstracts (33 5). Articles (2,060) represent 75.7% of the total Croatian scientific output in top journals.

Keywords: International Collaboration, Indicators

Gu, Y.N. (2004), Disciplinary determinants of bibliometric impact in Danish industrial research: Collaboration and visibility. *Scientometrics*, **61** (2), 253-270.

Full Text: [2004\Scientometrics61, 253.pdf](2004/Scientometrics61,%20253.pdf)

Abstract: Firms are increasingly dependent on networks and network visibility for innovation. Bibliometric impact can be regarded as a measure of a firm’s visibility in knowledge-producing networks and may explain why companies publish their results. However, this visibility varies across disciplines. This paper examines publications produced by Danish companies in 1996, 1998 and 2000 to show how citation and collaboration patterns relate in different disciplines. The main findings are that for disciplines characterized by international collaboration and many authors per paper, international collaboration results in a greater number of citations. National collaboration does not, however, seem to make any difference to citation impact in industrial research. In disciplines where multinational collaboration and multi-authorship is uncommon, no clear picture of impact patterns can be obtained. By extension, this research may provide knowledge on how citations of papers in scientific journals can be used as a potential window to scientific networks for firms.

Keywords: Research-and-Development, Co-Authorships, Innovation, Networks, Cooperation, Citation, Progress

Belinchon, I., Ramos, J.M., Sanchez-Yus, E. and Betlloch, I. (2004), Dermatological scientific production from European Union authors (1987-2000). *Scientometrics*, **61** (2), 271-281.

Full Text: [2004\Scientometrics61, 271.pdf](2004/Scientometrics61,%20271.pdf)

Abstract: To evaluate the contribution to international dermatological literature made by authors from European Union (EU) countries. Using MEDLINE, a selection was made of articles by EU authors published between 1987 and 2000 in 32 dermatological journals, classified as such by the Institute for Scientific hiformation. Overall 19,225 documents were published by European authors in the selected dermatological journals from 1987 to 2000. The leading countries in terms of output were the United Kingdom, Germany, Italy and France. The leading countries in number of articles after taking into account the gross domestic product and the population were Denmark, Finland and Sweden. The main journals were the British Journal of Dermatology (14.5% of articles from European authors), Contact Dermatitis (13.7%), Journal of Investigative Dermatology (7.3%), Journal of American Academy of Dermatology (6.4%), and Acta Dermato-Venereologica (6.1%). The country with the highest output of papers by journal was the United Kingdom (11 journals) followed by Germany (9 journals), Italy (6 journals), France (3 journals), Spain (2 journals) and Sweden (1 journal). In conclusions: the scientific production of European Union research on dermatology is highest in northern countries.

Keywords: Biomedical Publications, Gastroenterology Research, Journals, Impact, Geography, Articles, Citation, Surgery

Gu, Y. (2004), Information management or knowledge management? An informetric view of the dynamics of Academia. *Scientometrics*, **61** (3), 285-299.

Full Text: [2004\Scientometrics61, 285.pdf](2004/Scientometrics61,%20285.pdf)

Abstract: This study analyzes the similarities and differences of performance of information management (IM) and knowledge management (KM) research publication indexed by the SCI-EXPANDED, SSCI and A&HCI databases since 1994 with informetric methods in order to explore a developing tendency in the near future. The bibliographic search supplied 1199 IM and 1063 KM records. A very few of IM and KM authors contributed two or more articles. Four countries dominated global IM and KM research productivity, while a few institutions played remarkable roles in scholarly activity. IM journals distributed widespread and 84 per cent just published one or two articles; KM publications were rather concentrated to core and borderline periodicals, fitting Bradford’s law of scattering and. The result of Pearson’s correlation coefficients analysis indicates that the higher the journal impact factor, the more times the published article is cited. The author concludes that KM has been leading IM in both publication productivity and academic population and the tendency is overwhelmingly growing.

Keywords: Impact Factor, Citation, Journals, Patterns, Quality, Bias

? Fernandez-Cano, A., Torralbo, M. and Vallejo, M. (2004), Reconsidering Price’s model of scientific growth: An overview. *Scientometrics*, **61** (3), 301-321.

Full Text: [2004\Scientometrics61, 301.pdf](2004/Scientometrics61,%20301.pdf)

Abstract: This paper presents an overview of the general model of scientific growth proposed by D. J. de Solla Price. Firstly, the formulation of the model is examined using the seminal sources. Later, forerunners, offshoots and criticisms to the model are discussed. Finally, an integrative review using retrieved empirical studies exposes the complexity and diversity of models of scientific growth and the absence of consistent patterns.

Keywords: Big Science, Growth, Indicators, Information, Integrative Review, Journals, Mathematical Approach, Model, Overview, Prediction, Progress, Review, Scientometrics, Technology

? Pinheiro-Machado, R. and Oliveira, P.L. (2004), A comparative study of patenting activity in US and Brazilian scientific institutions. *Scientometrics*, **61** (3), 323-338.

Full Text: [2004\Scientometrics61, 323.pdf](2004/Scientometrics61,%20323.pdf)

Abstract: Patents generated from scientific research indicate academic involvement in technology development. Academic patenting activity is recent, even in developed countries. This study compares patenting activity of Brazilian and American universities. Brazilian universities had 29.5-fold increase in applications and 4.01-fold in grants (1990-2001), about twice the increase presented by American universities in this period. However, a significant fraction of Brazilian academic applications are abandoned due to the lack of specialized staff to help in writing and to shepherd the application through the patenting process in universities. The participation of research institutes in technological innovation is increasing steadily, even without financial incentives.

Keywords: Comparative Study, Development, Incentives, Innovation, Involvement, Patents, Public Science, Research, Scientific Institutions, Scientific Research, Technology, Universities, University, US, Writing

? Guan, J.C. and Ma, N. (2004), A comparative study of research performance in computer science. *Scientometrics*, **61** (3), 339-359.

Full Text: [2004\Scientometrics61, 339.pdf](2004/Scientometrics61,%20339.pdf)

Abstract: the paper compares the research performance in computer science of four major Western countries, India and China, based on the data abstracted from INSPEC database during the period 1993-2002. A total of 9,632 computer science papers recorded in INSPEC database were used for the comparison. The findings indicate that, on the one hand, the number of papers produced in China has considerably increased in the past few years. Particularly, in recent years, China occupies a remarkable high position in terms of counts of papers indexed by the INSPEC database. On the other hand, Chinese scientists preferred to publish in domestic journals and proceedings and shares of SCI-papers to the total journal papers for China have still remained the lowest. This indicates that the research activities of Chinese scientists in computer science are still rather “local” and suffer from a low international visibility. Various scientometric indicators, such as Normalized Impact Factor, ratio of papers in high quality journals are further adopted to analyze research performance and diverse finding are obtained. Nevertheless, for these surrogate indicators, China has optimistically achieved great progress, characterized with “low level of beginning and high speed of developing”. The policy implication of the findings lies in that China, as well as other less developed countries in science, can earn relative competitive advantages in some new emerging or younger disciplines such as computer science by properly using catch-up strategy.

Keywords: Activities, Bibliometrics, China, Citation-Index, Comparative Study, Computer, Growth, Hand, Impact, Impact Factor, India, Indicators, Journal, Journals, Laser Research, Low, Papers, Policy, Quality, Ratio, Research, Research Performance, Science, Scientometrics, Strategy, Visibility

? Bhattacharya, S. (2004), Mapping inventive activity and technological change through patent analysis: A case study of India and China. *Scientometrics*, **61** (3), 361-381.

Full Text: [2004\Scientometrics61, 361.pdf](2004/Scientometrics61,%20361.pdf)

Abstract: the characteristics of Indian and Chinese patenting activity in the US patent system are examined by delineating two categories of patents; ‘nationally assigned’, and ‘invented not nationally assigned’ patents (not-nationally assigned patents in short). Further within the above two categories, patents are distinguished and analysed in terms of patent types: utility, design, and plant patents. Indian patents are mainly of utility type whereas China’s activity falls in both utility and design. In the `nationally assigned’ patents, the different types of institutions involved and linkages are much higher for China. However, ‘not-nationally assigned’ patents of both the countries are dominated by industry and inter-institutional collaborations are sparse. Patents addressing technology sectors (analysis based on utility patents) do not exhibit major differences between the two categories in Chinese patents and address with varying degree all technology sectors. Unlike China, India’s `nationally assigned’ patents are concentrated in chemical and drugs & medical whereas their ‘not-nationally assigned’ patents are similar to that of China in addressing technology sectors. In design patents, Chinese `nationally assigned’ patents mainly cover ornamental design of lighting equipments whereas their ‘not-nationally assigned’ patents are mainly in design equipment for production, distribution or transformation of energy. Further, few firms are active in design patents in both the categories. India’s design activity is insignificant in both the categories. The paper concludes by examining the results in the policy context.

Keywords: Analysis, China, Collaborations, Design, Differences, Drugs, Energy, Falls, India, Indicators, Industry, Medical, Patent, Patents, Performance, Plant, Policy, Statistics, United-States, US

? Christoffersen, M. (2004), Identifying core documents with a multiple evidence relevance filter. *Scientometrics*, **61** (3), 385-394.

Full Text: [2004\Scientometrics61, 385.pdf](2004/Scientometrics61,%20385.pdf)

Abstract: A method to identify core documents within a given subject domain has been developed by the author. The method builds on the concept of polyrepresentation by using different search rationales in several databases and isolating the overlaps between them. This paper delineates the ideas behind the method and describes the study done to measure its effectiveness.

Keywords: Author, Citation Retrieval, Databases, Effectiveness, Overlaps, Searches

Glänzel, W. and Thijs, B. (2004), Does co-authorship inflate the share of self-citations? *Scientometrics*, **61** (3), 395-404.

Full Text: [2004\Scientometrics61, 395.pdf](2004/Scientometrics61,%20395.pdf)

Abstract: In recent papers, the authors have studied basic regularities of author self-citations. The regularities are related to the ageing, to the relation between self-citations and foreign citations and to the interdependence of self-citations with other bibliometric indicators. The effect of multi-authorship on citation impact has been shown in other bibliometric studies, for instance, by Persson et al. (2004). The question arises whether those regularities imply any relation between number of co-authors and the extent of author self-citations. The results of the present paper confirm the common notion of such effects only in part. The authors show that at the macro level multi-authorship does not result in any exaggerate extent of self-citations.

Kretschmer, H. and Aguillo, I.F. (2004), Visibility of collaboration on the Web. *Scientometrics*, **61** (3), 405-426.

Full Text: [2004\Scientometrics61, 405.pdf](2004/Scientometrics61,%20405.pdf)

Abstract: the emerging influence of new information and communication technologies (ICT) on collaboration in science and technology has to be considered. In particular, the question of the extent to which collaboration in science and in technology is visible on the Web needs examining. Thus the purpose of this study is to examine whether broadly similar results would occur if solely Web data was used rather than all available bibliometric co-authorship data. for this purpose a new approach of Web visibility indicators of collaboration is examined. The ensemble of COLLNET members is used to compare co-authorship patterns in traditional bibliometric databases and the network visible on the Web. One of the general empirical results is a high percentage (78%) of all bibliographic multi- authored publications become visible through search of engines in the Web. One of the special studies has shown Web visibility of collaboration is dependent on the type of bibliographic multi-authored papers. The social network analysis (SNA) is applied to comparisons between bibliographic and Web collaboration networks. Structure formation processes in bibliographic and Web networks are studied. The research question posed is to which extent collaboration structures visible in the Web change their shape in the same way as bibliographic collaboration networks over time. A number of special types of changes in bibliographic and Web structures are explained.

? Lamirel, J.C., Al Shehabi, S., Francois, C. and Polanco, X. (2004), Using a compound approach based on elaborated neural network for Webometrics: An example issued from the EICSTES project. *Scientometrics*, **61** (3), 427-441.

Full Text: [2004\Scientometrics61, 427.pdf](2004/Scientometrics61,%20427.pdf)

Abstract: This paper present a compound approach for Webometrics based on an extension the self-organizing multimap MultiSOM model. The goal of this new approach is to combine link and domain clustering in order to increase the reliability and the precision of Webometrics studies. The extension proposed for the MultiSOM model is based on a Bayesian network-oriented approach. A first experiment shows that the behaviour of such an extension is coherent with its expected properties for Webometrics. A second experiment is carried out on a representative Web dataset issued from the EISCTES IST project context. In this latter experiment each map represents a particular viewpoint extracted from the Web data description. The obtained maps represented either thematic or link classifications. The experiment shows empirically that the communication between these classifications provides Webometrics with new explaining capabilities.

Keywords: Communication, Information, Map, Model, Network, Neural Network, Precision, Reliability, Webometrics

Meyer, M. and Bhattacharya, S. (2004), Commonalities and differences between scholarly and technical collaboration. *Scientometrics*, **61** (3), 443-456.

Full Text: [2004\Scientometrics61, 443.pdf](2004/Scientometrics61,%20443.pdf)

Abstract: Co-authorship analysis is a well-established tool in bibliometric analysis. It can be used at various levels to trace collaborative links between individuals, organisations, or countries. Increasingly, informetric methods are applied to patent data. It has been shown for another method that bibliometric tools cannot be applied without difficulty. This is due to the different process in which a patent is filed, examined, and granted and a scientific paper is submitted, refereed and published. However, in spite of the differences, there are also parallels between scholarly papers and patents. for instance, both papers and patents are the result of an intellectual effort, both disclose relevant information, and both are subject to a process of examination. Given the similarities, we shall raise the question as to which extent one can transfer co-authorship analysis to patent data.

? Uzun, A. (2004), Assessing internationality of scholarly journals through foreign authorship patterns: the case of major journals in information science, and scientometrics. *Scientometrics*, **61** (3), 457-465.

Full Text: [2004\Scientometrics61, 457.pdf](2004/Scientometrics61,%20457.pdf)

Abstract: This article reports findings from a study of patterns of foreign authorship of articles, and international composition of journal editorial boards in five leading journals in the field of information science, and scientometrics. The study covers an American journal and four European journals. Bibliographic data about foreign authors and their national affiliation from five selected years of publication were analyzed for all journals. The foreign input of articles were extremely high in Information Processing & Management, and Scientometrics, and were relatively low in the other three journals. The number of foreign countries contributing in all journals have increased rapidly since 1996. Canada, England, Belgium, Netherlands, China, and Spain were the countries with high contributions in JASIST. The authors from the USA have dominated the foreign-authored articles in all European journals. A simple linear regression analysis showed that 60% of variation in the proportion of foreign-authored articles in the set of five journals over the selected years could be explained by the percentage of foreign members on the editorial boards of the journals.

Keywords: Affiliation, Analysis, Authors, Authorship, Belgium, Bibliographic, Bibliometric Analysis, Canada, China, Editorial-Boards, England, Information, Information Science, Journal, Journals, Linear Regression, Low, Management, Publication, Regression Analysis, Scholarly Journals, Science, Scientific Journals, Scientometrics, Spain, USA, Women

? Vaughan, L.W. (2004), Exploring website features for business information. *Scientometrics*, **61** (3), 467-477.

Full Text: [2004\Scientometrics61, 467.pdf](2004/Scientometrics61,%20467.pdf)

Abstract: Two previous webometrics studies found a relationship between the number of inlinks to a commercial site and the company’s business performance measures. Thus inlink counts to commercial sites could be a potential source of business information. However, those studies examined top ranking information technology companies in the U.S. and China. Whether the above-mentioned relationship holds for all companies regardless of ranking and in other countries is unknown. The study reported in this paper investigated this question. The study includes all information technology companies in the U.S. and Canada and gathered both business performance data and website data for these companies. It found significant correlation between business performance measures and inlinks to the company websites. The correlation was still significant even after the size of the company and the website age were accounted for. The conclusion is robust to the search engine used for data collection. Data collection issues for webometrics research were also explored.

Keywords: Bias, Canada, China, Data Collection, Information, Information Technology, Links, Performance Measures, Ranking, Research, Sites, Web Impact Factors, Webometrics, Websites

Wagner, C.S. (2005), Six case studies of international collaboration in science. *Scientometrics*, **62** (1), 3-26.

Full Text: [2005\Scientometrics62, 3.pdf](2005/Scientometrics62,%203.pdf)

Abstract: Six case studies of international cooperation at the subfield level are presented and compared. The cases examine international collaboration by detailing co-authorship links among researchers by field, evidenced at the level of the nation. Cases are offered based on possible drivers for collaboration: sharing ideas, cooperating around equipment, cooperating around resources, and exchanging data. Scientometric and network analysis of linkages are presented and discussed for each of the six cases: astrophysics, geophysics, mathematical logic, polymers, soil science, and virology, Visualizations of the cosine matrices within each field are compared for 1990 and 2000. The research shows that international collaboration grew in all the fields at rates higher than the international average. The possibility that rapid increases in international collaboration in science can be attributed in part to certain drivers related to access to resources or equipment sharing could not be upheld by the data. Other possible explanations for the rapid growth of collaboration are offered, including the possibility that weak ties evidenced by geographically remote collaboration can promote new knowledge creation.

Keywords: Collaboration, Cooperation, Countries, International Cooperation, Model, Multilateral Co-Authorship, Network, Network Analysis, Patterns, Profiles, Publication, Research, Scientific Collaboration, Virology

? Prpic, K. (2005), Generational similarities and differences in researchers’ professional ethics: An empirical comparison. *Scientometrics*, **62** (1), 27-51.

Full Text: [2005\Scientometrics62, 27.pdf](2005/Scientometrics62,%2027.pdf)

Abstract: This study, based on two empirical investigations undertaken in Croatia on samples of 320 eminent and 840 young researchers, shows a comparison between the professional values/norms of these groups (normative level of research ethics), as well as a comparison (of perceptions) about the frequency of ethically questionable and unacceptable behaviour of researchers in Croatian research institutions (behavioural level of ethos). Science ethics includes a core of cognitive and social standards about which there is relatively high consensus in both groups of researchers. Their cognitive standards correspond to epistemological realism with an accent on objective, reliable, measurable and precise new knowledge. Their basic social values include the broadest social responsibility, responsibility towards colleagues and students, and professionality in relation with funders and/or clients. Thus, research ethos is a combination of traditional cognitive norms and new socially-engaged values. However, research ethics is not a static or homogeneous set of professional values and norms. Young scientists value cognitive norms relating to basic research lower, but rank some cognitive standards more closely linked with applied empirical research higher. Considering the social dimensions of research ethics, young researchers rate traditional academic values of collegiality, commonality and autonomy less important than do eminent scientists, but they hold professionalism and establishing research networks more important. As expected, cognitive and social values and norms are not strictly followed on the level of professional practice. In their everyday professional life eminent and young researchers experience particular questionable research practices that could harm research work and results, and impair collegial relations in science, more often than they encounter breaking social norms that harm or even threaten participants in and users of scientific professional work. Differences in perceiving the incidence of certain kinds of questionable behaviour between the eminent and the young may be attributed to their different professional position and experience.

Keywords: Croatia, Determinants, Differences, Ethics, Frequency, Incidence, Knowledge, Norms, Perceptions, Practice, Productivity, Professional, Professional Practice, Research, Research Institutions, Research Work, Researchers, Responsibility, Science, Scientists, Social, Standards, Students, Traditional

Carvalho, P., Diniz-Filho, J.A.F. and Bini, L.M. (2005), The impact of Felsenstein’s ‘phylogenies and the comparative method’ on evolutionary biology. *Scientometrics*, **62** (1), 53-66.

Full Text: [2005\Scientometrics62, 53.pdf](2005/Scientometrics62,%2053.pdf)

Abstract: Felsenstein’s (1985) method of phylogenetic independent contrasts is probably the most commonly used technique in evolutionary biology to study adaptation of organisms to their environment, taking phylogeny into account. Here, we performed a scientometric evaluation of all 1462 articles that cited Felsenstein (1985) between 1985 and 2002, in order to analyze the impact of his comparative method on the evolutionary research program and what has been done since it. We found that Felsentein’s (1985) article can be classified as a ‘hot paper’ or a breakthrough contribution, since it was the most cited article from the American Naturalist published in 1985. Also, it can be considered as a ‘citation classic’, since it is the third more cited paper in the American Naturalist from 1945 to 2002. In general, papers that cited Felsenstein (1985) were published in high-impact journals, and most of them are theoretical articles indicating that biologists are aware of statistical and conceptual problems in dealing with comparative methods.

Keywords: Adaptation, Citations, Evaluation, Journals, Patterns, Phylogenetically Independent Contrasts, Power, Progress, Regression, Research, Science, Scientometric

Engels, A., Ruschenburg, T. and Weingart, P. (2005), Recent internationalization of global environmental change research in Germany and the US. *Scientometrics*, **62** (1), 67-85.

Full Text: [2005\Scientometrics62, 67.pdf](2005/Scientometrics62,%2067.pdf)

Abstract: Programs in global environmental change research call for sweeping international cooperation and the creation of global networks. This paper analyzes to what extent research institutions in the field of global environmental change have responded to this call. Several bibliometric indicators of internationalization are discussed. A German and a U.S. sample are compared. The results indicate that a very discernable trend of recent internationalization can be observed. This is in line with a general internationalization trend across all fields, but at a much higher level. Given the political emphasis on capacity building in developing countries in this research field, however, there is only weak evidence of a more encompassing globalization process which also includes marginal world regions. Finally, the internationalization trend does not coincide with de-nationalization.

Keywords: Scientific Collaboration, Countries, Science, Model

Tuzi, F. (2005), The scientific specialisation of the Italian regions. *Scientometrics*, **62** (1), 87-111.

Full Text: [2005\Scientometrics62, 87.pdf](2005/Scientometrics62,%2087.pdf)

Abstract: the possible existence of specialisation patterns by research fields of the Italian regions is investigated. Accordingly, bibliometric data on papers published in international scientific journals have been processed and tailored for regional comparative analysis. The results show that the trends in scientific regional specialisation are related to the research activities performed by each scientific system, but also the regional industrial skill is very often reflected in the corresponding scientific profile.

The empirical evidences show also that each Italian region works as a well identifiable scientific system providing for its own specific contribution to the national performance.

Keywords: 27 Science Areas, Publication Output, Citation Impact, National Performances, Scientometric Weight, World Science, Life Sciences, Indicators, Physics, Mathematics

Ball, R. and Glänzel, W. (2005), The German experience in the applications, benefits and limitations of evaluative bibliometrics in a policy-relevant context - Preface. *Scientometrics*, **62** (1), 115-116.

Full Text: [2005\Scientometrics62, 115.pdf](2005/Scientometrics62,%20115.pdf)

Keywords: Bibliometrics

Weingart, P. (2005), Impact of bibliometrics upon the science system: Inadvertent consequences? *Scientometrics*, **62** (1), 117-131.

Full Text: [2005\Scientometrics62, 117.pdf](2005/Scientometrics62,%20117.pdf)

Abstract: the introduction of bibliometric (and other) ranking is an answer to legitimation pressures on the higher education and research system. After years of hesitation by scientists, science administrators and even politicians in many of the industrialized countries, the implementation of bibliometrics based (and other types of) rankings for institutions of higher education and research is now being introduced on a full scale. What used to be an irritation to the parties concerned has suddenly become a fad. In contrast to this rather sudden enthusiasm, there is very little reflection on the impacts of this practice on the system itself. So far empirical data on the impact of bibliometric rankings seem to be available only for two cases: Australia and the British research assessment exercise (RA-E). Thus, the actual steering effects of bibliometric rankings, the reactions of the system are largely unknown. Rankings are in urgent demand by politics. The intended effect is to create competition among institutions of higher learning and research and thereby to increase their efficiency. The rankings are supposed to identify excellence in these institutions and among researchers. Unintended effects may be ‘oversteering’, either by forcing less competitive institutions to be closed down or by creating oligopolies whose once achieved position of supremacy cannot be challenged anymore by competitors. On the individual level the emergence of a kind of ‘chart’ of highly cited stars in science can already be observed (ISI HighlyCited.com). With the spread of rankings the business administration paradigm and culture is diffused through the academic system. The commercialization of ranking is most pronounced in the dependence of the entire practice on commercial providers of the pertinent data. As products like IST’s Essential Science Indicators become available, their use in the context of evaluation tasks is increasing rapidly. The future of the higher education and research system rests on two pillars: traditional peer review and ranking. The goal must be to have a system of informed peer review which combines the two. However, the politicized use of numbers (citations, impact factors, funding etc.) appears unavoidable.

Keywords: Citation, Indicators, Authors, Editors, Rank

Notes: highly cited, UUniversity

Van Raan, A.F.J. (2005), Fatal attraction: Conceptual and methodological problems in the ranking of universities by bibliometric methods. *Scientometrics*, **62** (1), 133-143.

Full Text: [2005\Scientometrics62, 133.pdf](2005/Scientometrics62,%20133.pdf)

Abstract: Ranking of research institutions by bibliometric methods is an improper tool for research performance evaluation, even at the level of large institutions. The problem, however, is not the ranking as such. The indicators used for ranking are often not advanced enough, and this situation is part of the broader problem of the application of insufficiently developed bibliometric indicators used by persons who do not have clear competence and experience in the field of quantitative studies of science. After a brief overview of the basic elements of bibliometric analysis, I discuss the major technical and methodological problems in the application of publication and citation data in the context of evaluation. Then I contend that the core of the problem ties not necessarily at the side of the data producer. Quite often persons responsible for research performance evaluation, for instance scientists themselves in their role as head of institutions and departments, science administrators at the government level and other policy makers show an attitude that encourages, quick and dirty’ bibliometric analyses whereas better quality is available. Finally, the necessary conditions for a successful application of advanced bibliometric indicators as support tool for peer review are discussed.

Keywords: National Research Performance, Impact-Factors, International Comparisons, Citation, Science, Indicators, Consequences, Coverage

Wagner-Dobler, R. (2005), The system of research and development indicators: Entry points for information agents. *Scientometrics*, **62** (1), 145-153.

Full Text: [2005\Scientometrics62, 145.pdf](2005/Scientometrics62,%20145.pdf)

Abstract: A system of input, output, and efficiency indicators is sketched out, with each indicator related to basic research, applied research, and experimental development. Mainly, this scheme is inspired by empirical innovation economics (represented in Germany, e.g., by H. Grupp) and by ‘advanced bibliometrics’ and scientometrics (profiled by van Raan and others). After considering strengths and weaknesses of some of the indicators, possible additional ‘entry points’ for institutions of information delivery are examined, such contributing to an enrichment of existing indicators. and to a ‘Nationalokonomik des Geistes’, requested from librarians in the twenties of the last century by A. von Harnack.

Keywords: Development, Economics, Innovation, Research, Research and Development, Scientometrics

? Bayers, N.K. (2005), Using ISI data in the analysis of German national and institutional research output. *Scientometrics*, **62** (1), 155-163.

Full Text: [2005\Scientometrics62, 155.pdf](2005/Scientometrics62,%20155.pdf)

Abstract: This paper discusses the Thomson ISI Research Services Group approaches to analyzing the world research environment, particularly in terms of comparing research performance among nations and institutions. This discussion concentrates on the recent research environment -1998-2002- beginning first with comparisons among selected nations overall, in terms of publications-an indicator of research output and productivity; and citations-an indicator of research impact and influence. The second part addresses the German research landscape and concludes with an analysis of the contributions of specific German institutions to Germanys’ research performance.

Keywords: Analysis, Environment, Impact, ISI, ISI-Data, Productivity, Research, Research Impact, Research Output, Research Performance

Sommer, S. (2005), Bibliometric analysis and private research funding. *Scientometrics*, **62** (1), 165-171.

Full Text: [2005\Scientometrics62, 165.pdf](2005/Scientometrics62,%20165.pdf)

Abstract: This paper outlines how private institutions and particularly foundations contribute to the furtherance of higher education and research, and it depicts what role bibliometric analysis can or cannot play in foundations’ private research funding and in the process of strategic realignment under financial constraints.

? Goebelbecker, J. (2005), The role of publications in the new programme oriented funding of the Hermann von Helmholtz Association of National Research Centres (HGF). *Scientometrics*, **62** (1), 173-181.

Full Text: [2005\Scientometrics62, 173.pdf](2005/Scientometrics62,%20173.pdf)

Abstract: the year 2002 brought a successive funding change-over from until now institutional to programme oriented funding (POF) in the Helmholtz Association of German Research Centres (HGF). This way the 15 German research centres now have to generate their means successively from programmes of the research fields of the HGF (see: www.helmholtz.de) by competing with each other. This nucleus of the reform of the Association is being implemented based upon the opinion of international experts. In this context the evaluation of publications of individual research centres, resp. research groups will be playing an ever increasing part. This lecture will inform about the reformed, partially formalized system and first experiences therewith at the time of the first evaluations.

Keywords: Evaluation, Funding, POF, Publications, Research

? Wang, Y., Wu, Y.S., Pan, Y.T., Ma, Z. and Rousseau, R. (2005), Scientific collaboration in China as reflected in co-authorship. *Scientometrics*, **62** (2), 183-198.

Full Text: [2005\Scientometrics62, 183.pdf](2005/Scientometrics62,%20183.pdf)

Abstract: Co-authorship patterns derived from 1997-2001 data in the CSTPC Database (Chinese Science and Technology Papers and Citations Database) are analyzed to show the status of science and technology collaboration in China. Four different collaborative types, namely papers co-authored by the authors in the same institution (SI), in different institution located in the same region (SR), in different regions (DR) of China, and in different countries or regions of the world (DC) are discussed, the regional and subject distributions of co-authored papers as well as the general status of collaboration in science and technology in China are studied. It is concluded that, for all four collaborative types, collaboration in science and technology has increased in China. Different regions have different collaborative patterns corresponding to economic, technological and scientific development levels. Differences in collaborative patterns in terms of subjects are explained by different characteristics of the subjects themselves.

Keywords: Authors, China, Citations, Co-Authorship, Coauthorship, Collaboration, Cooperation, Database, Development, Geographical Proximity, Networks, Papers, Patterns, Science, Science and Technology, Scientific Collaboration, Technology

? Kostoff, R.N. and Shlesinger, M.F. (2005), CAB: Citation-assisted background. *Scientometrics*, **62** (2), 199-212.

Full Text: [2005\Scientometrics62, 199.pdf](2005/Scientometrics62,%20199.pdf)

Abstract: A chronically weak area in research papers, reports, and reviews is the complete identification of background documents that formed the building blocks for these papers. A method for systematically determining these seminal references is presented. Citation-Assisted Background (CAB) is based on the assumption that seminal documents tend to be highly cited. CAB is being applied presently to three applications studies, and the results so far are much superior to those used by the first author for background development in any other study. An example of the application of CAB to the field of Nonlinear Dynamics is outlined. While CAB is a highly systematic approach for identifying seminal references, it is not a substitute for the judgement of the researchers, and serves as a supplement.

Keywords: Accuracy, Author, Development, Dynamics, Highly-Cited, Journals, Nonlinear, Papers, Proposal, Quotation, Research, Research Papers, Researchers, Systematic

? Pouris, A. (2005), An assessment of the impact and visibility of South African journals. *Scientometrics*, **62** (2), 213-222.

Full Text: [2005\Scientometrics62, 213.pdf](2005/Scientometrics62,%20213.pdf)

Abstract: the assessment of scientific journals is of particular interest to South Africa’s higher education institutions as their research is partly funded according to the number of publications of their members of staff. This article has two objectives. The first one is to identify the effects of the government’s withdrawal of financial support on these journals’ impact factors. The second objective is to provide an assessment of the visibility of the South African journals indexed in the Journal Citation Report (JCR) of the 2002. The findings indicate that the termination of the government interference in the affairs of the journals had on average a beneficial effect on the impact factors of the journals. South Africa is found to have a good representation in the JCR, similar or better to that of the scientifically small countries in Europe, and represents approximately 90% of the African continent journals in the JCR. ne visible scientific disciplines are identified and the journals are assessed according to their impact factors, to the impact factors of journals citing them, and the self-citing and self-cited rates.

Keywords: Africa, Assessment, Citation, Education, Europe, Financial Support, Higher Education, Impact, Impact Factors, Interest, JCR, Journal, Journals, Publications, Research, Scientific Journals, South Africa, Visibility

? Hassan, E. (2005), The evolution of the knowledge structure of fuel cells. *Scientometrics*, **62** (2), 223-238.

Full Text: [2005\Scientometrics62, 223.pdf](2005/Scientometrics62,%20223.pdf)

Abstract: Recognizing the critical role played by science and technology in the development of fuel cells, this article aims to characterize the evolution of the S&T knowledge bases of fuel cells over the nineties, using data on patents and scientific publications. The field of fuel cells is particularly heterogeneous. It covers diverse sub-fields that are marked by idiosyncratic characteristics (e.g. actors, demand, and input) and different historical developments. Although this heterogeneity of the field of fuel cells is reflected in the dynamics of S&T knowledge generation within and across its sub-fields too, this article shows that it does not entail the absence of cognitive interrelations between their S&T knowledge bases. for that purpose, the article uses “simultaneous mapping” approach of their S&T knowledge bases by means of textual analysis.

Keywords: Academic Research, Analysis, Basic Research, Development, Evolution, Innovations, Knowledge, Linkage, Networks, Patents, Publications, Science, Science and Technology, Scientific Publications, Technology

? Moin, M., Mahmoudi, M. and Rezaei, N. (2005), Scientific output of Iran at the threshold of the 21st century. *Scientometrics*, **62** (2), 239-248.

Full Text: [2005\Scientometrics62, 239.pdf](2005/Scientometrics62,%20239.pdf)

Abstract: This study evaluates the scientific output of Iran over the past two decades. The information has been extracted by searching ISI in December 2003. Science production in Iran has been reviewed (1967-2003) and compared with 15 countries in the year 2000. During these years Iran’s relative share in the scientific output in the world increased from 0.0003% in 1970 to 0.29% in 2003. Comparing the ratio of science output to GNP, Iran stands on thirteenth place among 16 countries in the year 2000. ne present article discusses that Iran has had an increasing growth in presenting articles after the Iraq-Iran war, which marks the period of stability and development.

Keywords: Citation Analysis, Development, Different Countries, Economics, Growth, Impact Factor, Information, Iran, ISI, Journals, Ophthalmology, Publications, Ratio, Science, Scientific Output, Stability, Tool

He, T.W., Zhang, J.L. and Teng, L.R. (2005), Basic research in biochemistry and molecular biology in China: A bibliometric analysis. *Scientometrics*, **62** (2), 249-259.

Full Text: [S\Scientometrics62, 249.pdf](S/Scientometrics62,%20249.pdf)

Abstract: Using the method of bibliometrics, a 1999-2002 biochemistry and molecular biology database was constructed for China from the Science Citation Index Expanded (SCI-Expanded). Based on this database, the author quantitatively analyzed the current research activity in biochemistry and molecular biology in China. Results show that almost half the publications were published in Chinese journals. The percentage of articles published by Chinese authors in the total articles from the world is increasing. The number of articles published in high influence journals is continuously increasing. The research outputs are mainly located in Beijing, Shanghai and Hong Kong. The sites of the China Science Academy and National Universities are the important locations for these studies. The collaboration rate of Chinese output is low as compared to results from other countries. USA and Japan are the main international collaborating countries.

Keywords: Research Performance, Science Fields, Indicators

Kademani, B., Kalyane, V., Kumar, V. and Mohan, L. (2005), Nobel laureates: Their publication productivity, collaboration and authorship status. *Scientometrics*, **62** (2), 261-268.

Full Text: [2005\Scientometrics62, 261.pdf](2005/Scientometrics62,%20261.pdf)

Abstract: This paper attempts to highlight the scientific productivity, productivity age, collaboration trend, domains of contributions of eight Nobel laureates of past and present belonging to different domains of research in science. Also attempts to document the various factors that affect productivity of scientists. No Nobel laureates can be compared with other Nobel laureates as they are an altogether different class of scientific elites and each piece of research is unique by itself.

Geisler, E. (2005), The measurement of scientific activity: Research directions in linking philosophy of science and metrics of science and technology outputs. *Scientometrics*, **62** (2), 269-284.

Full Text: [2005\Scientometrics62, 269.pdf](2005/Scientometrics62,%20269.pdf)

Abstract: the application of the measurement of scientific and technical activities has been a lengthy process of the appropriate metrics and the assignment of the standards and benchmarks for their Usage. Although some studies have addressed issues of the management of science and technology and their relation to scientometrics and infometrics, there is nevertheless a need to consider the linkages between the conceptual background of scientific generation and progress - and the measurement of its process and outcomes. This paper first reviews the three main approaches to the generation and progress of human knowledge in general and scientific activity in particular. These approaches are reviewed in terms of the demands they would make on the measurement of scientific process and outputs. The paper then examines the currently used categories of metrics, and arrives at several conclusions. The paper provides an analysis of these conclusions and their implications to the generation and utilization of metrics of science and its outcomes. The review of the conceptual or philosophical foundations for the measurement of science offers an in-depth examination, resulting in the correlation of these foundations with the metrics we now use to measure science and its outcomes. The paper suggests research directions for a much needed link between theories of science and knowledge, and the application of metrics used to measure them. Finally, the paper offers several hypotheses and proposes potential empirical studies.

Somogyi, A. and Schubert, A. (2005), Correlation between national bibliometric and health indicators: the case of diabetes. *Scientometrics*, **62** (2), 285-292.

Full Text: [2005\Scientometrics62, 285.pdf](2005/Scientometrics62,%20285.pdf)

Abstract: Correlation between diabetes-related publication output and diabetes prevalence was sought and found in a sample of world countries and in the states of the US. Various correlation patterns (‘demand driven research’, ‘research driven prevention’, no correlation) were distinguished and interpreted.

? Xekalaki, E. (2005), Comments on the paper of Shan et al.: the multivariate Waring distribution. *Scientometrics*, **62** (2), 293-296.

Full Text: [2005\Scientometrics62, 293.pdf](2005/Scientometrics62,%20293.pdf)

Keywords: Accident Theory, Identifiability, Regression, Yule Distribution

? Braun, T. and Diospatonyi, I. (2005), The counting of core journal gatekeepers as science indicators really counts. The scientific scope of action and strength of nations. *Scientometrics*, **62** (3), 297-319.

Full Text: [2005\Scientometrics62, 297.pdf](2005/Scientometrics62,%20297.pdf)

Keywords: Citation Patterns, Editors, Journal, Science, Strength

? Egghe, L. (2005), A characterization of the law of Lotka in terms of sampling. *Scientometrics*, **62** (3), 321-328.

Full Text: [2005\Scientometrics62, 321.pdf](2005/Scientometrics62,%20321.pdf)

Abstract: An incomplete bibliography (or, more generally, an incomplete Information Production Process (IPP)) can be considered as a sample from a complete one. Sampling can be done in the sources or in the items. The simplest sampling technique is the systematic one where every k(th) source or k(th) item is taken (alternatively: deleted) (k is an element of N). In this paper we give a definition of systematic sampling in items and sources in the framework of an IPP in which we have continuous variables. We prove the theorem that in such IPPs we have a Lotkaian size-frequency function (i.e. a decreasing power function) if and only if systematic sampling in sources is the same as systematic sampling in items. In this proof we use the well-known characterization of power functions as scale-free functions.

Keywords: Bibliography, Characterization, Networks, Power, Systematic

? Santos, J.B. and Ortega-Irizo, F.J. (2005), Modelling citation age data with right censoring. *Scientometrics*, **62** (3), 329-342.

Full Text: [2005\Scientometrics62, 329.pdf](2005/Scientometrics62,%20329.pdf)

Abstract: in order to model the variable T (the age of citations received by scientific works) with data elaborated by the Institute of Scientific Information, we have used some of the instruments already developed in the survival models to this type of retrospective analyses in the presence of censored data. This analysis is used because, usually, the citations of ages greater than or equal to 10 years appear added together. for a set of journals related to the field of Applied Economics, we have explored which models fit better among those commonly used. Two different approaches to assess the goodness-of-fit for each selected model have been suggested: an analysis through graphical methods and a formal analysis to estimate the parameters of each model by the method of maximum likelihood estimation with data censored to the right.

Keywords: Analysis, Citation, Citations, Economics, Journals, Model, Scientific Information, Survival

? Bonitz, M. (2005), Klaus Fuchs - the enduring contribution to physics from his British period. *Scientometrics*, **62** (3), 343-350.

Full Text: [2005\Scientometrics62, 343.pdf](2005/Scientometrics62,%20343.pdf)

Abstract: Klaus Fuchs, during his years in England as an immigrant, has written 20 scientific papers. One of these papers, published in 1938, became a fundamental text in solid state physics and for the development of microelectronics in succeeding decades. It was cited more than 1200 times in the period from 1945 until 2003. It appears to be a typical case of delayed recognition in science. Pioneering papers simultaneously written by Hahn P StraBmann and by Meitner P Frisch on the discovery of nuclear fission are considered for comparison.

Keywords: Contribution, Development, England, Immigrant, Papers, Science

Notes: TTopic

Keiser, J. and Utzinger, J. (2005), Trends in the core literature on tropical medicine: A bibliometric analysis from 1952-2002. *Scientometrics*, **62** (3), 351-365.

Full Text: [2005\Scientometrics62, 351.pdf](2005/Scientometrics62,%20351.pdf)

Abstract: the medical specialty of ‘tropical medicine’ only dates back a little more than 100 years and, in the meantime, has gone through several quite distinctive eras. The aim of our study was to investigate trends that occurred in the leading literature on tropical medicine over the past 50 years. We analysed 2,802 original articles published in 1952, 1962, 1972, 1982, 1992 and 2002 in five of the high impact factor journals, namely (i) Acta Tropica, (ii) American Journal of Tropical Medicine and Hygiene, (iii) Annals of Tropical Medicine and Parasitology, (iv) Leprosy Review, and (v) Transactions of the Royal Society of Tropical Medicine and Hygiene. Authors’ country affiliations were categorized according to the human development index 2003 (HDI), with stratification into low, medium and high HDI. We observed the following trends: First, there was a strong increase in the number of articles published from 250 in 1952 to 726 in 2002. Second, over the same time span, the median number of authors per article increased from I (four journals) or 2 (American Journal of Tropical Medicine and Hygiene) to 2.5 (Leprosy Review) up to 6 (Acta Tropica and American Journal of Tropical Medicine and Hygiene). Third, research collaborations between countries of different HDI ranks increased concomitantly - in 2002, 19.4-43.7% of all manuscripts comprised authors from different HDI countries - indicating that tropical medicine has become a global endeavour. However, in four of the five journals investigated, the overall percentage of researchers affiliated with low HDI countries decreased over the past 50 years and only a slight positive trend can be observed over the last decade. Concluding, current roadblocks should be identified and programmes designed and implemented to enhance equity of publishing in tropical medicine. This in cum might be an important step forward to substantially reduce the current burden of tropical diseases, so that social and economic development in the tropics and subtropics can be advanced and poverty alleviated.

Keywords: Multiple Authorship, Public-Health, Countries, Journals, Science, Africa

? Simkin, M.V. and Roychowdhury, V.P. (2005), Stochastic modeling of citation slips. *Scientometrics*, **62** (3), 367-384.

Full Text: [2005\Scientometrics62, 367.pdf](2005/Scientometrics62,%20367.pdf)

Abstract: We present empirical data on frequency and pattern of misprints in citations to twelve high-profile papers. We find that the distribution of misprints, ranked by frequency of their repetition, follows Zipfs law. We propose a stochastic model of citation process, which explains these findings, and leads to the conclusion that about 70-90% of scientific citations are copied from the lists of references used in other papers.

Keywords: Citation, Citations, Frequency, Model, Modeling, Networks, Ortega Hypothesis, Papers, Process, Science

? Liu, Z. (2005), Visualizing the intellectual structure in urban studies: A journal co-citation analysis (1992-2002). *Scientometrics*, **62** (3), 385-402.

Full Text: [2005\Scientometrics62, 385.pdf](2005/Scientometrics62,%20385.pdf)

Abstract: This paper studied the intellectual structure of urban studies through a co-citation analysis of its thirty-eight representative journals from 1992 to 2002. Relevant journal co-citation data were retrieved from Social SciSearch, and were subjected to cluster analysis, multidimensional scaling, and factor analysis. A cluster-enhanced two-dimensional map was created, showing a noticeable subject variation along the horizontal axis depicting four clusters of journals differentiated into mainstream urban studies, regional science and urban economics, transportation, and real estate finance. The cluster of the mainstream urban studies journals revealed a higher degree of interdisciplinarity than other clusters. The four-factor solution, though not a perfect match for the cluster solution, demonstrated the interrelationships among the overlapping journals loaded high on different factors. The results also showed a strong negative correlation between the coordinates of the horizontal axis and the mean journal correlation coefficients reflecting the subject variation, and a less revealing positive correlation between the coordinates of the vertical axis and the mean journal correlation coefficients.

Keywords: Analysis, Author Cocitation, Co-Citation Analysis, Cocitation, Economics, Factor-Analysis, Intellectual Structure, Interdisciplinarity, Journal, Journals, Overlapping, Science, Scientific Literatures, Transportation, Urban

? Gordon, A. (2005), The peripheral terrorism literature: Bringing it closer to the core. *Scientometrics*, **62** (3), 403-414.

Full Text: [2005\Scientometrics62, 403.pdf](2005/Scientometrics62,%20403.pdf)

Abstract: Core/periphery scientific communication is important for information transfer in terrorism literature. The mutual awareness between disciplinary journals contributors in the mainstream and those in the margins of the field enhances their social interaction. The usual case is that the mainstream of a discipline is visible through such Indexes as the Web of Science (SCI) and the Journal Citation Report (JCR) the second of which assigns an impact factor to the most cited journals. In terrorism subject area, however, the reverse situation exists; only the peripheral journals in this field are indexed in JCR. From a scientific communication perspective, then, the core journals of terrorism writings are relatively invisible. This study attempts to identify the core and the periphery of journals dealing with terrorism, and suggests a way to bring them closer together. The assumption is that the quality and quantity of work in this field will increase as the distance between these two poles decreases.

Keywords: Awareness, Citation, Communication, Impact, Impact Factor, Indexes, Information, JCR, Journal, Journals, Literature, Quality, SCI, Science, Scientific Communication, Social, Terrorism, Web of Science

Notes: TTopic

Chiu, W.T. and Ho, Y.S. (2005), Bibliometric analysis of homeopathy research during the period of 1991 to 2003. *Scientometrics*, **63** (1), 3-23.

Full Text: [2005\Scientometrics63, 3.pdf](2005/Scientometrics63,%203.pdf)

Abstract: Homeopathy has been applied to clinical use since it was first presented 200 years ago. The use of the bibilometric analysis technique for examining this topic does not exist in the literature. The objective of this study is to conduct a bibliometric analysis of all homeopathy-related publications in Science Citation Index (SCI). A systematic search was performed using the SCI for publications during the period of 1991 to 2003. Selected documents included ‘Homoeopathy, Homoeopathic, Homeopathy, or Homeopathic’ as a part of the title, abstract, or keywords. Analyzed parameters included authorship, patterns of international collaboration, journal, language, document type, research address, number of times cited, and reprint author’s address. Citation analysis was mainly based on the impact factor as defined by the Journal Citation Reports (JCR) and on citations per publications (CPP), which is used to assess the impact relative to the entire field and is defined as the ratio between the average numbers of citations per publications in a certain period. of total articles, 49% had a single author. The UK, the US, and Germany produced 71% of the total output, while European countries as a whole also contributed 65% of the total share of independent publications. English remains the dominant language, it comprised only 76%, while German contributed 18%, and the remaining where distributed among 8 European languages. More document types and languages, and fewer pages have appeared in homeopathy research. 3.5% of papers were cited more than 10 times in three years after publication, and 60% were never cited. Small-group collaboration was a popular method as co-authorship. The top 3 ranking countries of publication were the UK, the US, and Germany. The US dominated citation followed by the UK, and then Germany. In addition, a simulation model was applied to describe the relationship between the cumulative number of citations and the paper life.

Keywords: Analysis, Author, Authorship, Bibliometric, Bibliometric Analysis, Citation, Citation Analysis, Citations, Co-Authorship, Coauthorship, Collaboration, Document Types, English, Germany, Impact, Impact Factor, International Collaboration, JCR, Journal, Journal Citation Reports, Literature, Medicine, Model, Papers, Publication, Publications, Ranking, Ratio, Reports, Research, SCI, Science, Science Citation Index, Simulation, Systematic, UK, US

? Yu, G., Yu, D.R. and Li, Y.J. (2005), A simulation study of the periodicals’ publication delay control process. *Scientometrics*, **63** (1), 25-38.

Full Text: [2005\Scientometrics63, 25.pdf](2005/Scientometrics63,%2025.pdf)

Abstract: According to the discrete model of periodical publication process, recurrence formulae of parameters of the process are gained and the initial conditions of control process parameters from one steady state to another are deduced. Using the variable separation approach, which is used generally to solve the partial differential equation, the recurrence computing formula of the publication probability function is deduced. First the publication delay increasing process caused by the accepted contribution flux increase is simulated, and then the publication delay decreasing processes under four different control means are simulated too. Finally it is demonstrated that the periodical publishing process is a strong inertia system and it is found that reducing the quantity of deposited contributions can shorten the publication delay.

Keywords: Contribution, Control, Model, Periodical, Periodicals, Process, Process Parameters, Publication, Publishing, Recurrence, Separation, Simulation

? Ynalvez, M., Duque, R.B., Mbatia, P., Sooryamoorthy, R., Palackal, A. and Shrum, W. (2005), When do scientists “adopt” the Internet? Dimensions of connectivity in developing. *Scientometrics*, **63** (1), 39-67.

Full Text: [2005\Scientometrics63, 39.pdf](2005/Scientometrics63,%2039.pdf)

Abstract: We examine the diffusion of information and communication technologies (ICTs) in the knowledge production sectors of three developing areas. Using interviews with 918 scientists in one South Asian and two African locations, we address three fundamental questions: (1) To what degree has the research community in the developing world adopted the Internet? (2) How can the disparities in Internet adoption best be characterized? (3) To what extent is Internet use associated with research productivity? Our findings indicate that while the vast majority of scientists describe themselves as current email users, far fewer have ready access to the technology, use it in diverse ways, or have extensive experience. These results are consistent with the notion that Internet adoption should not be characterized as a single act on the part of users. The rapid development of the Internet and the cumulative skills required for its effective use are equally important, particularly its impact on productivity. These findings lead us to qualify crude generalizations about the diffusion of the Internet in developing areas.

Keywords: Communication, Countries, Development, Diffusion, Disparities, Email, Gender, Impact, Information, Internet, Internet Adoption, Knowledge, Lead, Productivity, Publications, Research, Research Productivity, Science, Universities, Usage, World

? Frandsen, T.F. (2005), Geographical concentration: the case of economics journals. *Scientometrics*, **63** (1), 69-85.

Full Text: [2005\Scientometrics63, 69.pdf](2005/Scientometrics63,%2069.pdf)

Abstract: the purpose of this paper is to investigate whether geographical concentration can act as a supplement to the Journal Impact Factor (JIF). The results indicate that the use of a geographical concentration measure opens up new possibilities for analyses of the development of geographic diversion over time. In contrast to measures used in earlier studies the precise strength of the geographical concentration index as a measure of diversion is that it represents diversion as a single value that can be followed over time. The results show wider geographic distribution of European economics journals in the 1980s compared to the American economics journals whereas there seems to be no difference in geographic dispersion in the 1990s.

Keywprds: Research Output, Impact, Diffusion, American, Rankings, Science

? Bonaccorsi, A. and Daraio, C. (2005), Exploring size and agglomeration effects on public research productivity. *Scientometrics*, **63** (1), 87-120.

Full Text: [2005\Scientometrics63, 87.pdf](2005/Scientometrics63,%2087.pdf)

Abstract: the paper assesses the empirical foundation of two largely held assumptions in science policy making, namely scale and agglomeration effects. According to the former effect, scientific production may be subject to increasing returns to scale, defined at the level of administrative units, such as institutes or departments. A rationale for concentrating resources on larger units clearly follows from this argument. According to the latter, scientific production may be positively affected by external economies at the geographical level, so that concentrating institutes in the same area may improve scientific spillover, linkages and collaborations. Taken together, these arguments have implicitly or explicitly legitimated policies aimed at consolidating institutes in public sector research and at creating large physical facilities in a small number of cities. The paper is based on the analysis of two large databases, built by the authors from data on the activity of the Italian National Research Council in all scientific fields and of the French INSERM in biomedical research. Evidence from the two institutions is that the two effects do not receive empirical support. The implications for policy making and for the theory of scientific production are discussed.

Keywords: Academic Research, Analysis, Authors, Biomedical, Biomedical Research, Collaborations, Databases, Departments, Economies, French, Higher-Education, Knowledge, Performance-Measures, Policies, Policy, Policy Making, Productivity, Public Research, Research, Research Productivity, Research Universities, Scale, Science, Science Policy, Scientific Production, Scientific Productivity, Spillovers, Theory

? Jeannin, P. and Devillard, J. (2005), Implementing relevant disciplinary evaluations in the social sciences - National vs international interactions in scientific communities. *Scientometrics*, **63** (1), 121-144.

Full Text: [2005\Scientometrics63, 121.pdf](2005/Scientometrics63,%20121.pdf)

Abstract: This paper addresses the issue of relevancy when tackling the problem of the evaluation of research published in Social Science journals. This evaluation initialy relies on a critical selection of the databases scientists use. To implement relevant disciplinary evaluations, the method also needs to be scientific, ethical, replicable, comprehensive, flexible, transparent, accessible, incentive, productive, updatable and “internationalizable”. This qualitative approach takes into account the current global environment of research. Our method - introducing these criteria - consists in selecting the bases (either bases from the Institute for Scientific Information or not) scientists favour, in crossing them to elaborate new lists of journals, in testing them, in launching a life-size survey among scientists. This method stands as a prerequisite for further applications. Beyond this rather constructivist approach, such evaluations of research can benefit to all the actors participating in the process of the dissemination of knowledge. The need for an international cooperation in coming up with relevant evaluation criteria and indexes is put forward when implementing these sets of evaluation. The appendix presents a case study on French sociology.

Keywords: Cooperation, Databases, Dissemination, Environment, Evaluation, France, French, Indexes, Journals, Knowledge, Policy, Process, Qualitative, Research, Science, Sciences, Scientific Information, Social, Social Science, Social Sciences, Sociology, State, Survey

? Meyer, M., Du Plessis, M., Tukeva, T. and Utecht, J.T. (2005), Inventive output of academic research: A comparison of two science systems. *Scientometrics*, **63** (1), 145-161.

Full Text: [2005\Scientometrics63, 145.pdf](2005/Scientometrics63,%20145.pdf)

Abstract: This paper compares the inventive output of two science systems in small European countries. More specifically, we examine patented inventions of Finnish and Flemish university researchers. The comparison includes inventive output as such and its concentration on organizations, inventors, and corporate owners as well as foreign assignations and the degree to which individual inventors have retained the ownership of the patents. While there are commonalities between the Finnish and Flemish systems in terms of patent concentration on key institutions and corporate assignees, there are also pronounced differences with respect to the ownership structure of academic patents, which was expected in light of the different intellectual property regulations. Our observations seem to suggest that the total inventive output of a research system is not a function of the prevailing intellectual property system but rather in correspondence to overall national inventiveness thereby pointing to more general (national, cultural) drivers of academic inventive activity. From a methodological viewpoint, this research illustrates that tracing university-owned patents alone would leave considerable technological contributions of academics unidentified - also in countries where universities own the rights to their researchers’ patents. Another finding with potential methodological implications is that patents are highly concentrated on institutions. If such a distribution law applies to large countries as well, analysts could cover most of the national academic patent output by an intelligent selection of universities.

Keywords: Academics, Correspondence, Differences, Flows, Innovation, Patent, Patents, Research, Researchers, Science, Technology, Triple-Helix, Universities, University

? Glenisson, P., Glänzel, W. and Persson, O. (2005), Combining full-text analysis and bibliometric indicators. A pilot study. *Scientometrics*, **63** (1), 163-180.

Full Text: [2005\Scientometrics63, 163.pdf](2005/Scientometrics63,%20163.pdf)

Abstract: In the present study full-text analysis and traditional bibliometric methods are combined to improve the efficiency of the individual methods in the mapping of science. The methodology is applied to map research papers from a special issue of Scientometrics. The outcomes substantiate that such hybrid methodology can be applied to both research evaluation and information retrieval. The subject classification given by the guest-editors of the special issue is used for validation purposes. Because of the limited number of papers underlying the study the paper is considered a pilot study that will be extended in a later study on the basis of a larger corpus.

Keywords: Word Analysis, Combined Cocitation, Science, Information, Impact, Websites, Database, Growth, Field, Tool

? Okubo, Y. (2005), Introduction to scientometrics: Application to research evaluation and science studies. *Scientometrics*, **63** (1), 181-183.

Full Text: [2005\Scientometrics63, 181.pdf](2005/Scientometrics63,%20181.pdf)

Keywords: Evaluation, Research, Research Evaluation, Scientometrics

? Braun, T. (2005), Handbook of quantitative science and technology research. The use of publication and patent statistics in studies of S&T systems. *Scientometrics*, **63** (1), 185-188.

Full Text: [2005\Scientometrics63, 185.pdf](2005/Scientometrics63,%20185.pdf)

Keywords: Patent, Publication, Quantitative, Research, Science, Science and Technology, Statistics

? Ackermann, E. (2005), Bibliometrics of a controversial scientific literature: Polywater research, 1962-1974. *Scientometrics*, **63** (2), 189-208.

Full Text: [2005\Scientometrics63, 189.pdf](2005/Scientometrics63,%20189.pdf)

Abstract: This study examines the bibliometrics of the controversial scientific literature of Polywater research, focusing on publication types (books, journal publications, conference proceedings, and technical reports). Publication (P) frequency is used to measure publication ‘shape’ or pattern and output, citations per publication (CPP) for impact, author self-citations (SC) and uncited publications (UP) for their effect on P and CPP. Findings show an epidemic publication pattern, journal publications with the highest P, books with the highest CPP, and insignificant SC and UP. Comparisons to several non-controversial scientific literatures suggest that these findings may be common to other controversial scientific literatures.

Keywords: Anomalous Water, Basic Research, Bibliometrics, Citations, Field, Growth, Indicators, Journal, Netherlands, Publication, Publications, Research, Science, Self-Citation, Statistics

Notes: MModel

Bailón-Moreno, R., Jurado-Alameda, E., Ruiz-Baños, R.R. and Courtial, J.P. (2005), Bibliometric laws: Empirical flaws of fit. *Scientometrics*, **63** (2), 209-229.

Full Text: [2005\Scientometrics63, 209.pdf](2005/Scientometrics63,%20209.pdf)

Abstract: the bibliometric laws of Zipf, Bradford, and Lotka, in their various mathematical expressions, frequently present difficulties in the fitting of empirical values. The empirical flaws of fit take place in the frequency of the words, in the productivity of the authors and the journals, as well as in econometric and demographic aspects. This indicates that the underlying fractal model should be revised, since, as shown, the inverse power equations (of the Zipf-Mandelbrot type) are not adequate, as they need to include exponential terms. These modifications not only affect Bibliometrics and Scientometrics, but also, for the generality of the fractal model, apply to Economy, Demography, and even Natural Sciences in general.

Keywords: Exact Formulation, Bradford’s Law, Lotka’s Law

Notes: MModel

Bailón-Moreno, R., Jurado-Alameda, E., Ruiz-Baños, R.R. and Courtial, J.P. (2005), The unified scientometric model. Fractality and transfractality. *Scientometrics*, **63** (2), 231-257.

Full Text: [2005\Scientometrics63, 231.pdf](2005/Scientometrics63,%20231.pdf)

Abstract: A unified scientometric model has been developed on the basis of seven principles: the actor-network principle, the translation principle, the spatial principle, the quantativity principle, the composition principle, the centre-periphery or nucleation principle, and the unified principle of cumulative advantages. The paradigm of the fractal model has been expanded by introducing the concept of fractality index and transfractality. In this work, as the first demonstration of the power of the model proposed, all the bibliometric laws known and all their mathematical expressions are deduced, both the structural distributions (Zipf, Bradford and Lotka) as well as the Price’s Law of the exponential growth of science and Brookes’ and Avramescu’s Laws of ageing.

Keywords: Scientific Literature, Exact Formulation, Bradford’s Law, Lotka’s Law, Obsolescence, Growth, Dynamics, Translation, Cocitations, Networks

Bailón-Moreno, R., Jurado-Alameda, E., Ruiz-Baños, R. and Courtial, J.P. (2005), Analysis of the field of physical chemistry of surfactants with the Unified Scienctometric Model. Fit of relational and activity indicators. *Scientometrics*, **63** (2), 259-276.

Full Text: [2005\Scientometrics63, 259.pdf](2005/Scientometrics63,%20259.pdf)

Abstract: By the information system of CoPalRed&COPY; and with the treatment of 63,543 bibliographical references of scientific articles, the field of surfactants has been analysed in the light of the Unified Scientometric Model. It was found that the distributions of actors (countries, centres, and research laboratories, journals, researchers, key words of documents) fit Zif’s Unified Law better than the Zipf-Mandelbrot Law. The model showed an especially good fit for relational indicators such as density and centrality. Using the Unified Bradford Law, the three zones fit were: core, straight fraction, and Groos droop. The fractality index was used to verify that Science can present fractal as well as transfractal structures. In conclusion, the Unified Scientometric Model is, for its flexibility and its integrating capacity, an appropriate model for representing Science, joining non-relational with relational Scientometrics under the same paradigm.

Keywords: Co-Word Analysis, Dynamics, Journals, Research, Scientific Networks

? Egghe, L. (2005), An explanation of disproportionate growth using linear 3-dimensional informetrics and its relation with the fractal dimension. *Scientometrics*, **63** (2), 277-296.

Full Text: [2005\Scientometrics63, 277.pdf](2005/Scientometrics63,%20277.pdf)

Abstract: We study new and existing data sets which show that growth rates of sources usually are different from growth rates of items. Examples: references in publications grow with a rate that is different (usually higher) from the growth rate of the publications themselves; article growth rates are different from journal growth rates and so on. In this paper we interpret this phenomenon of “disproportionate growth”; in terms of Naranan’s growth model and in terms of the self-similar fractal dimension of such an information system, which follows from Naranan’s growth model. The main part of the paper is devoted to explain disproportionate growth. We show that the “simple” 2-dimensional informetrics models of source-item relations are not able to explain this but we also show that linear 3-dimensional informetrics (i.e. adding a new source set) is capable to model disproportionate growth. Formulae of such different growth rates are presented using Lotkaian informetrics and new and existing data sets are presented and interpreted in terms of the used linear 3-dimensional model.

Keywords: Fractal Dimension, Growth, Information, Informetrics, Journal, Model, Publications

? Bornmann, L. and Daniel, H.D. (2005), Selection of research fellowship recipients by committee peer review. Reliability, fairness and predictive validity of Board of Trustees’ decisions. *Scientometrics*, **63** (2), 297-320.

Full Text: [2005\Scientometrics63, 297.pdf](2005/Scientometrics63,%20297.pdf)

Abstract: In science, peer review is the best-established method of assessing manuscripts for publication and applications for research fellowships and grants. However, the fairness of peer review, its reliability and whether it achieves its aim to select the best science and scientists has often been questioned. The paper presents the first comprehensive study on committee peer review for the selection of doctoral (Ph.D.) and post-doctoral research fellowship recipients. We analysed the selection procedure followed by the Boehringer Ingelheim Fonds (B.I.F.), a foundation for the promotion of basic research in biomedicine, with regard to the reliability, fairness and predictive validity of the procedure - the three quality criteria for professional evaluations. We analysed a total of 2,697 applications, 1,954 for doctoral and 743 for post-doctoral fellowships. In 76% of the cases, the fellowship award decision was characterized by agreement between reviewers. Similar figures for reliability have been reported for the grant selection procedures of other major funding agencies. With regard to fairness, we analysed whether potential sources of bias, i.e., gender, nationality, major field of study and institutional affiliation, could have influenced decisions made by the B.I.F. Board of Trustees. for post-doctoral fellowship applications, no statistically significant influence of any of these variables could be observed. for doctoral fellowship applications, we found evidence of an institutional, major field of study and gender bias, but not of a nationality bias. The most important aspect of our study was to investigate the predictive validity of the procedure, i.e., whether the foundation achieves its aim to select as fellowship recipients the best junior scientists. Our bibliometric analysis showed that this is indeed the case and that the selection procedure is thus highly valid: research articles by B.I.F. fellows are cited considerably more often than the ‘average’ paper (average citation rate) published in the journal sets corresponding to the fields ‘Multidisciplinary’, ‘Molecular Biology & Genetics’, and ‘Biology & Biochemistry’ in Essential Science Indicators (ESI) from the Institute for Scientific Information (ISI, Philadelphia, Pennsylvania, USA). Most of the fellows publish within these fields.

Keywords: Grant Proposals, Stands Today, Science, Bias, Manuscript, Journals, Quality, Attributes, Articles, Ratings

Kim, M.J. (2005), Korean science and international collaboration, 1995-2000. *Scientometrics*, **63** (2), 321-339.

Full Text: [2005\Scientometrics63, 321.pdf](2005/Scientometrics63,%20321.pdf)

Abstract: This paper investigates Korean scientific output, focusing on international collaboration patterns, through an analysis of journal publications. for the study, 44,534 publications, published by researchers affiliated with Korean institutions and indexed by SCI during the six years 1995-2000, were considered. The study period was divided into two periods to compare the international collaboration for three years 1995-1997 and 1998-2000. The results show a clear decrease in Korea’s international collaboration level between the study periods even though the number of researchers as well as the total R&D expenditure decreased considerably after Korea’s economic change. The decrease of international collaboration in Korean science was inversely associated with different determinants such as scientific size as well as national scientific infrastructure. This decreasing trend of international collaboration in Korean science was largely caused by discipline-to-discipline variations in coverage of the SCI database. Among the top-ten collaborating countries, only the Chinese and the Canadian share of collaborative publications with Korea increased between the two periods under consideration.

Keywords: Bibliometric Analysis, Co-Authorship, Patterns, Publications, Cooperation, Physics

? Lewison, G. and Hartley, J. (2005), What’s in a title? Numbers of words and the presence of colons. *Scientometrics*, **63** (2), 341-356.

Full Text: [2005\Scientometrics63, 341.pdf](2005/Scientometrics63,%20341.pdf)

Abstract: Much has been written about titles in scientific journal articles but little research has been carried out. We aimed to assess in two studies how factors like the length of a title and its structure might vary in different scientific fields, and whether or not these features have changed over time. Statistical analyses were made of 216,500 UK papers from science journals, and of 133,200 international oncology papers. Factors examined included title length, the use of colons in the titles, and the number of authors. All of these factors increased over time for both sets of papers, although there were some disciplinary differences in the findings. In both studies, titles with colons occurred more frequently with single than with multiple authors except when the numbers of co-authors were large. Certain features of titles can be related to different disciplines, different journals, the numbers of authors and their nationalities.

Keywords: Articles, Authors, Differences, Factors, Impact, Journal, Journals, Length, Oncology, Papers, Research, Scholarship, Science, Scientific Journal, Titular Colonicity, UK

? van Leeuwen, T.N. and Moed, H.F. (2005), Characteristics of Journal Impact Factors: the effects of uncitedness and citation distribution on the understanding of journal impact factors. *Scientometrics*, **63** (2), 357-371.

Full Text: [2005\Scientometrics63, 357.pdf](2005/Scientometrics63,%20357.pdf)

Abstract: In this study, journal impact factors play a central role. In addition to this important bibliometric indicator, which evolves around the average impact of a journal in a two-year timeframe, related aspects of journal impact measurement are studied. Aspects like the output volume, the percentage of publications not cited, and the citation frequency distribution within a set timeframe are researched, and put in perspective with the ‘classical’ journal Impact Factor.

In this study it is shown that these aspects of journal impact measurement play a significant role, and are strongly inter-related. Especially the separation between journals on the basis of the differences in output volume seems to be relevant, as can be concluded from the different results in the analysis of journal impact factors, the degree of uncitedness, and the share of a journal its contents above or below the impact factor value.

Keywords: Medical Journals, Institute, Science, Indicators, Criterion, Quality

Zitt, M., Ramanana-Rahary, S. and Bassecoulard, E. (2005), Relativity of citation performance and excellence measures: From cross-field to cross-scale effects of field-normalisation. *Scientometrics*, **63** (2), 373-401.

Full Text: [2005\Scientometrics63, 373.pdf](2005/Scientometrics63,%20373.pdf)

Abstract: As citation practices strongly depend on fields, field normalisation is recognised as necessary for fair comparison of figures in bibliometrics and evaluation studies. However fields may be defined at various levels, from small research areas to broad academic disciplines, and thus normalisation values are expected to vary. The aim of this project was to test the stability of citation ratings of articles as the level of observation - hence the basis of normalisation - changes. A conventional classification of science based on ISI subject categories and their aggregates at various scales was used, namely at five levels: all science, large academic discipline, sub-discipline, speciality and journal. Among various normalisation methods, we selected a simple ranking method (quantiles), based on the citation score of the article in each particular aggregate (journal, speciality, etc.) it belonged to at each level. The study was conducted on articles in the full SCI range, for publication year 1998 with a four-year citation window. Stability is measured in three ways: overall comparison of article rankings; individual trajectory of articles; survival of the top-cited class across levels. Overall rank correlations on the observed empirical structure are benchmarked against two fictitious sets that keep the same embedded structure of articles but reassign citation scores either in a totally ordered or in a totally random distribution. These sets act respectively as a ‘worst case’ and ‘best case’ for the stability of citation ratings. The results show that: (a) the average citation rankings of articles substantially change with the level of observation (b) observation at the journal level is very particular, and the results differ greatly in all test circumstances from all the other levels of observation (c) the lack of cross-scale stability is confirmed when looking at the distribution of individual trajectories of articles across the levels; (d) when considering the top-cited fractions, a standard measure of excellence, it is found that the contents of the ‘top-cited’ set is completely dependent on the level of observation. The instability of impact measures should not be interpreted in terms of lack of robustness but rather as the co-existence of various perspectives each having their own form of legitimacy. A follow-up study will focus on the micro levels of observation and will be based on a structure built around bibliometric groupings rather than conventional groupings based on ISI subject categories.

Keywords: Impact-Factors, Scientific Journals, Indicators, Science, Distributions, Publication, Quality, System

? De Marchi, M. (2005), Nota bene - Reviewing some OECD’s R&D definitions. *Scientometrics*, **63** (2), 403-405.

Full Text: [2005\Scientometrics63, 403.pdf](2005/Scientometrics63,%20403.pdf)

Abstract: the definitions of Experimental Development and Applied Research currently suggested by OECD bring about inconsistent R&D data. Here, coherent definitions, based on the criterion of generality, are proposed.

Keywords: Definitions, Research

? Braun, T. (2005), Strange referencing and some remarks. *Scientometrics*, **63** (2), 407-410.

Full Text: [2005\Scientometrics63, 407.pdf](2005/Scientometrics63,%20407.pdf)

Keywords: Nations

? Leydesdorff, L. (2005), The scientific impact of China. *Scientometrics*, **63** (2), 411-412

Full Text: [2005\Scientometrics63, 411.pdf](2005/Scientometrics63,%20411.pdf)

Keywords: China, Impact, Scientific Impact

? Trimble, V. (2005), Productivity and impact analysis: Rediscovering the obvious. *Scientometrics*, **63** (2), 413-416

Full Text: [2005\Scientometrics63, 413.pdf](2005/Scientometrics63,%20413.pdf)

Keywords: Analysis, Impact, Impact Analysis, Productivity

? Vinkler, P. (2005), Science indicators, economic development and the wealth of nations. *Scientometrics*, **63** (2), 417-419.

Full Text: [2005\Scientometrics63, 417.pdf](2005/Scientometrics63,%20417.pdf)

Keywords: Development, Impact, Science, Science Indicators

? McAleer, M. and Slottje, D. (2005), A new measure of innovation: the patent success ratio. *Scientometrics*, **63** (3), 421-429.

Full Text: [2005\Scientometrics63, 421.pdf](2005/Scientometrics63,%20421.pdf)

Abstract: Patents have become increasingly important, especially over the past two decades. As patent office procedures have adapted to remain abreast of changing economic and scientific circumstances, it has also become increasingly important to define and analyse innovation more precisely. This paper introduces a simple new measure of innovation, the patent success ratio (PSR), or the ratio of successful patent applications to total patent applications. It has been argued in the extensive literature on innovation and technology policy that patents can serve as an accurate proxy for innovative activity or innovation. This paper suggests that PSR is a more accurate measure of how innovative activity has changed over time. A sensitivity analysis is conducted to assess the usefulness of the new PSR measure of innovation using annual US data for the period 1915-2001.

Keywords: Analysis, Innovation, Literature, Patent, Patents, Policy, Ratio, Sensitivity, Success, US

? Rousseau, R. (2005), Median and percentile impact factors: A set of new indicators. *Scientometrics*, **63** (3), 431-441.

Full Text: [2005\Scientometrics63, 431.pdf](2005/Scientometrics63,%20431.pdf)

Abstract: In a recent article Sombatsompop et al. (2004) proposed a new way of calculating a synchronous journal impact factor. Their proposal seems quite interesting and will be discussed in this note. Their index will be referred as the Median Impact Factor (MIF). I explain every step in detail so that readers with little mathematical background can understand and apply the procedure. Illustrations of the procedure are presented. Some attention is given to the estimation of the median cited age in case it is larger than ten year. I think the idea introduced by Sombatsompop, Markpin and Premkamolnetr has a great theoretical value as they are - to the best of my knowledge - the first ones to consider impact factors not using years as a basic ingredient, but an element of the actual form of the citation curve. The MIF is further generalized to the notion of a percentile impact factor.

Keywords: Attention, Citation, Citations, Impact, Impact Factor, Impact Factors, Journal, Journal Impact, Journal Impact Factor, Knowledge, Number, Science

? Bar-Ilan, J. and Echermane, A. (2005), The anthrax scare and the Web: A content analysis of Web pages linking to resources on anthrax. *Scientometrics*, **63** (3), 443-462.

Full Text: [2005\Scientometrics63, 443.pdf](2005/Scientometrics63,%20443.pdf)

Abstract: the purpose of this study was to develop a method for characterizing the page and linking patterns related to dramatic events on the Web. As a specific case, we characterized Web pages linking to the set of pages on anthrax indexed by the Yahoo directory (generally acknowledged as a high quality directory). The sample of Web pages was collected shortly after anthrax became a matter of widespread concern (November 2001). The findings show that at that time the “typical” source page was either a news item or a page with a list of links. Most of the examined links were not navigational but linked to the target page in order to provide additional content. Many Web sites added hyperlinks to pages providing presumably authoritative and high quality information on anthrax rather than supplying the information themselves. The results show that Web authors link extensively to presumably “high quality” pages. The methods presented here can be utilized in order to characterize pages and linking patterns of Web pages linking to a set of predefined pages, and the findings of this specific study can serve as a basis for comparison.

Keywords: Analysis, Authors, Communication, Consumer Health Information, Content Analysis, Eating Disorders, Information, Internet, Quality, Search Engines, World-Wide-Web

? Altvater-Mackensen, N., Balicki, G., Bestakowa, L., Bocatius, B., Braun, J., Brehmer, L., Brune, V., Eigemeier, K., Erdem, F., Fritscher, R., Jacobs, A., Klingsporn, B., Kosinski, M., Kuntze, J., Lee, J.R., Osterhage, A., Probost, M., Risch, T., Schmitt, T., Stock, W.G., Sturm, A., Weller, K. and Werner, K. (2005), Science and technology in the region: the output of regional science and technology, its strengths and its leading institutions. *Scientometrics*, **63** (3), 463-529.

Full Text: [2005\Scientometrics63, 463.pdf](2005/Scientometrics63,%20463.pdf)

Abstract: We operationalize scientific output in a region by means of the number of articles (as in the SciSearch database) per year and technology output by means of the number of patent applications (as in the database of the European Patent Office) per priority year. All informetric analyses were done using the DIALOG online-system. The main research questions are the following: Which scientific and technological fields or topics are most influent within a region and which institutions or companies are mainly publishing articles or holding patents? Do the distributions of regional science and technology fields and of publishing institutions follow the well-known informetric function? Are there - as it is expected - only few fields and few institutions which dominate the region? Is there a connection between the economic power of a region and the regional publication and patent output? Examples studied in detail are seven German regions: Aachen, Dusseldorf, Hamburg, Koln (Cologne), Leipzig - Halle - Dessau, Munchen (Munich), and Stuttgart. Three different indicators were used, science and technology attraction of a region (number of scientific articles and patents), science and technology intensity (articles and patents per 1,000 inhabitants), and science and technology density (articles and patents per 1 billion EURO gross value added). Top region concerning both attraction and intensity is Munich, concerning density it is Aachen.

Keywords: Centers, Indicators, Innovation, Knowledge, Patent, Power, Priority, Publication, Publishing, Research, Science, Science and Technology, Scientific Output, Specialization, Spillovers, Topics, Value-Added

Notes: CCountry

? Yalpani, M., Heydari, A. and Mehrdad, M. (2005), Application of scientometric methods to chemical research in Iran: Reflections on Iran’s current science policy. *Scientometrics*, **63** (3), 531-547.

Full Text: [2005\Scientometrics63, 531.pdf](2005/Scientometrics63,%20531.pdf)

Abstract: Following a brief historical account of the initial difficulties of introducing modern sciences, especially the Western art of independent scientific inquiry, into Iran, using data obtained from the ISI (http://access.isiproducts.com/trials) an attempt is made to analyze the apparent present successes of Iranian scientists on the international science market. Using the corresponding ISI data of the publications (1990-2003) of 24 selected young chemistry Ph.D. graduates and present faculty members at various internal academia, a quantitative and qualitative assessment (www.geocities.com/iipopescu) of their achievements has been attempted and the results related to the strengths and weaknesses of the present science policy of the country.

Keywords: Faculty, ISI, Publications, Research, Sciences, Scientometric

? van Raan, A.F.J. (2005), Reference-based publication networks with episodic memories. *Scientometrics*, **63** (3), 549-566.

Full Text: [2005\Scientometrics63, 549.pdf](2005/Scientometrics63,%20549.pdf)

Abstract: In this paper we report first results of our study on network characteristics of a reference-based, bibliographically coupled (BC) publication network structure. We find that this network of clustered publications shows different statistical properties depending on the age of the references used for building the network. A remarkable finding is that only the network based on all references within publications is characterized by a degree distribution with a power-law dependence. This structure, which is typical for scale-free networks, disappears when selecting references of a specific age for the clustering process. Changing the publication network as a function of reference age, allows “tuning through the episodic memory’ of the nodes of the network. We find that the older the references, the more the network tends to change its structure towards a more exponential degree distribution.

Keywords: Distributions, Evolution, Evolving Networks, Law, Memory, Network, Process, Publication, Publications, Science, Scientific Papers, Small-World Networks, Statistical

Adams, J. (2005), Early citation counts correlate with accumulated impact. *Scientometrics*, **63** (3), 567-581.

Full Text: [2005\Scientometrics63, 567.pdf](2005/Scientometrics63,%20567.pdf)

Abstract: the present paper addresses the objective of developing forward indicators of research performance using bibliometric information on the UK science base. Most research indicators rely primarily on historical time series relating to inputs to, activity within and outputs from the research system. Policy makers wish to be able to monitor changing research profiles in a more timely fashion, the better to determine where new investment is having the greatest effect. Initial (e.g. 12 months from publication) citation counts might be useful as a forward indicator of the long-term (e.g. 10 years from publication) quality of research publications, but - although there is literature on citation-time functions - no study to evaluate this specifically has been carried out by Thomson ISI or any other analysts. Here, I describe the outcomes of a preliminary study to explore these citation relationships, drawing on the UK National Citation Report held by Evidence Ltd under licence from Thomson ISI for OST policy use. Annual citation counts typically peak at around the third year after publication. I show that there is a statistically highly significant correlation between initial (years 1-2) and later (years 3-10) citations in six research categories across the life and physical sciences. The relationship holds over a wide range of initial citation counts. Papers that attract more than a definable but field dependent threshold of citations in the initial period after publication are usually among the top 1% (the most highly cited papers) for their field and year. Some papers may take off slowly but can later join the high impact group. It is important to recognise that the statistical relationship is applicable to groups of publications. The citation profiles of individual articles may be quite different. Nonetheless, it seems reasonable to conclude that leading indicators of research excellence could be developed. This initial study should now be extended across a wider range fields to test the initial outcomes: earlier papers suggest the model holds in economics. Additional statistical tests should be applied to explore and model the relationship between initial, later and total citation counts and thus to create a general tool for policy application.

Keywords: Activity, Base, Bibliometric, Citations, Correlation, Economics, General, Group, Groups, Historical, Impact, Indicator, Indicators, Information, Initial Study, Inputs, ISI, Life, Long-Term, Model, Outcomes, Paper, Performance, Physical, Policy, Profiles, Publication, Publications, Quality, Range, Reception, Research, Research Performance, Science, Sciences, Statistical Tests, Test, Tests, Threshold, Time-Series, UK

? Patra, S.K. and Chand, P. (2005), Biotechnology research profile of India. *Scientometrics*, **63** (3), 583-597.

Full Text: [2005\Scientometrics63, 583.pdf](2005/Scientometrics63,%20583.pdf)

Abstract: the study explores the chronological growth of Indian Biotechnology. Applicability of Lotka’s law has been examined for the authorship pattern. Productivity of authors is analyzed and a list of 35 authors publishing more than 10 publications is given. Bradford’s law of scattering is used to identify the core journals which cover most of the research and development output of Indian Biotechnology. The study also shows the active authors, institutions and statewise distributions of Indian Biotechnology research output.

Keywords: Authors, Authorship, Authorship Pattern, Biotechnology, Development, Growth, India, Journals, Law, Lotka’s Law, Productivity, Profile, Publications, Publishing, Research, Research and Development, Research Output, Research Profile, Science

? Leta, J., Pereira, J.C.R. and Chaimovich, H. (2005), The Life Sciences - the relative contribution of the University of Sao Paulo to the highest impact factor journals and to those with the largest number of articles, 1980 to 1999. *Scientometrics*, **63** (3), 599-616.

Full Text: [2005\Scientometrics63, 599.pdf](2005/Scientometrics63,%20599.pdf)

Abstract: the contribution of Brazil to the database of the Institute for Scientific Information, ISI, has increased remarkably during the last years. Among the Brazilian research institutions, the publications of the University of Sao Paulo (USP) have been around 30% of the country’s total publication within the ISI database. A similar share was found for USP’s publications published in the 1980-1999 period and classified in the Life Sciences. This was observed in publications from both the highest impact factor journals and from those with the largest number of articles. We have found that the present share of USP’s publications in some of the fields of the Life Sciences was much less than 30%, suggesting a gradual decentralization of the scientific activity in Brazil. The data point out that this set of USP’s publications were concentrated in traditional and basic fields of biological research, where the focus is mainly oriented by international trends. The data suggest that USP’s researchers have not been much devoted to some of the fields where research is oriented toward national issues.

Keywords: Brazil, Contribution, Impact, Impact Factor, ISI, ISI Database, Journals, Publication, Publications, Research, Research Institutions, Researchers, Sciences, Scientific Information, Traditional, Trends, University

? Leydesdorff, L. and Zhou, P. (2005), Are the contributions of China and Korea upsetting the world system of science? *Scientometrics*, **63** (3), 617-630.

Full Text: [2005\Scientometrics63, 617.pdf](2005/Scientometrics63,%20617.pdf)

Abstract: Institutions and their aggregates are not the right units of analysis for developing a science policy with cognitive goals in view. Institutions, however, can be compared in terms of their performance with reference to their previous stages. KING’s (2004) ‘The scientific impact of nations’ has provided the data for this comparison. Evaluation of the data from this perspective along the time axis leads to completely different and hitherto overlooked conclusions: a new dynamic can be revealed which points to a group of emerging nations. These nations do not increase their contributions marginally, but their national science systems grow endogenously. In addition to publications, their citation rates keep pace with the exponential growth patterns, albeit with a delay. The center of gravity of the world system of science may be changing accordingly.

Keywords: Analysis, China, Citation, Evaluation, Growth, Impact, Institutions, Nations, Performance, Points, Policy, Publication, Publications, Science, Science Policy, Scientific Impact

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Full Text: [2005\Scientometrics63, 631.pdf](2005/Scientometrics63,%20631.pdf)

Keywords: Crick, Watson

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Full Text: [2005\Scientometrics63, 633.pdf](2005/Scientometrics63,%20633.pdf)

Benito, J.G., Montesinos, M.D.H., Ferre, G.G. and Torrente, M.M. (2005), A bibliometric study of differential item functioning. *Scientometrics*, **64** (1), 3-16.

Full Text: [2005\Scientometric64, 3.pdf](2005/Scientometric64,%203.pdf)

Abstract: This study presents a bibliometric analysis of scientific output in the area of Differential Item Functioning (DIF), The aim being to offer an overview of research activity in this field and characterise its most important aspects and their evolution over the last quarter of the 20th century, thus providing data regarding the basis on which this activity is being developed at the beginning of the 21st century. The analysis make, use of the Web of Science database, the search being restricted to articles published between 1975 and 2000 and which contain the terms ‘differential item functioning’, ‘DIF or ‘item bias’. The various analyses focus on the presentation of publication frequencies and percentages, as well as on the application of Bradford’s law of scattering and Lotka’s law.

Keywords: Bibliometric, Bibliometric Analysis, Bibliometric Study, Publication, Research, Web of Science

? Tsay, M.Y. and Chen, Y.L. (2005), Journals of general & internal medicine and surgery: An analysis and comparison of citation. *Scientometrics*, **64** (1), 17-30.

Full Text: [2005\Scientometrics64, 17.pdf](2005/Scientometrics64,%2017.pdf)

Abstract: the purpose of this study is to analyze and compare journal citation data, from Journal Citation Reports on the Web 2000, of general and internal medicine and Surgery. The source items and five kinds of citation data, i.e. citation counts, impact factor, immediacy index, citing half-life and cited half-life are examined and the correlation between each of the fifteen pairs of citation data is determined based on the Pearson correlation tests. The Fisher’s Z-transform was employed to test the significant difference between the Pearson correlation coefficient for each pair of citation data of these two subject areas. The following results of this work reveal: the frequently published journals are cited more frequently and also with high impact factor and immediacy index, in addition, they are usually accompanied with short citing half-life (i.e., usually cite current literature). The impact factor and immediacy index has significant correlation with citation Counts. A significant correlation also exists between impact factor and immediacy index. However there is no correlation between cited half-life and other citation data, except citing half-life. for journals of general and internal medicine and surgical medicine, there are no significant difference of the Pearson correlation coefficient for the following pair of citation data: source items and citation counts, source items and impact factor, source items and citing half-life, citation counts and citing half-life, impact factor and citing half-life, immediacy index and citing half-life, and cited half-life and citing half-life.

Keywords: Analysis, Citation, Citation Counts, Correlation Coefficient, Impact, Impact Factor, Journal, Journal Citation Reports, Journals, Literature, Medicine, Obsolescence, Reports, Surgery, Surgical

? Chen, D.Z., Chang, H.W., Huang, M.H. and Fu, F.C. (2005), Core technologies and key industries in Taiwan from 1978 to 2002: A perspective from patent analysis. *Scientometrics*, **64** (1), 31-53.

Full Text: [2005\Scientometrics64, 31.pdf](2005/Scientometrics64,%2031.pdf)

Abstract: This paper uses United States patent classification analysis to study the development of core technologies and key industries in Taiwan over the last 25 years, from 1978 to 2002. After counting the number of Taiwan-held United States granted Utility patents, the authors divide the years into three phases: from 1978 to 1994, with less than 500 patents each year; from 1995 to 1999, with 500-2,500 patents each year; from 2000 to 2002, with annual patents greater than 2,500. The results show that for both Taiwan’s core technologies and key industries, there was a great diversity at the first phase, while a mainstream forms and matures at the second and the third phases. However, industrial development at the third phase was more concentrated and focused than previous ones. Overall, Taiwan has clearly moved from a manufacturing-based economy to an innovation-based one, with its focus on high-tech industries during the previous 25 years.

Keywords: Analysis, Authors, Development, Germany, Industries, Patent, Patent Analysis, Taiwan, United States

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Full Text: [2005\Scientometrics64, 55.pdf](2005/Scientometrics64,%2055.pdf)

Abstract: We present the results on the relationship between the bonding number (the number of links among the authors of an article) and a measure of group cohesiveness on a Likert-type scale in three research areas, Biotechnology, Mathematics and Physics, at the National University of Mexico (UNAM). We found a difference between disciplines with regard to group size, and although there is little difference between disciplines in cohesiveness, results suggest that there is a direct relationship between the level of cohesiveness and the bonding number in Physics and Biotechnology, but not in Mathematics where the groups are much smaller.

Keywords: Authors, Biotechnology, Bonding, Cohesion, Mathematics, Mexico, Physics, Productivity, Research, Size, Teams, University

? Moon, H.S. and Lee, J.D. (2005), A fuzzy set theory approach to national composite S&T indices. *Scientometrics*, **64** (1), 67-83.

Full Text: [2005\Scientometrics64, 67.pdf](2005/Scientometrics64,%2067.pdf)

Abstract: Composite science and technology (S&T) indices are essential to overall understanding and evaluation of national S&T status, and to formulation of S&T policy. However, only a few studies on making these indices have been conducted so far since a number of complications and uncertainties are involved in the work. Therefore, this study proposes a new approach to employ fuzzy set theory and to make composite S&T indices, and applies it. The approach appears to Successfully integrate various S&T indicators into three indices: R&D input, R&D output, and economic Output. We also compare Korea’s S&T indices with those of five developed countries (France, Germany, Japan, the United Kingdom, and the United States) to obtain some implications of the results for Korea’s S&T.

Keywords: Complications, Composite, Decision-Making, Evaluation, France, Germany, Indicators, Japan, Numbers, Policy, Science, Science and Technology, Theory, United Kingdom, United States

? Gauffriau, M. and Larsen, P.O. (2005), Counting methods are decisive for rankings based on publication and citation studies. *Scientometrics*, **64** (1), 85-93.

Full Text: [2005\Scientometrics64, 85.pdf](2005/Scientometrics64,%2085.pdf)

Abstract: for all rankings of Countries research output based on number of publications or citations compared with population, GDP, R&D and public R&D expenses, and other national characteristics the counting method is decisive. Total counting (full credit to a country when at least one of the authors is from this country) and Fractional Counting (a country receives a fraction of full credit for a publication equal to the fraction of authors from this country) of publications give widely different results. Counting methods must be stated, rankings based on different counting methods cannot be compared, and Fractional Counting is to be preferred.

Keywords: Countries, Nations

? Podlubny, I. (2005), Comparison of scientific impact expressed by the number of citations in different fields of science. *Scientometrics*, **64** (1), 95-99.

Full Text: [2005\Scientometric64, 95.pdf](2005/Scientometric64,%2095.pdf)

Abstract: Citation distributions for 1992, 1994, 1996, 1997, 1999, and 2001, which were published in the 2004 report of the National Science Foundation, USA, are analyzed. It is shown that the ratio of the total number of citations of any two broad fields of science remains close to constant over the analyzed years. Based on this observation, normalization of total numbers of citations with respect to the number of citations in mathematics is suggested as a tool for comparing scientific impact expressed by the number of citations in different fields of science.

Keywords: Citation, Citation Distributions, Citations, Fields of Science, Impact, Observation, Ratio, Science, Scientific Impact, USA

Notes: UUniversity

? Liu, N.C., Cheng, Y. and Liu, L. (2005), Academic ranking of world universities using scientometrics - A comment to the ‘Fatal Attraction’. *Scientometrics*, **64** (1), 101-109.

Full Text: [2005\Scientometric64, 101.pdf](2005/Scientometric64,%20101.pdf)

Abstract: the Institute of Higher Education, Shanghai Jiao Tong University published on the web the Academic Ranking of World Universities and attracted wide attentions worldwide. 60% of their criteria are based on the databases using scientometrics. They were aware of all possible technical problems, have gone through ‘clean up’ processes and made necessary corrections. Highly cited researchers and articles published in nature and Science were identified one by one and attributed to the correct institutions. They are confident that errors including human ones in their data are less than two percent. They will continue their ranking efforts, improve their ranking methodologies and provide more choices on the ranking lists.

Keywords: Scientometrics, Universities, Web

? van Raan, A.F.J. (2005), Academic ranking of world universities using scientometrics - A comment to the ‘Fatal Attraction’ - Reply. *Scientometrics*, **64** (1), 111-112.

Full Text: [2005\Scientometrics64, 111.pdf](2005/Scientometrics64,%20111.pdf)

Keywords: Scientometrics, Universities

? Braun, T. and Diospatonyi, I. (2005), The journal gatekeepers of major publishing houses of core science journals. *Scientometrics*, **64** (2), 113-120

Full Text: [2005\Scientometrics64, 113.pdf](2005/Scientometrics64,%20113.pdf)

Keywords: Journal, Journals, Publishing, Science

? Kumar, S. and Garg, K.C. (2005), Scientometrics of computer science research in India and China. *Scientometrics*, **64** (2), 121-132.

Full Text: [2005\Scientometrics64, 121.pdf](2005/Scientometrics64,%20121.pdf)

Abstract: An analysis of 2058 papers published by Chinese authors and 2678 papers published by Indian authors in the field of computer science during 1971-2000 indicates that India’s output is significantly higher than the Chinese output. However, China is catching up fast. Chinese researchers prefer to publish their research results in domestic journals, while Indian researchers prefer to publish their research results in journals published in the advanced countries of the West. Also the share of papers in journals covered by SCI for India was higher than from China. However, no significant difference has been observed in the impact of the research output of the two countries as seen by different impact indicators. Team research is more common in India as compared to China.

Keywords: Laser Research, Decline, Impact

? Lozano, S. and Salmeron, J.L. (2005), Data envelopment analysis of OR/MS journals. *Scientometrics*, **64** (2), 133-150.

Full Text: [2005\Scientometrics64, 133.pdf](2005/Scientometrics64,%20133.pdf)

Abstract: This paper presents the results of a Data Envelopment Analysis of Operations Research/ Management Science journals on two questions: the duration of the refereeing/publication process and the relation between the length of the articles published and their impact. The second question uses data publicly available through the ISI Journal Citation Reports database and through the journals contents while for the first question data had to be gathered from the journal editors through an e-mail survey. The analysis gives cues about the amount each journal should aim to reduce their lead times, setting efficiency targets both on the average time from submission to first editorial decision and on the time from final editorial decision to publication. Similarly, for each journal, efficiency targets for the average article length are obtained. Our promoting of refereeing efficiency and paper length efficiency assumes that no loss of quality in the peer review process or in the knowledge transmission process needs to happen.

Keywords: Analysis, Citation, Cost, Data Envelopment Analysis, Econometrics, Email, Impact, ISI, Journal, Journal Citation Reports, Journal Editors, Journals, Knowledge, Lead, Management, Peer Review, Peer-Review, Process, Publication, Quality, Reports, Review, Science, Speed, Survey

? Li, X.M., Thelwall, M., Wilkinson, D. and Musgrove, P. (2005), National and international university departmental Web site interlinking. Part 1: Validation of departmental link analysis. *Scientometrics*, **64** (2), 151-185.

Full Text: [2005\Scientometrics64, 151.pdf](2005/Scientometrics64,%20151.pdf)

Abstract: the structural similarity between hyperlinks and citations has encouraged information scientists to apply bibliometric techniques to the Web. University links have been previously validated as a new data source through significant statistical correlations between link and research measures, together with identification of motivations for hyperlink creation at the university level. Many investigations have been conducted for university interlinking, but few for departments. University Web sites are large compared with departmental Web sites, and significant statistical results are more easily obtained. Nevertheless, universities are multidisciplinary by nature and disciplines may employ the Web differently, thus patterns identified at the university level may hide subject differences. This paper validates departmental interlinking, using Physics, Chemistry and Biology departments from Australia, Canada and the UK.

Keywords: Impact Factors, Academic-Institutions, Citation Analysis, Communication, Disciplinary, Information, Patterns, Inlinks

? Li, X.M., Thelwall, M., Wilkinson, D. and Musgrove, P. (2005), National and international university departmental Web site interlinking. Part 2: Link patterns. *Scientometrics*, **64** (2), 187-208.

Full Text: [2005\Scientometrics64, 187.pdf](2005/Scientometrics64,%20187.pdf)

Abstract: Although many link patterns have been identified at the university level, departmental interlinking has been relatively ignored. Universities are multidisciplinary by nature and various disciplines may employ the Web differently, thus patterns identified at the university level may hide subject differences. Departments are typically subject-oriented, and departmental interlinking may therefore illustrate interesting disciplinary linking patterns, perhaps relating to informal scholarly communication. The aim of this paper is to identify whether and how link patterns differ along country and disciplinary lines between similar disciplines and similar countries. Physics, Chemistry and Biology departments in Australia, Canada and the UK have been chosen. In order to get a holistic picture of departments Web use profiles and link patterns, five different perspectives are identified and compared for each set of departments. Differences in link patterns are identified along both national and disciplinary lines, and are found to reflect offline phenomena. Along national lines, a likely explanation for the difference is that countries with better research performances make more general use of the Web; and, with respect to international peer interlinking, countries that share more scholarly communication tend to interlink more with each other. Along disciplinary lines, it seems that departments from disciplines which are more willing to distribute their research outputs tend to make more general use of the Web, and also interlink more with their national and international peers.

Keywords: Canada, Chemistry, Co-Authorship, Communication, Differences, Impact Factor, Physics, Research, Scholarly Communication, UK, Universities, University, Webometrics

? van Dalen, H.P. and Henkens, K. (2005), Signals in science - On the importance of signaling in gaining attention in science. *Scientometrics*, **64** (2), 209-233.

Full Text: [2005\Scientometrics64, 209.pdf](2005/Scientometrics64,%20209.pdf)

Abstract: Which signals are important in gaining attention in science? for a group of 1,371 scientific articles published in 17 demography journals in the years 1990-1992 we track their influence and discern which signals are important in receiving citations. Three types of signals are examined: the author’s reputation (as producer of the idea), The journal (as the broker of the idea), and the state of uncitedness (as an indication of the assessment by the scientific community of an idea). The empirical analysis points out that, first, the reputation of journals plays an overriding role in gaining attention in science. Second, in contrast to common wisdom, the state of uncitedness does not affect the future probability of being cited. and third, the reputation of a journal may help to get late recognition (so-called sleeping beauties) as well as generate ‘flash-in-the-pans’: immediately noted articles but apparently not very influential in the long run.

Keywords: Analysis, Articles, Assessment, Attention, Citations, Demographers, Economics, Indication, Journal, Journals, Points, Science, Success

? Yu, G., Wang, X.H. and Yu, D.R. (2005), The influence of publication delays on impact factors. *Scientometrics*, **64** (2), 235-246.

Full Text: [2005\Scientometrics64, 235.pdf](2005/Scientometrics64,%20235.pdf)

Abstract: Based on the convolution formula of the disturbed aging distribution (EGGHE & ROUSSEAU, 2000) and the transfer function model of the publishing delay process, we establish the transfer function model of the disturbed citing process. Using the model, we make simulative investigations of disturbed citation distributions and impact factors according to different average publication delays. These simulative results show that the bigger increment the average publication delays in a scientific field, the larger shift backwards of the citation distribution curves and the more fall the impact factors of journals in the field. Based on some theoretical hypotheses, it is shown that there exists theoretically an approximate inverse linear relation between the field (or discipline) average publication delay and the journal impact factor.

Keywords: Aging, Citation, Impact, Impact Factor, Impact Factors, Journal, Journal Impact, Journal Impact Factor, Journals, Model, Process, Publication, Publishing

? Burrell, Q.L. (2005), The use of the generalized Waring process in modelling informetric data. *Scientometrics*, **64** (3), 247-270.

Full Text: [2005\Scientometrics64, 247.pdf](2005/Scientometrics64,%20247.pdf)

Abstract: Although its use in informetrics dates back at least to 1987, data analysed in a recent paper by SHAN et al. (2004) has rekindled interest in the generalized Waring distribution (GWD). The purpose of this note is to show that for many purposes, the distribution is best motivated via a familiar informetric scenario of a population of “sources” producing “items” over time leading to a stochastic process from which the univariate, bivariate and multivariate forms of the GWD are natural consequences. Earlier work and possible future applications are highlighted. Many of the results are due to Irwin and Xekalaki while much of the material on the Waring process has been previously available in an unpublished research report by the author (Burrell, 1991).

Keywords: Accident Theory, Author, Informetrics, Interest, Markov, Modelling, Natural, Prediction, Process, Research

? Garcia, C.E. and Sanz-Menendez, L. (2005), Competition for funding as an indicator of research competitiveness. *Scientometrics*, **64** (3), 271-300.

Full Text: [2005\Scientometrics64, 271.pdf](2005/Scientometrics64,%20271.pdf)

Abstract: Research quality is the cornerstone of modern science, it is used in the understanding of reputational differences among scientific and academic institutions. Traditionally, scientific activity is measured by a set of indicators and well-established bibliometric techniques based on the number of academic papers published in top-ranked journals or on the number of citations of these papers. These indicators are usually critical in measuring differences in research performance, both at individual and at scientific institutional levels. In this paper, we introduce an alternative and complementary set of indicators based on the results of competition for research funding, that aims to enlarge the framework in which research performance has traditionally been measured. Theoretical support for this paper is found in the role that the search for funding plays in the researchers’ credibility cycle as well as in peer review, the basic instrument for the allocation of public R&D funds. Our method analyses the outcomes of the researchers’ struggle for funding, using data from research proposal applications and awards, as the unit of observation, and aggregating them by research institutions to rank them in relative scales of research competitiveness.

Keywords: Bibliometric Indicators, Excellence, Impact, Journals, Netherlands, Research Performance, Research Policy, Science Policy, Stands Today, University

Marinova, D., McAleer, M. and Slottje, D. (2005), Antitrust environment and innovation. *Scientometrics*, **64** (3), 301-311.

Full Text: [2005\Scientometrics64, 301.pdf](2005/Scientometrics64,%20301.pdf)

Abstract: This paper examines the relationship between the antitrust environment and innovation in the US economy, where innovation is measured by patent activity. The hypothesis to be tested is whether antitrust enforcement activity, as measured by the number of civil filings of the US Department of Justice, has had a significant impact on the level of innovation in the US economy, after adjusting for other factors that have an impact on innovation, such as research and development expenditures and real economic growth. Impacts of civil antitrust case filings, criminal antitrust case filings and total US Department of Justice antitrust case filings on patent activity in the USA are estimated for the period 1953-2000. The empirical results show that civil case filings have a statistically significant impact on innovation.

Cardona, M. and Marx, W. (2005), The disaster of the Nazi-power in science as reflected by some leading journals and scientists in physics. A bibliometric study. *Scientometrics*, **64** (3), 313-324.

Full Text: [2005\Scientometrics64, 313.pdf](2005/Scientometrics64,%20313.pdf)

Abstract: the dramatic consequences of the Nazi-power for science are described extensively in various articles and books. Recent progress in information systems allows a more quantitative reflection. Literature databases ranging back to the beginning of the 20th century, the ISI citation indexes ranging back to 1945 and sophisticated search systems are suitable tools for this purpose. In this study the overall break in the scientific productivity and that of selected physical journals are examined. An overview of the citation impact of some 50 leading physicists is given. The productivity before and after departure is analyzed and, in some cases, connected to biographical data.

Muñoz-Muñoz, A.M. (2005), The scholarly transition of female academics at the University of Granada (1975-1990). *Scientometrics*, **64** (3), 325-350.

Full Text: [2005\Scientometrics64, 325.pdf](2005/Scientometrics64,%20325.pdf)

Abstract: An attempt is made to shed light on part of Granada University’s female academics’ past in what was a critical period in Spain’s history (1975-1982), referring of course to the political transition from dictatorship to democracy. The period studied is 1975-1990, in which an analysis is made of a section of the teaching staff, using part of the female staff as the sample due to their being the most socially affected during this period. Firstly, a study is carried out on the teaching staff, both male and female, to verify the staff situation at the university using the gender indicator. Secondly, the female teachers’ scholarly output is studied; due to the fact that areas of study are very varied, it has been considered appropriate to apply the study to monographs, scholarly publications articles and doctoral theses. Moreover, because the study intends to be as exhaustive as possible, various databases and catalogues have been consulted which collect the documental typology to be used in the analysis.

Keywords: Bibliometric Analysis, Countries, Indicators, ISI, Publications, Sci 1984-89, Sciences, Spanish Pharmacologists, Women Scientists

Boyack, K.W., Klavans, R. and Börner, K. (2005), Mapping the backbone of science. *Scientometrics*, **64** (3), 351-374.

Full Text: [2005\Scientometrics64, 351.pdf](2005/Scientometrics64,%20351.pdf)

Abstract: This paper presents a new map representing the structure of all of science, based on journal articles, including both the natural and social sciences. Similar to cartographic maps of our world, the map of science provides a bird’s eye view of today’s scientific landscape. It can be used to visually identify major areas of science, their size, similarity, and interconnectedness. In order to be useful, the map needs to be accurate on a local and on a global scale. While our recent work has focused on the former aspect,1 this paper summarizes results on how to achieve structural accuracy. Eight alternative measures of journal similarity were applied to a data set of 7,121 journals covering over 1 million documents in the combined Science Citation and Social Science Citation Indexes. for each journal similarity measure we generated two-dimensional spatial layouts using the force-directed graph layout tool, VxOrd. Next, mutual information values were calculated for each graph at different clustering levels to give a measure of structural accuracy for each map. The best co-citation and inter-citation maps according to local and structural accuracy were selected and are presented and characterized. These two maps are compared to establish robustness. The inter-citation map is then used to examine linkages between disciplines. Biochemistry appears as the most interdisciplinary discipline in science.

Bonitz, M. (2005), Ten years Matthew effect for countries. *Scientometrics*, **64** (3), 375-379.

Full Text: [2005\Scientometrics64, 375.pdf](2005/Scientometrics64,%20375.pdf)

Abstract: Actually the Matthew effect for countries (MEC) was discovered at Holy Eve 1994. Since then more than 30 papers of mine - many of them together with Andrea Scharnhorst and Eberhard Bruckner - appeared in journals or were read at conferences of international and national scientific societies. (1-6) It is not the task of this paper to present a bibliometric analysis of those paper’s impact, nor to give any detailed historical description of the surprising findings following the discovery. I’d rather try to unfold - from the heightened standpoint of our days - a new summary of the Matthew phenomenon, because I am convinced it will not lose fascination and importance in the years to come.

Keywords: Competition, Core Journals, Nations, Science

Park, H.W., Hong, H.D. and Leydesdorff, L. (2005), A comparison of the knowledge-based innovation systems in the economies of South Korea and the Netherlands using Triple Helix indicators. *Scientometrics*, **65** (1), 3-27.

Full Text: [2005\Scientometrics65, 3.pdf](2005/Scientometrics65,%203.pdf)

Abstract: This paper elaborates on the Triple Helix model for measuring the emergence of a knowledge base of socio-economic systems. The ‘knowledge infrastructure’ is measured using multiple indicators: webometric, scientometric, and technometric. The paper employs this triangulation strategy to examine the current state of the innovation systems of South Korea and the Netherlands. These indicators are thereafter used for the evaluation of the systemness in configurations of university-industry-government relations. South Korea is becoming somewhat stronger than the Netherlands in terms of scientific and technological outputs and in terms of the knowledge-based dynamics; South Korea’s portfolio is more traditional than that of the Netherlands. for example, research and patenting in the biomedical sector is underdeveloped. In terms of the Internet-economy, the Netherlands seem oriented towards global trends more than South Korea; this may be due to the high component of services in the Dutch economy.

Sternberg, R. and Litzenberger, T. (2005), The publication and citation output of German Faculties of Economics and Social Sciences - A comparison of faculties and disciplines based upon SSCI data. *Scientometrics*, **65** (1), 29-53.

Full Text: [2005\Scientometrics65, 29.pdf](2005/Scientometrics65,%2029.pdf)

Abstract: the purpose of this study is to quantify and compare the publication and citation output of the biggest faculties of economics and social sciences in Germany. Various publication and citation measures based upon Social Science Citation Index (SSCI) data are used to explore the comparative strengths and weaknesses of ten academic fields at the named faculties. To reflect the varying size of the fields and faculties, output measures as well as productivity measures are explicitly considered. From a bibliometric perspective empirical results demonstrate that various measures are necessary to adequately identify the comparative strengths and weaknesses of entire faculties and of selected disciplines within faculties.

? Gordon, A. (2005), Homeland security literature in relation to terrorism publications: the source and the response. *Scientometrics*, **65** (1), 55-65.

Full Text: [2005\Scientometrics65, 55.pdf](2005/Scientometrics65,%2055.pdf)

Abstract: the literature on Terrorism and National Security (NS), and Homeland Security (HS) presents two sides of a coin: one side demonstrates the problematic nature of terrorism and asks for solutions; the other side tries to find a response and solutions to the problem. It was expected that the NS literature would emanate from the same source material as the HS publications. Analysis of the literature of terrorism, homeland security, and national security on Science Citation Index (SCI) has shown that the material on terrorism and NS stems from the same scientific sources; that is, the Social Sciences. In contrast, the HS scientific literature originates in the exact sciences, engineering, and life and environmental sources. The three kinds of literature have grown remarkably in recent years; however, cross-section search strategy between terrorism and HS studies yields small retrieval sets. This means that few articles both present the problem and propose possible solutions. Currently, HS is on one side of the scholarly arena, and NS and terrorism literature on the other side; they advance mostly in lines parallel to each other, but as the researcher moves from observing the core scientific literature toward the more general material, this state of affairs changes. Another analysis of a multimedia database, WorldCatalog (which Indexes mostly books, but also videos and computer materials, both scientific and popular) demonstrates a different trend; the same publications deal with both terrorism and HS counter-terrorism, and suggested solutions.

Keywords: Analysis, Citation, Computer, Environmental, Indexes, Literature, Publications, SCI, Science, Science Citation Index, Sciences, Scientific Literature, Social Sciences, Strategy, Terrorism, Trend

? Pinto, M., Berrocal, J.L.A., García, J.A.C., Marcial, V.F., Figuerola, C.G., Marco, J.G. Gómez, C.C. and Zazo, R.Á.F. (2005), Quality assessment of Spanish universities’ web sites focused on the European Research Area. *Scientometrics*, **65** (1), 67-93.

Full Text: [2005\Scientometrics65, 67.pdf](2005/Scientometrics65,%2067.pdf)

Abstract: This work has analyzed and evaluated the dissemination of research done at Spanish universities through the World Wide Web (WWW) in order to obtain a map of the visibility of the information available on this research and to propose measures for improving the quality of this diffusion, all within the social and institutional context of the European Area for Higher Education. The methodology applied in the study has used both qualitative and quantitative research methods to obtain some quality indicators on the dissemination of university research. The object of study consists of a sample of 19 Spanish universities, chosen according to their representativeness by Autonomous Community and their administrative and scientific weight. The process of defining indicators, both qualitative and quantitative, as well as the collection and analysis of data, are explained. The results give us a detailed panorama of the state of the art of the visibility of information on research in the web pages of selected universities. This has allowed us to make certain proposals for improvement that can contribute to the excellence of its dissemination.

? Requena, J. (2005), Dynamics of the modern Venezuelan research community profile. *Scientometrics*, **65** (1), 95-130.

Full Text: [2005\Scientometrics65, 95.pdf](2005/Scientometrics65,%2095.pdf)

Abstract: the main characteristics, human resources, organizational development, R&D output and outcome of the Venezuelan scientific and technological community, are studied in depth for three specific dates - years 1954, 1983 and 1999 -, aiming to reveal its strengths and weaknesses and to establish its dynamics. During the first half of the twentieth century, Venezuela had no major organized or institutionalized scientific activity. From 1954 thru 1983, the State built a considerable number of institutions mostly for research and development activities. Initially, researchers came from classical professions but were later substituted by graduates in scientific and technological disciplines. Biomedical and basic sciences are the areas of knowledge favored by researchers while, in terms of intellectual creation, social sciences and humanities seem to be the less productive, despite being one of the fields of knowledge embraced by most professionals. Although from 1983 on there has been no major input to the national S&T system, the research community showed a few years of growth in absolute terms in the number of publications, however national productivity decreased during the last decade of the century. It is believed that this reflects an aging, asphyxiated and self-consuming community using its reserves at a maximum rate. The S&T system constructed exhibits a dominance of the public sector that privileged, financially, the hydrocarbon related technological/service industry at the expense of academic research in universities while maintaining agribusiness related service and developmental research at the same level of expenditure throughout the last twenty years of the twentieth century. While the generation - practically from zero - of a modern R&D community in Venezuela, together with higher education, could well be one of the most significant accomplishments of democracy in Venezuela, this remarkable social achievement has been put in peril by neglect and changes in public policies. Downturn of the national S&T system is bound to worsen due to a virtual collapse, on February 4, 2002, of the R&D centre of the nationalized oil industry.

Keywords: Achievement, Activities, Aging, Democracy, Depth, Development, Dynamics, Education, Growth, Higher Education, Human, Industry, Knowledge, Neglect, Outcome, Policies, Productivity, Profile, Publications, Research, Research and Development, Researchers, Science, Sciences, Scientific Community, Social, Social Sciences, Universities, Women

? Mccain, K.W., Verner, J.M., Hislop, G.W., Evanco, W. and Cole, V. (2005), The use of bibliometric and Knowledge Elicitation techniques to map a knowledge domain: Software Engineering in the 1990s. *Scientometrics*, **65** (1), 131-144.

Full Text: [2005\Scientometrics65, 131.pdf](2005/Scientometrics65,%20131.pdf)

Abstract: Parallel mappings of the intellectual and cognitive structure of Software Engineering (SE) were conducted using Author Cocitation Analysis (ACA), PFNet Analysis, and card sorting, a Knowledge Elicitation (KE) method. Cocitation counts for 60 prominent SE authors over the period 1990 - 1997 were gathered from SCISEARCH. Forty-six software engineers provided similar data by sorting authors’ names into labeled piles. At the 8 cluster level, ACA and KE identified similar author clusters representing key areas of SE research and application, though the KE labels suggested some differences between the way that the authors’ works were used and how they were perceived by respondents. In both maps, the clusters were arranged along a horizontal axis moving from ‘micro’ to ‘macro’ level R&D activities (correlation of X axis coordinates = 0.73). The vertical axis of the two maps differed (correlation of Y axis coordinates = -0.08). The Y axis of the ACA map pointed to a continuum of high to low formal content in published work, whereas the Y axis of the KE map was anchored at the bottom by ‘generalist’ authors and at the top by authors identified with a single, highly specific and consistent specialty. The PFNet of the raw ACA counts identified Boehm, Basili, and Booch as central figures in subregions of the network with Boehm being connected directly or through a single intervening author with just over 50% of the author set. The ACA and KE combination provides a richer picture of the knowledge domain and provide useful cross-validation.

? Kharbanda, V.P. (2005), China’s scientific elite. *Scientometrics*, **65** (1), 145-149.

Full Text: [2005\Scientometrics65, 145.pdf](2005/Scientometrics65,%20145.pdf)

? Garg, K.C., Gupta, B.M., Jamal, T., Roy, S. and Kumar, S. (2005), Assessment of impact of AICTE funding on R&D and educational development. *Scientometrics*, **65** (2), 151-160.

Full Text: [2005\Scientometrics65, 151.pdf](2005/Scientometrics65,%20151.pdf)

Abstract: An analysis of 330 questionnaires received from project investigators funded by AICTE indicates that project investigators preferred to present their research results at conferences rather than in national and international journals. Impact of funding has been better on human resource capability development as compared to research and technological output. Analysis of data using data envelopment analysis indicates that projects funded under electronics and communication engineering, mechanical engineering, electrical engineering and management displayed some consistency and uniformity with regard to impact on various output parameters.

Araujo Ruiz, J.A., van Hooydonk, G., Torricella Morales, R.G. and Jorge, R.A. (2005), Cuban scientific articles in ISI Citation Indexes and CubaCiencias databases (1988-2003). *Scientometrics*, **65** (2), 161-171.

Full Text: [2005\Scientometrics65, 161.pdf](2005/Scientometrics65,%20161.pdf)

Abstract: This comparative study covers the period 1988-2003 of the Institute for Scientific Information Databases (ISI-DBs), CD-ROM edition: Science Citation Index (SCI), Social Sciences Citation Index (SSCI) and Arts & Humanities Citation Index (A&HCI) as international databases and from the CubaCiencias (CubaCiencias) as an internal database. The number of articles published in Cuban journals, ISI-DBs, the author associativeness trend, the most important institutions and other indicators are collected. However, it is observed that CubaCiencias and ISI-DBs are not perfectly suitable for a study of the productivity of Cuban authors. It is necessary to properly standardize the author fields. for bibliometric studies, Cuba needs a database not only for the published papers in Cuban journals, but also for all the papers published by Cuban authors.

Keywords: Bibliometric, Bibliometric Studies, Cd-Rom, Citation, Citation Indexes, Comparative Study, Database, Databases, Indicators, Institute for Scientific Information, Institutions, International, ISI, Journals, Needs, Papers, Productivity, SCI, Science Citation Index, SSCI, Trend

Bartol, T. and Hocevar, M. (2005), The capital cities of the ten new European Union countries in selected bibliographic databases. *Scientometrics*, **65** (2), 173-187.

Full Text: [2005\Scientometrics65, 173.pdf](2005/Scientometrics65,%20173.pdf)

Abstract: the aim is to investigate the cities based on the author-affiliation data from Web of Science, Biosis Previews, CAB Abstracts, Chemical Abstracts, Compendex/Inspec, Francis, MEDLINE, Pascal, and Sociological Abstracts databases. Specifics of particular cities and publishing patterns and trends with reference to particular disciplines are studied. Characteristics of city-data collection with regard to retrieval accuracy are investigated. Databases are compared regarding document coverage and input consistency. A city as an emerging supranational unit is proposed as a scientometric object and indicator in its own right as a complement to the traditional notion of a country or a nation-state.

Notes: FField

Lluch, J.O. (2005), Some considerations on the use of the impact factor of scientific journals as a tool to evaluate research in psychology. *Scientometrics*, **65** (2), 189-197.

Full Text: [2005\Scientometrics65, 189.pdf](2005/Scientometrics65,%20189.pdf)

Abstract: This paper identifies and presents some characteristics of the psychology journals included in each of the *Journal Citation Reports* (JCR) categories in 2002. The study shows that most of the journals belong to the categories of Multidisciplinary Psychology (102) and Clinical Psychology (83). Their ranking is seen to vary depending on the category, and the same journal may occupy different positions in different JCR categories. Journals included in the categories of Biological Psychology, Experimental Psychology and Multidisciplinary Psychology had the highest impact factor (IF).

Notes: FField

Dastidar, P.G. and Ramachandran, S. (2005), Engineering research in ocean sector: An international profile. *Scientometrics*, **65** (2), 199-213.

Full Text: [2005\Scientometrics65, 199.pdf](2005/Scientometrics65,%20199.pdf)

Abstract: In this paper attempt has been made to study the engineering research scenario in ocean sector across the countries - globally. To understand the research dynamics, the articles appeared in Science Citation Index (SCI) database under Ocean Engineering category in the year 2000 were analyzed to visualize the structure of the field. USA and UK are the major producers - 62% of the total output contributed by them. The cooperation linkages between engineers, organizations, countries and journals were mapped. The caUSAl linkages between the productivity function and the socio-economic imperatives of the production units were studied. 62% output in this sector goes to USA & UK. They are also toppers in collaboration centrality list. National Oceanic Atmospheric Administration (NOAA), USA; National Aeronautics and Space Administration (NASA), USA; National Institute of Oceanography (NIO), India are the most productive institutions. GDP explains only 36% of variance in productivity (R2 = 0.36). M Longuethiggins and CC Mei are the most cited authors in the field. Co-citation maps of cited authors and cited journals throw light on the semantic structure of the field. Studies in wave mechanics and modeling of waves are the most important areas of research in Ocean Technology.

Guan, J.C. and He, Y. (2005), Comparison and evaluation of domestic and international outputs in Information Science & Technology research of China. *Scientometrics*, **65** (2), 215-244.

Full Text: [2005\Scientometrics65, 215.pdf](2005/Scientometrics65,%20215.pdf)

Abstract: the purpose of this paper is to evaluate the basic research performance of key projects in the field of information science & technology funded by National Natural Science Foundation of China (NSFC) from both international and national perspectives during the period 1994-2001, based upon the Science Citation Index (SCI) and China Scientific and Technical Papers and Citations (CSTPC) databases. We compare the international and domestic outputs of the key projects by applying various scientometric indicators and techniques. The findings indicate that, as a whole, the research performances of the key projects have, to different degrees, increased in both international and domestic papers during the period of study. Semiconductor is the internationally most productive sub-discipline and Automatization is the domestically most productive sub-discipline, measured on average per project. The Combination Impact Factor (CIF), which integrates the CSTPC-IF and the SCI-IF into the evaluation process, is further proposed for the combined evaluation of domestic and international outputs of the key projects. In terms of ratio of CIF relative to the funds in each sub-discipline, results also show that Semiconductor is the most productive sub-discipline and Computer is the least productive one. Using correlation analysis a significant and positive relationship between the SCI-IF and the CIF has been found for the evaluated projects.

Jarneving, B. (2005), A comparison of two bibliometric methods for mapping of the research front. *Scientometrics*, **65** (2), 245-263.

Full Text: [2005\Scientometrics65, 245.pdf](2005/Scientometrics65,%20245.pdf)

Abstract: This paper builds on previous research concerned with the classification and specialty mapping of research fields. Two methods are put to test in order to decide if significant differences as to mapping results of the research front of a science field occur when compared. The first method was based on document co-citation analysis where papers citing co-citation clusters were assumed to reflect the research front. The second method was bibliographic coupling where likewise citing papers were assumed to reflect the research front. The application of these methods resulted in two different types of aggregations of papers: (1) groups of papers citing clusters of co-cited works and (2) clusters of bibliographically coupled papers. The comparision of the two methods as to mapping results was pursued by matching word profiles of groups of papers citing a particular co-citation cluster with word profiles of clusters of bibliographically coupled papers. Findings suggested that the research front was portrayed in two considerably different ways by the methods applied. It was concluded that the results in this study would support a further comparative study of these methods on a more detailed and qualitative ground. The original data set encompassed 73,379 articles from the fifty most cited environmental science journals listed in *Journal Citation Report*, science edition downloaded from the Science Citation Index on CD-ROM.

Rousseau, R. (2005), Peter Ingwersen: Recipient of the 2005 Derek de Solla Price Award of the journal scientometrics. *Scientometrics*, **65** (3), 267-269.

Full Text: [2005\Scientometrics65, 267.pdf](2005/Scientometrics65,%20267.pdf)

McCain, C. (2005), Howard D White: Recipient of the 2005 Derek de Solla Price Award of the journal scientometrics. *Scientometrics*, **65** (3), 271-273.

Full Text: [2005\Scientometrics65, 271.pdf](2005/Scientometrics65,%20271.pdf)

Notes: MModel

Egghe, L. (2005), The share of items of highly productive sources as a function of the size of the system. *Scientometrics*, **65** (3), 275-291.

Full Text: [2005\Scientometrics65, 275.pdf](2005/Scientometrics65,%20275.pdf)

Abstract: the research in this paper is based on the paper of D.W. Aksnes & G. Sivertsen: the effect of highly cited papers on national citation indicators, Scientometrics 59 (2) (2004), 213-224, where one states that ‘the few highly cited papers account for the highest share of the citations in the smallest fields’.

This, at first sight, evident property is examined in the theoretical models that exist in the literature. We first define exactly what we mean by ‘size of a field’ (i.e. when is a field ‘smaller’ or ‘larger’ than another one). We show that there are two, non-equivalent possible definitions. Next we define exactly the possible property under study. This leads us again to two possible, non-equivalent formulations. Hence, in total, there are four different formulations to consider.

We show, by giving counterexamples, that none of these four formulations are true in general. We also express conditions (in Lotkaian and Zipfian informetrics), under which the property of Aksnes and Sivertsen is true.

All these results are not only valid in the papers-citations relationships but in any informetric source-item relationship. In this connection we present formulae describing the share of items of highly productive sources as a function of the parameters of the system (e.g. The size of the system).

Keywords: Cited Papers

? Sombatsompop, N., Markpin, T., Yochai, W. and Saechiew, M. (2005), An evaluation of research performance for different subject categories using Impact Factor Point Average (IFPA) index: Thailand case study. *Scientometrics*, **65** (3), 293-305.

Full Text: [2005\Scientometrics65, 293.pdf](2005/Scientometrics65,%20293.pdf)

Abstract: the research performance of Thai researchers in various subject categories was evaluated using a new mathematical index entitled “Impact Factor Point Average” (IFPA), by considering the number of published papers in journals listed in the Science Citation Index (SCI) database held by the Institute for Scientific Information (ISI) for the years 1998-2002, and the results compared with the direct publication number (PN) and publication credit (PC) methods. The results suggested that the PN and PC indicators cannot be used for comparison between fields or countries because of the strong field-dependence. The IFPA index, based on a normalization of differences in impact factors, rankings, and number of journal titles in different subject categories, was found to be simple and could be used with equality for accurate assessment of the quality of research work in different subject categories. The results of research performance were found to be dependent on the method used for the evaluations. All evaluation methods indicated that Clinical Medicine was ranked first in terms of the research performance of Thai scholars listed in the SCI database, but exhibited the lowest improvement of performance. Chemistry was shown to be the most improved subject category.

Keywords: Assessment, Chemistry, Citation, Differences, Evaluation, Impact, Impact Factor, Impact Factors, ISI, Journal, Journals, Papers, Publication, Quality, Rankings, Research, Research Performance, Research Work, Researchers, SCI, Science, Science Citation Index, Scientific Information, Subject Category

? Coccia, M. (2005), A scientometric model for the assessment of scientific research performance within public institutes. *Scientometrics*, **65** (3), 307-321.

Full Text: [2005\Scientometrics65, 307.pdf](2005/Scientometrics65,%20307.pdf)

Abstract: Nowadays, the Italian science sector is undergoing a strategic reform due to budget cuts and there is a need for measuring and evaluating research performance of public research institutes. This research presents a new measure to assess the scientific research performance of public research institutes. The new model is successfully applied to 108 public research institutes belonging to the Italian National Research Council, using data from year 2003 and displays the laboratories with high/low performance. The results are substantially stronger and quicker to obtain than those calculated by using conventional indicators. This model supports the policy-makers, who must decide about the level and direction of public funding for research and technology transfer.

Keywords: Research-and-Development, Higher-Education, Productivity, Indicators, Efficiency

? Glänzel, W. and Schubert, A. (2005), Domesticity and internationality in co-authorship, references and citations. *Scientometrics*, **65** (3), 323-342.

Full Text: [2005\Scientometrics65, 323.pdf](2005/Scientometrics65,%20323.pdf)

Abstract: As a first element of a macro-level country-by-country cross-reference and cross-citation analysis, domestic/international character of reference and citation behavior of 36 countries is studied and compared with international co-authorship patterns. Indicators of reference and citation domesticity as well as reference-citation domesticity balance are constructed and presented. Science policy relevance of these indicators is discussed and examples deserving science policy attention are pinpointed.

Keywords: Analysis, Attention, Balance, Behavior, Citation, Citations, Co-Authorship, Coauthorship, Indicators, Policy, Science, Science Policy

? Ma, N. and Guan, J.C. (2005), An exploratory study on collaboration profiles of Chinese publications in Molecular Biology. *Scientometrics*, **65** (3), 343-355.

Full Text: [2005\Scientometrics65, 343.pdf](2005/Scientometrics65,%20343.pdf)

Abstract: As science has become much complex and sophisticated, greater attention is paid to scientific collaboration within recent bibliometric studies. A total of 6538 publications in Molecular Biology from China during 1999-2003, as indicated by data collected from database of the Science Citation Index Expanded - Web Edition, have been analyzed. A large proportion of publications have been authored by more than 3 scientists. The composition of publications grouped by collaboration patterns are: 1.58% non-collaborative papers, 42.43% local papers, 34.37% domestic papers and 21.62% international papers on average during the studied period. The countries with which China has collaborative links and their frequencies are all itemized to indicate the intensity of international collaboration in the field of Molecular Biology. Finally, the differences between the impact of wholly indigenous papers and internationally collaborative papers have been compared. The results indicate that foreign collaboration does contribute a lot to the improvement of the mainstream connectivity and international visibility.

Keywords: International Scientific Collaboration, Co-Authorship, Research Performance, Impact Factor, Science, 20th-Century, Cooperation, Technology, Patterns

? Hanney, S., Frame, I., Grant, J., Buxton, M., Young, T. and Lewison, G. (2005), Using categorisations of citations when assessing the outcomes from health research. *Scientometrics*, **65** (3), 357-379.

Full Text: [2005\Scientometrics65, 357.pdf](2005/Scientometrics65,%20357.pdf)

Abstract: This paper describes an attempt to explore how far a categorisation of citations could be used as part of an assessment of the outcomes from health research. A large-scale project to assess the outcomes from basic, or early clinical, research is being planned, but before proceeding with such a project it was thought important to test and refine the developing methods in a preliminary study. Here we describe the development, and initial application, of one element of the planned methods: an approach to categorising citations with the aim of tracing the impact made by a body of research through several generations of papers. The results from this study contribute to methodological development for the large-scale project by indicating that: only for a small minority of citing papers is the cited paper of considerable importance; the number of times a paper is cited can not be used to indicate the importance of that paper to the articles that cite it; and self-citations could play an important role in facilitating the eventual outcomes achieved from a body of research.

Keywords: Assessment, Author Self-Citations, Behavior, Biomedical-Research, Citations, Communication, Context Analysis, Development, Impact, Improvement, Indicators, Motivations, Outcomes, Papers, References, Research, Science

? Burrell, Q.L. (2005), Are “sleeping beauties” to be expected? *Scientometrics*, **65** (3), 381-389.

Full Text: [2005\Scientometrics65, 381.pdf](2005/Scientometrics65,%20381.pdf)

Abstract: A paper that is little cited (‘sleeps’) for a long period of time and then becomes much cited (‘is awakened’), has been termed by van Raan (2004) a ‘Sleeping Beauty’, or a paper that was ‘ahead of its time’. The inference is that the importance of the paper was not initially recognised, only later was it (re)discovered. On the other hand, much theoretical work in informetrics views the citation process as being purely random - modelled by an appropriate stochastic process. From this point of view, the ‘awakening’ could simply be a matter of chance without necessarily saying anything about the worth of the paper. The question therefore arises as to whether such awakenings can be explained or expected purely by the random nature of the model or whether they are so unlikely that an alternative explanation should be sought. In this note we express the notion of a Sleeping Beauty in terms of a well-known stochastic model and seek to answer this question, at least in general terms.

Keywords: Alternative, Citation, Citation Distribution, Delayed Recognition, Hand, Informetrics, Model, Process, Stochastic-Model

? Bornmann, L. and Daniel, H.D. (2005), Does the h-Index for ranking of scientists really work? *Scientometrics*, **65** (3), 391-392.

Full Text: [2005\Scientometrics65, 391.pdf](2005/Scientometrics65,%20391.pdf)

Abstract: Hirsch (2005) has proposed the h-Index as a single-number criterion to evaluate the scientific output of a researcher (Ball, 2005): A scientist has index h if h of his, her N-p papers have at least h citations each, and the other (N-p - h) papers have fewer than h citations each. In a study on committee peer review (Bornmann & Daniel, 2005) we found that on average the h-Index for successful applicants for post-doctoral research fellowships was consistently higher than for non-successful applicants.

Keywords: Citations, h Index, h-Index, Hirsch, Index h, Papers, Peer Review, Peer-Review, Ranking, Research, Review, Scientific Output, Work

? Wooding, S., Wilcox-Jay, K., Lewison, G. and Grant, J. (2006), Co-author inclusion: A novel recursive algorithmic method for dealing with homonyms in bibliometric analysis. *Scientometrics*, **66** (1), 11-21.

Full Text: [2006\Scientometrics66, 11.pdf](2006/Scientometrics66,%2011.pdf)

Abstract: Large scale bibliometric analysis is often hindered by the presence of homonyms, or namesakes, of the researchers of interest in literature databases. This makes it difficult to build up a true picture of a researcher’s publication record, as publications by another researcher with the same name will be included in search results. Using additional information such as title and author addresses, an expert in the field can generally tell if a paper is by a researcher or a namesake; however, manual checking is not practical in large scale studies. Previously various methods have been used to address this problem, chiefly based on filtering by subject, funding acknowledgement or author address. Co-author inclusion is a novel algorithmic method based on co-authorship for dealing with problems of homonyms in large bibliometric surveys. We compared co-author inclusion and subject and funding based filter against the manual assignment of papers by a subject expert (which we assumed to be correct). The subject and funding based filtering identifies only 75% as many papers as assigned by manual scoring. By using co-author inclusion once we increase this to 95%, two further rounds produces 99% as many papers as manual filtering. Although the number of papers identified that were not assigned to the PIs manually also increases, the absolute number is low: rising from 0.2% papers with subject and funding filtering, to 3% papers for three rounds of co-author inclusion.

Keywords: Publications

Sangam, S.L., Savanur, K., Manjunath, M. and Vasudevan, R. (2006), Scientometric portrait of Prof. Peter John Wyllie. *Scientometrics*, **66** (1), 43-53.

Full Text: [2006\Scientometrics66, 43.pdf](2006/Scientometrics66,%2043.pdf)

Abstract: Scientometrics is an application of quantitative methods to the history of Science. It is also one of the techniques for documenting, collecting works of eminent scientists and researcher’s. In this paper, we present a concise sketch of Prof. Peter John Wyllie, stressing on his scientific achievements. His research has had a great impact in the fields dealing with terrestrial magmatic phenomena and geology.

Keywords: Research

Notes: UUniversity

Thijs, B. and Glänzel, W. (2006), The influence of author self-citations on bibliometric meso-indicators. The case of European universities. *Scientometrics*, **66** (1), 71-80.

Full Text: [2006\Scientometrics66, 71.pdf](2006/Scientometrics66,%2071.pdf)

Abstract: In earlier studies by the authors, basic regularities of author self-citations have been analysed. These regularities are related to the ageing, to the relation between self-citations and foreign citations, to the interdependence of self-citations with other bibliometric indicators and to the influence of co-authorship on self-citation behaviour. Although both national and subject specific peculiarities influence the share of self-citations at the macro level, the authors came to the conclusion that - at this level of aggregation - there is practically no need for excluding self-citations. The aim of the present study is to answer the question in how far the influence of author self-citations on bibliometric meso-indicators deviates from that at the macro level, and to what extent national reference standards can be used in bibliometric meso analyses. In order to study the situation at the institutional level, a selection of twelve European universities representing different countries and different research profiles have been made. The results show a quite complex situation at the meso-level, therefore we suggest the Usage of both indicators, including and excluding self-citations.

Keywords: Macro, Research

Nederhof, A.J. (2006), Bibliometric monitoring of research performance in the social sciences and the humanities: A review. *Scientometrics*, **66** (1), 81-100.

Full Text: [2006\Scientometrics66, 81.pdf](2006/Scientometrics66,%2081.pdf)

Abstract: This paper addresses research performance monitoring of the social sciences and the humanities using citation analysis. Main differences in publication and citation behavior between the (basic) sciences and the social sciences and humanities are outlined. Limitations of the (S)SCI and A&HCI for monitoring research performance are considered. for research performance monitoring in many social sciences and humanities, the methods used in science need to be extended. A broader range of both publications (including non-ISI journals and monographs) and citation indicators (including non-ISI reference citation values) is needed. Three options for bibliometric monitoring are discussed.

Keywords: Behavioral-Sciences, Books, Impact, Indicators, Journals, Publication, Publications, Reference Networks, Research, Scientific Literature, Sociology Citation Index, University Departments

Rojo, R. and Gómez, I. (2006), Analysis of the Spanish scientific and technological output in the ICT sector. *Scientometrics*, **66** (1), 101-121.

Full Text: [2006\Scientometrics66, 101.pdf](2006/Scientometrics66,%20101.pdf)

Abstract: This study presents a general view of the scientific and technological production in the ICT sector in Spain during the period 1990-2002 and its relative weight in the international production, as well as the identification of the main institutional actors and the performance patterns of the researchers in this scientific community through bibliometric techniques, with the aim of exploring the character of its outputs, both in terms of publications and patents. Indicators at macro-meso level are presented by: geographic regions, thematic areas at different aggregation levels, institutional sectors and research centres. Bibliometric indicators may help focus attention on the position and contribution of Spanish ICT science and technological capabilities.

Keywords: Communication Technologies, Information, Performance, Publications, Research, Science, Semiconductor Literature

van Leeuwen, T. (2006), The application of bibliometric analyses in the evaluation of social science research. Who benefits from it, and why it is still feasible. *Scientometrics*, **66** (1), 133-154.

Full Text: [2006\Scientometrics66, 133.pdf](2006/Scientometrics66,%20133.pdf)

Abstract: the paper discusses an application of bibliometric techniques in the social sciences. While the interest of policy makers is growing, the topic is getting more and more attention from bibliometricians. However, many efforts are put into developing tools to measure scientific output and impact outside the world of the Social Sciences Citation Index, while the use of the SSCI for bibliometric applications is covered with obscurity and myths. This study attempts to clarify some of the topics mentioned against the application of the SSCI for evaluation purposes. The study will cover topics like the existing publication and citation culture within the social sciences, the effect of variable citation windows, and the (geographical) origin of citation flows.

Keywords: Analyses, Application, Bibliometric, Bibliometric Analyses, Bibliometric Techniques, Citation, Culture, Developing, Evaluation, Impact, Measure, Origin, Policy, Publication, Research, Science, Science Research, Sciences, Scientific Output, Social, Social Sciences, SSCI, Techniques, World

Lundberg, J., Fransson, A., Brommels, M., Skår, J. and Lundkvist, I. (2006), Is it better or just the same? Article identification strategies impact bibliometric assessments. *Scientometrics*, **66** (1), 183-197.

Full Text: [2006\Scientometrics66, 183.pdf](2006/Scientometrics66,%20183.pdf)

Abstract: This study demonstrates that the choice of search strategy for article identification has an impact on evaluation and policy analysis of research areas. We have assessed the scientific production in two areas at one research institution during a ten-year period. We explore the recall and precision of three article identification strategies: journal classifications, keywords and authors. Our results show that the different search strategies have varying recall (0.38-1.00) and precision (0.50-1.00). In conclusion, uncritical analysis based on rudimentary article identification strategies may lead to misinterpretation of the development of research areas, and thus provide incorrect data for decision-making.

Keywords: European-Union, Research

Must, Ü. (2006), ‘New’countries in Europe - Research, development and innovation strategies vs bibliometric data. *Scientometrics*, **66** (2), 241-248.

Full Text: [2006\Scientometrics66, 241.pdf](2006/Scientometrics66,%20241.pdf)

Abstract: the main objective of this paper is to observe to what extent research priorities set in R&D policy strategy documents are supported with publication and citation data, delivered from ISI databases. As supporting background information the results of questionnaire sent to the Committee of Senior Officials of the Co-operation in the field of Scientific and Technical Research are used.

Keywords: Collaboration, Indicators, Research

Calero, C., Buter, R., Valdés, C.C. and Noyons, E. (2006), How to identify research groups using publication analysis: an example in the field of nanotechnology. *Scientometrics*, **66** (2), 365-376.

Full Text: [2006\Scientometrics66, 365.pdf](2006/Scientometrics66,%20365.pdf)

Abstract: We present a new bibliometric approach to identify research groups in a particular research field. With a combination of bibliometric mapping techniques and network analysis we identify and classify clusters of authors to represent research groups. In this paper we illustrate the application and potential of this approach and present two types of outcomes: actual research groups and potential research groups. The former enables us to define research groups beyond the organizational structure. The latter may be used to identify potential partners for collaboration. Our approach is a starting point to deal with the complex issue of research groups in a changing structure of scientific research.

Keywords: Network, Research

Buter, R.K., Noyons, E.C.M., Van Mackelenbergh, M. and Laine, T. (2006), Combining concept maps and bibliometric maps: First explorations. *Scientometrics*, **66** (2), 377-387.

Full Text: [2006\Scientometrics66, 377.pdf](2006/Scientometrics66,%20377.pdf)

Abstract: Bibliometric maps of science are a well-established research subject. But their adoption as a science policy support tool is lacking. We think this is because the user does not immediately comprehend a map and (as a result) is not enticed into using it. To help this comprehension, we propose the use of “ qualitative maps “: an umbrella term for diverse tools such as concept maps and mental maps. We developed a tool that interfaces between a qualitative map and a bibliometric map which lets the user create a correspondence between the distinct vocabularies of the maps. We also conducted two user studies: the first explored the combined use of bibliometric and qualitative maps and the second the preferred format of the map and the word-Usage in the description of its elements.

Keywords: Networks, Research, Science

Cahlík, T. and Jiřina, M. (2006), Law of cumulative advantages in the evolution of scientific fields. *Scientometrics*, **66** (3), 441-449.

Full Text: [2006\Scientometrics66, 441.pdf](2006/Scientometrics66,%20441.pdf)

Abstract: the evolution of scientific fields analyzed by co-word analysis and presented in strategic diagrams is simulated based on the law of cumulative advantages - the probability of a new tie between two keywords depends positively on the frequencies in which both keywords have taken part already. The results we get from simulations are compared with the results of real scientific field evolution. We consider the high correspondence of both to be a proof of the working of the law of cumulative advantages in the development of scientific fields and we believe that our research opens new possibilities for predictions of the development of scientific fields.

Keywords: Economics

Ackermann, E. (2006), Indicators of failed information epidemics in the scientific journal literature: A publication analysis of Polywater and Cold Nuclear Fusion. *Scientometrics*, **66** (3), 451-466.

Full Text: [2006\Scientometrics66, 451.pdf](2006/Scientometrics66,%20451.pdf)

Abstract: A literature review uncovered six distinctive indicators of failed information epidemics in the scientific journal literature: (1) presence of seminal papers(s), (2) rapid growth, decline in author frequency, (3) multi-disciplinary research, (4) epidemic growth, decline in journal publication frequency, (5) predominance of rapid communication journal publications, and (6) increased multi-authorship. These indicators were applied to journal publication data from two known failed information epidemics, Polywater and Cold Nuclear Fusion. Indicators 1-4 were distinctive of the failed epidemics, Indicator 6 was not, and Indicator 5 might be. Further bibliometric study of these five indicators in the context of other epidemic literatures needed.

Keywords: Anomalous Water, Field, Growth, Science, Superstring Theory

Miguel-Dasit, A., Marti-Bonmati, L., Aleixandre, R., Sanfeliu, P. and Valderrama, J.C. (2006), Publications resulting from Spanish radiology meeting abstracts: Which, where and who. *Scientometrics*, **66** (3), 467-480.

Full Text: [2006\Scientometrics66, 467.pdf](2006/Scientometrics66,%20467.pdf)

Abstract: Many abstracts submitted to medical meetings never come to full publication in peer-reviewed journals. From the 2,992 abstracts presented at the 1994-1998 Spanish Congresses of Radiology, 464 (15%) were published as full articles in journals covered by the MEDLINE and IME (Aindice Medico Espanol), The Spanish medical database. The publication rate of oral presentations was higher than that of posters (18% versus 13%). Collaboration between radiologists and clinicians and between radiologists from different institutions increased full publication (21% and 27%, respectively) compared to abstracts from just one institution (14%). Therefore, oral presentations, multi-disciplinary and multi-institutional collaboration in the abstract predicted full publication.

Keywords: Authorship, Collaboration, Fate, Journals, Rates, Scientometric Analysis, Society Meetings, Subsequent Publication

van Zeebroeck, N., De la Potterie, B.V. and Han, W. (2006), Issues in measuring the degree of technological specialisation with patent data. *Scientometrics*, **66** (3), 481-492.

Full Text: [2006\Scientometrics66, 481.pdf](2006/Scientometrics66,%20481.pdf)

Abstract: This paper analyses several issues that arise when measuring technological specialisation with patent data. Three starting choices are required regarding the data source, the statistical measure and the sectoral aggregation level. We show that the measure is highly sensitive to the data source and to the level of sectoral aggregation. The statistical analysis further suggests that the most stable and reliable measures of technological specialization are obtained with patents applied at the EPO, with Gini or C20 as statistical measure and the 4-digits aggregation level of the IPC classification system.

Keywords: 27 Science Areas, 50 Nations, Scientometric Weight, Statistics

Cincera, M., De la Potterie, B.V. and Veugelers, R. (2006), Assessing the foreign control of production of technology: the case of a small open economy. *Scientometrics*, **66** (3), 493-512.

Full Text: [2006\Scientometrics66, 493.pdf](2006/Scientometrics66,%20493.pdf)

Abstract: International R&D activities have grown significantly over the last two decades. Both the number of actors involved, as well as the importance of the technological activity carried out abroad, has considerably increased. We aim to quantify the international generation of knowledge for the case of Belgium, using indicators based on EPO and USPTO patent data (1978-2001). We distinguish among Belgian applicants, affiliates of foreign firms located in Belgium as well as Belgian based firms with affiliates abroad. This approach allows to improve existing indicators of internationalisation of technology based on patent data. The results are consistent with what can be expected for a small open economy as Belgium. A large part of patents with Belgian inventors are assigned to Belgian affiliates of foreign firms. Hence our more complete indicator of foreign ownership gives a substantially higher foreign control of Belgian inventors. Relatively more knowledge generated by Belgian inventors flows out of the country towards foreign owners of technology, than that knowledge generated abroad is owned by Belgian patent applicants. But the share of foreign inventors to Belgian assigned patents is considerably increasing over time, especially in the subcategory of Belgian firms with foreign affiliates.

Keywords: Corporation, Globalization, Internationalization, Knowledge, Multinational-Enterprises, Organization, Patent Statistics, Patterns, Research-and-Development

Lin, M.H., Chen, L.K., Hwang, S.J., Weiss, B.D., Chou, L.F. and Chen, T.J. (2006), The impact of impact factor on small specialties: A case study of family medicine in Taiwan. *Scientometrics*, **66** (3), 513-520.

Full Text: [2006\Scientometrics66, 513.pdf](2006/Scientometrics66,%20513.pdf)

Abstract: the Science Citation Index (SCI) with its coverage of journals has been forming a criterion for the performance assessment of researchers worldwide. If the journals of a specialty were under-proportionally indexed, its development in research could be distorted in the long term. A MEDLINE-based bibliometric analysis of research output by family medicine departments in Taiwan from 1990 to 2003 might help to provide some evidence of the influence of SCI on the developing disciplines.

Keywords: Publications

Sombatsompop, N., Kositchaiyong, A., Markpin, T. and Inrit, S. (2006), Scientific evaluations of citation quality of international research articles in the SCI database: Thailand case study. *Scientometrics*, **66** (3), 521-535.

Full Text: [2006\Scientometrics66, 521.pdf](2006/Scientometrics66,%20521.pdf)

Abstract: Quantitative and qualitative scientific evaluations of the research performance of Thai researchers were carried out with regards to their international publications and citations in four different subject categories; namely Clinical Medicine, Chemistry, Material Sciences, and Engineering. This work used citations to publications of Thai researchers in the Science Citation Index (SCI) database during 1998-2002 as a data source. The calculations and comparisons of article impact factors (AIF), position impact factors (PIF) and journal impact factors (JIF) were attempted for quantitative evaluation.The positions and significance levels (cited contents) of the citations were considered for qualitative assessment.For quantitative evaluation, the highest article quantity and number of times cited were given by Thai researchers in Clinical Medicine, the lowest being for Material Sciences. Clinical Medicine had the highest AIF value, while Engineering exhibited the lowest. Each article by Thai researchers was found to be cited more than once within a citing article, especially articles in Clinical Medicine. for qualitative assessment, most articles from Thai scholars were cited in Introduction and Results & Discussion sections of the citing articles. Only non-Thai researchers in Clinical Medicine preferred to use Discussion from Thais’ articles for discussion of their work whereas those in Chemistry, Material Sciences and Engineering were referred as general references. Less than 1.5% of research works of Thai scholars were cited as ‘the pioneer’for the research communities of the subject categories of interest.

Keywords: Impact Factors, Journal Impact

Egghe, L., Rao, I.K.R. and Sahoo, B.B. (2006), Proof of a conjecture of Moed and Garfield on authoritative references and extension to non-authoritative references. *Scientometrics*, **66** (3), 537-549.

Full Text: [2006\Scientometrics66, 537.pdf](2006/Scientometrics66,%20537.pdf)

Abstract: In a recent paper [H. F. Moed, e. Garfield: In basic science the percentage of ‘Authoritative’References decreases as bibliographies become shorter. Scientometrics 60 (3) (2004) 295-303] the authors show, experimentally, the validity of the statement in the title of their paper. In this paper we give a general informetric proof of it, under certain natural conditions. The proof is given both in the discrete and the continuous setting. An easy corollary of this result is that the fraction of non-authoritative references increases as bibliographies become shorter. This finding is supported by a set of data of the journal information processing and management (2002 + 2003) With respect to the fraction of conference proceedings articles in reference lists.

Keywords: Science

Uzun, A. (2006), Science and technology policy in Turkey. National strategies for innovation and change during the 1983-2003 period and beyond. *Scientometrics*, **66** (3), 551-559.

Full Text: [2006\Scientometrics66, 551.pdf](2006/Scientometrics66,%20551.pdf)

Abstract: An evaluation of Turkey’s science and technology (S & T) policy in the last two decades has been made by using various indicators of S & T and technological innovation. National trends in inputs for research and development (R & D) activities, publication output and patent data have been studied for the implications of the S & T policy from 1983 to 2003. Some of the findings on the outcomes of policy measures in terms of inputs to R & D and publication output are as follows: (1) Total R & D expenditure, as percent of gross domestic product (GDP), increased from 0.32% in 1990 to 0.67% in 2002, (2) the fraction of R & D in the total expenditure for technological innovation increased from 6.6% in 1995-1997 to 29.2% in 1998-2000, and (3) the number of papers in the journals covered in the Science Citation Index (SCI) of the Institute for Scientific Information (ISI) increased from 464 in 1983 to 12160 in 2003 - a more than 26-fold increase in the last two decades.

Keywords: Energy, Manufacturing-Industries

Ball, R. and Tunger, D. (2006), Bibliometric analysis - A new business area for information professionals in libraries? *Scientometrics*, **66** (3), 561-577.

Full Text: [2006\Scientometrics66, 561.pdf](2006/Scientometrics66,%20561.pdf)

Abstract: Supplying library users with literature by a seamless linking of media is the goal of (scientific) libraries. By the digitization of primary and secondary data and the convergence of products and providers, libraries have already come very close to achieving this ideal. A digital library is the realization of this goal. However, many librarians are in danger of running out of imagination. What will come after the digital library? Will information professionals still be needed? What services can libraries offer? Bibliometric analysis is an example of new business areas in libraries. This paper will discuss what shape this service could take in practice, who needs it and what target groups exist in the scientific environment. Concrete examples of bibliometric analysis from the Central Library of Research Centre Julich will round off the overview.

Süssmuth, B., Steininger, M. and Ghio, S. (2006), Towards a European economics of economics: Monitoring a decade of top research and providing some explanation. *Scientometrics*, **66** (3), 579-612.

Full Text: [2006\Scientometrics66, 579.pdf](2006/Scientometrics66,%20579.pdf)

Abstract: This study documents a decade of mainstream research output by European economics institutions. In contrast to previous European economics departmental rankings, we investigate the changing pattern of the ranking over two subperiods and a total decade. The validity of our bibliometric approach is demonstrated by a comparison with gradings of UK economic departments in the 2001 Research Assessment Exercise (RAE). We also provide some explanation of the ranking based on regional factors and institutional features. Strong evidence for the ‘institutional oligopoly’ of editors and authors hypothesis is found. However, in a dynamic context this departmental concentration of authorship and editorial board membership does not represent a ‘closed shop’. We find several departments entering the centre stage of economic mainstream for the first time towards the end of the 1990s.

Keywords: Authors, Core Journals, Journal Gatekeepers, Ourselves, Ranking, UK

Jin, B.H., Rousseau, R. and Sun, X.X. (2006), Key Labs and Open Labs in the Chinese scientific research system: Their role in the national and international scientific arena. *Scientometrics*, **67** (1), 3-14.

Full Text: [2006\Scientometrics67, 3.pdf](2006/Scientometrics67,%203.pdf)

Abstract: Chinese science has developed rapidly over the latest fifteen years. It is said that it is now in a quantitative expansion phase. A series of programmes extending over a period of twenty years has resulted in more than 160 Key Labs and nearly 400 Open Labs at present. The organization and evaluation of this system of labs is one of the strategic measures for scientific resource reorganization in China. The role played by these labs is analysed in this article using data front the Chinese Science Citation Database (CSCD) and the Science Citation Index (SCI). Nowadays almost one quarter of all internationally oriented Chinese publications originate front these labs. The same is true for citations received by Chinese scientists in the SCI. Comparisons between SCI-based and CSCD-based performance results show that the relative academic impact of Key Labs and Open Labs is more international than domestic. Key Labs have a higher total production and receive more citations than Open Labs. Yet their impact, measured as citations per publication, is very similar. We conclude that when it comes to impact on the international scene, these labs have not yet led to a big step forward for Chinese science as a whole. The fact that in the year 2004 a new evaluation procedure has been put in place means that the Chinese scientific authorities have recognized this fact and are dealing with it.

Keywords: Journals, Science

Hargens, L.L. and Herting, J.R. (2006), Analyzing the association between referees’ recommendations and editors’ decisions. *Scientometrics*, **67** (1), 15-26.

Full Text: [2006\Scientometrics67, 15.pdf](2006/Scientometrics67,%2015.pdf)

Abstract: We use a method that captures the intrinsic metrics of variables in a cross-tabulation to analyze data on the association between referee recommendations and editorial decisions at two scholarly journals. The method enables researchers to (1) determine the number of latent dimensions needed to account for this association, and (2) estimate scale values for both the referee-recommendation and the editorial-decision categories. We show that one latent dimension is sufficient to account for the association at each journal, and that both referee-recommendation categories and editorial-decision categories have scale values on the dimension that are consistent with their ostensible meanings.

Keywords: Cross-Classified Data, Manuscript, Models

Lazega, E., Mounier, L., Jourda, M.T. and Stofer, R.L. (2006), Organizational vs. personal social capital in scientists’ performance: A multi-level network study of elite French cancer researchers (1996-1998). *Scientometrics*, **67** (1), 27-44.

Full Text: [2006\Scientometrics67, 27.pdf](2006/Scientometrics67,%2027.pdf)

Abstract: the difference between individual social capital and organizational (or corporate) social capital has been an important topic of research in sociology during the past decade. The existence of this difference between two forms of social capital evokes an old question in a new manner what matters most in explaining individual actors’ performance? Is it personal social or collective resources provided by the organization to which the individuals belong and in which they work? In this paper we provide a preliminary answer to this question based on a multi-level network study of the top ‘elites’ in French cancer research during 1996-1998. By multi-level we mean that we reconstituted both the inter-organizational networks of exchange between most French laboratories carrying out cancer research in 1999; simultaneously, we reconstituted key social networks of the top individual elites in cancer research in France during that same year. Given our ‘linked design’ (i.e., knowing to which laboratory each researcher belongs), we were able to disentangle the effects of structural properties of the laboratory front the effects of characteristics of the individual researcher (including structural ones) on the latter’s performance. Performance was measured by a score based on the impact factor of the journal in which each researcher published. Our results show that organizational social capital matters more, and more consistently, than individual relational capital in explaining variations in performance by French top cancer researchers.

Keywords: Productivity, Science

Buela-Casal, G., Perakakis, P., Taylor, M. and Checa, P. (2006), Measuring internationality: Reflections and perspectives on academic journals. *Scientometrics*, **67** (1), 45-65.

Full Text: [2006\Scientometrics67, 45.pdf](2006/Scientometrics67,%2045.pdf)

Abstract: Internationality as a concept is being applied ambiguously, particularly in the world of academic journal publication. Although different criteria are used by scientometrists in order to measure internationality and to supplement its minimal literal meaning, the present study suggests that no single criterion alone is sufficient. This paper surveys, critically-assesses and extends the existing measures of internationality in the context of academic publishing and identifies those criteria that are most clearly resolved and amenable to quantitative analysis. When applied, however, to a case study of four thematically-connected journals from the field of Health and Clinical Psychology using descriptive statistics and the Gini Coefficient, the measurement of internationality using these criteria was found to be ambiguous. We conclude that internationality is best viewed as a mathematically fuzzy entity and that a single measure Internationality Index, constructed from a combination of suitably weighted criteria, is the only way to unambiguously quantify the degree of internationality.

Keywords: Bibliometric Analysis, Citations, Impact Factor, Patterns, Psychology Journals, Publication, Research Collaboration, Scientific Journals, Spanish, Universities

Glänzel, W., Leta, J. and Thijs, B. (2006), Science in Brazil. Part 1: A macro-level comparative study. *Scientometrics*, **67** (1), 67-86.

Full Text: [2006\Scientometrics67, 67.pdf](2006/Scientometrics67,%2067.pdf)

Abstract: In the present paper, the evolution of publication activity and citation impact in Brazil is studied for the period 1991-2003. Besides the analysis of trends in publication and citation patterns and of national publication profiles, an attempt is made to find statistical evidences of the relation between international co-authorship and both research profile and citation impact in the Latin American region. Despite similarities and strong co-publication links with the other countries in the region, Brazil has nonetheless a specific research profile, and forms the largest potential in the region.

Keywords: Author Self-Citations, British Science, Collaboration, Countries, Decline, Fields, Indicators, Visibility

Leta, J., Glänzel, W. and Thijs, B. (2006), Science in Brazil. Part 2: Sectoral and institutional research profiles. *Scientometrics*, **67** (1), 87-105.

Full Text: [2006\Scientometrics67, 87.pdf](2006/Scientometrics67,%2087.pdf)

Abstract: In the present study a bibliometric meso-level analysis of Brazilian scientific research is conducted. Both sectoral and publication profile of Brazilian universities and research institutions are studied. Publication dynamics and changing profiles allow to the conclusion that powerful growth of science in Brazil goes with striking structural changes. By contrast, citation-based indicators reflect less spectacular developments.

Keywords: Industry-Government Relations

Izsak, J. (2006), Some practical aspects of fitting and testing the Zipf-Mandelbrot model - A short essay. *Scientometrics*, **67** (1), 107-120.

Full Text: [2006\Scientometrics67, 107.pdf](2006/Scientometrics67,%20107.pdf)

Abstract: the standardization of distribution fitting procedures is recommended also in informetrics. We examined the possibility of that standardization when fitting the Zipf-Mandelbrot (ZM) distribution. After propositions of possible steps of standardization, we stress the unique role of maximum likelihood estimates concerning the chi-square goodness-of-fit tests. We touch upon the possible correlation between the parameters of the ZM distribution. A numerical example demonstrates the method and the results.

Keywords: Distributions, Diversity, Laws, Maximum-Likelihood, Species Abundance

Hemlin, S. (2006), Creative knowledge environments for research groups in biotechnology. The influence of leadership and organizational support in universities and business companies. *Scientometrics*, **67** (1), 121-142.

Full Text: [2006\Scientometrics67, 121.pdf](2006/Scientometrics67,%20121.pdf)

Abstract: This study analysed how leadership and organizational support (LOS) influences creative knowledge environments for research groups in biotechnology. A questionnaire distributed to 90 (97% responding) university and business company researchers resulted in that leadership was rated higher than organizational support. First, leaders were more important to creativity than organizational support. Secondly, LOS differed to a limited extent between members and leaders, universities and business companies and excellent and less excellent groups. Thirdly. working freedom was rated higher in universities than in business companies. Fourthly, group members perceived they were more encouraged to think freely in comparison to their group leaders. Finally, innovation goals were more pronounced in excellent than less excellent groups.

Keywords: Group Innovation, Team Climate Inventory

Schildt, H.A. and Mattsson, J.T. (2006), A dense network sub-grouping algorithm for co-citation analysis and its implementation in the software tool Sitkis. *Scientometrics*, **67** (1), 143-163.

Full Text: [2006\Scientometrics67, 143.pdf](2006/Scientometrics67,%20143.pdf)

Abstract: Clustering algorithms are used prominently in co-citation analysis by analysts aiming to reveal research streams within a field. However, clustering of widely cited articles is not robust to small variations in citation patterns. We propose an alternative algorithm, dense network sub-grouping, which identifies dense groups of co-cited references. We demonstrate the algorithm using a data set from the field of family business research and compare it to two alternative methods, multidimensional scaling and clustering. We also introduce a free software tool, Sitkis. that implements the algorithm and other common bibliometric methods. The software identifies journal-, country- and university-specific citation patterns and co-citation groups, enabling the identification of ‘invisible colleges.’.

Keywords: Articles, Bibliometrics, Economics, Entrepreneurship, Indicators, Journals, Scholars, Science, Strategic Management Research, Word Analysis

Rousseau, R. (2006), Measurement and statistics on science and technology. 1920 to the present. *Scientometrics*, **67** (1), 165-166

Full Text: [2006\Scientometrics67, 165.pdf](2006/Scientometrics67,%20165.pdf)

Rousseau, R. and Rousseau, S. (2006), Remarks concerning the Liberman-Wolf bonding number. *Scientometrics*, **67** (2), 167-173.

Full Text: [2006\Scientometrics67, 167.pdf](2006/Scientometrics67,%20167.pdf)

Abstract: the Libernian-Wolf bonding number can not be considered as an acceptable measure for the internal bonding of a research group or community. This is shown by a construction where adding the same number of articles with the same number of co-authors to two existing groups (with a given number of articles with one or two collaborators) reverses the original order in these groups’ bonding numbers.

Keywords: Collaboration

Dang, Y. (2006), Fluctuation analysis of discipline development based on impact factor. *Scientometrics*, **67** (2), 175-186.

Full Text: [2006\Scientometrics67, 175.pdf](2006/Scientometrics67,%20175.pdf)

Abstract: Based on the impact factors of the journals recorded by JCR from 1998 to 2003, this paper established the fluctuation model for discipline development. According to the Fluctuation Strength Coefficient, then we gave analysis and evaluation of developing trends of the disciplines in recent years.

Melo, A.S., Bini, L.M. and Carvalho, P. (2006), Brazilian articles in international journals on limnology. *Scientometrics*, **67** (2), 187-199.

Full Text: [2006\Scientometrics67, 187.pdf](2006/Scientometrics67,%20187.pdf)

Abstract: We assessed the contribution of Brazilian limnologists (freshwater ecologists) in international journals in the period 1970-2004. Brazilian contribution was low and regular in the 1970’s, but increased steeply after 1980 with no signs of stabilization until the present. Articles authored by Brazilians tend to be less cited than articles authored by non-Brazilians, although this difference is reduced in co-authored articles with international researchers. Brazilian articles are not distributed homogenously among the sub-areas of Limnology, but present some biases that can be explained by intellectual legacy. Brazil has invested since the 1970’s in establishing postgraduate courses in Brazil and in the last years has turned the focus to a better qualification of these courses. We believe these are the main reasons for the conspicuous development of Brazilian Limnology.

Keywords: Human-Resources, Impact, Period, Publications, Science

Yu, G., Guo, R. and Yu, D.R. (2006), The influence of the publication delay on journal rankings according to the impact factor. *Scientometrics*, **67** (2), 201-211.

Full Text: [2006\Scientometrics67, 201.pdf](2006/Scientometrics67,%20201.pdf)

Abstract: the inter-citation journal group is defined as a group of journals with inter-citation relations. In this paper, according to the 2003 JCR, an inter-citation relation matrix of 10 medical journals is established. Based on the transfer function model of the disturbed citing process, the calculation formula of journal impact factor disturbed by publication delays of certain journal in the group is deduced and a changing process of every journal’s impact factor caused by the increase of each journal’s average publication delay is simulated. In the inter-citation journal group, when a journal’s publication delay increase, impact factors of all journals will be decreased and rankings of journals according to the impact factor may be changed. The closer a citation relation between two journals, the stronger the interaction of them and the larger the decrease of their impact factors caused by the increase of their publication delays.

Keywords: Literature Publishing Process

García-Aracil, A., Gracia, A.G. and Pérez-Marín, M. (2006), Analysis of the evaluation process of the research performance: An empirical case. *Scientometrics*, **67** (2), 213-230.

Full Text: [2006\Scientometrics67, 213.pdf](2006/Scientometrics67,%20213.pdf)

Abstract: In this paper we analyze the objectivity of the peer review process of research performance by research groups in the scientific and technological Valencian system, over the period 1998-2002. for that purpose, we use qualitative and quantitative indicators to assess which of them are the most important to determine a research group as excellent one, based on peer review evaluation methodology. The results show that excellence appears to be driven only by publications in SCI, SSCI and the number of sexenios, and suggest that the peer review process is not as objective as we expected.

Keywords: Academic Research, Impact, Innovation, Knowledge, Research Assessment Exercise, Research Productivity, Science, Scientific Excellence, System, UK

Leydesdorff, L. and Hellsten, I. (2006), Measuring the meaning of words in contexts: An automated analysis of controversies about ‘Monarch butterflies,’ ‘Frankenfoods,’ and ‘stem cells’. *Scientometrics*, **67** (2), 231-258.

Full Text: [2006\Scientometrics67, 231.pdf](2006/Scientometrics67,%20231.pdf)

Abstract: Co-words have been considered as carriers of meaning across different domains in studies of science, technology, and society. Words and co-words, however, obtain meaning in sentences, and sentences obtain meaning in their contexts of use. At the science, society interface, words can be expected to have different meanings: the codes of communication that provide meaning to words differ on the varying sides of the interface. Furthermore, meanings and interfaces may change over time. Given this structuring of meaning across interfaces and over time, we distinguish between metaphors and diaphors as reflexive mechanisms that facilitate the translation between contexts. Our empirical focus is on three recent scientific controversies: Monarch butterflies, Frankenfoods, and stem-cell therapies. This study explores new avenues that relate the study of co-word analysis in context with the sociological quest for the analysis and processing of meaning.

Keywords: Chemistry, Co-Words, Dynamics, Indicators, Knowledge, Metaphors, Model, Networks, Science, Similarity Measures

Glänzel, W., Debackere, K., Thijs, B. and Schubert, A. (2006), A concise review on the role of author self-citations in information science, bibliometrics and science policy. *Scientometrics*, **67** (2), 263-277.

Full Text: [2006\Scientometrics67, 263.pdf](2006/Scientometrics67,%20263.pdf)

Abstract: the objective of the present study is twofold: (I) to show the aims and means of quantitative interpretation of bibliographic features in bibliometrics and their re-interpretation in research policy, and (2) to summarise the state-of-art in self-citation research. The authors describe three approaches to the role of author self-citations and possible conflicts arising from the different perspectives. From the bibliometric viewpoint we can conclude that that there is no reason for condemning self-citations in general or for removing them from macro or meso statistics; supplementary indicators based on self-citations are, nonetheless, useful to understand communication patterns.

Keywords: Indicators, Macro, Scientific Literature

Nelson, M.J. (2006), Visualization of citation patterns of some Canadian journals. *Scientometrics*, **67** (2), 279-289.

Full Text: [2006\Scientometrics67, 279.pdf](2006/Scientometrics67,%20279.pdf)

Abstract: In order to easily see the citation patterns of a journal or subject area it is very useful to use a graphical diagram to visualize all the connections between journals. Using data derived from the Journal Citation Reports, this study investigates the visualization of citation patterns for three Canadian journals in three different subject areas: library and information science, psychology and mathematics.

Vaughan, L., Gao, Y.J. and Kipp, M. (2006), Why are hyperlinks to business Websites created? A content analysis. *Scientometrics*, **67** (2), 291-300.

Full Text: [2006\Scientometrics67, 291.pdf](2006/Scientometrics67,%20291.pdf)

Abstract: Motivations for the creation of hyperlinks to business sites were analyzed through a content analysis approach. Links to 280 North American IT companies (71 Canadian companies and 209 U.S. companies) were searched through Yahoo!. Then a random sample of 808 links was taken from the links retrieved. The content as well as the context of each link was manually examined to determine why the link was created. The country location and the type of the site where the link came from were also identified. The study found that most links were created for business purposes confirming findings from early quantitative studies that links contain useful business information. Links to competitors were extremely rare but competitors were often co-linked, suggesting that co-link analysis is the direction to pursue for information on competitive intelligence.

Keywords: Impact, Information, Links, Web

Wolfram, D. (2006), Applications of SQL for informetric frequency distribution processing. *Scientometrics*, **67** (2), 301-313.

Full Text: [2006\Scientometrics67, 301.pdf](2006/Scientometrics67,%20301.pdf)

Abstract: Many informetric data types lend themselves to ready adaptation to relational DBMS environments for storage and processing. SQL, the standard language used for constructing and querying relational databases, provides useful tools for processing informetric data. The author demonstrates the applications and some limitations of SQL for efficient organization and tabulation of raw informetric data.

Glänzel, W. (2006), On the h-Index - A mathematical approach to a new measure of publication activity and citation impact. *Scientometrics*, **67** (2), 315-321

Full Text: [2006\Scientometrics67, 315.pdf](2006/Scientometrics67,%20315.pdf)

Keywords: Citation, h Index, h-Index, Impact, Publication, Publication Activity, Ranking, Scientists

Burrell, Q.L. (2006), The use of Lotka functions and systematic sampling. *Scientometrics*, **67** (2), 323-325

Full Text: [2006\Scientometrics67, 323.pdf](2006/Scientometrics67,%20323.pdf)

Keywords: Law

? Suárez-Balseiro, C., Sanz-Casado, E. and Ortiz-Rivera, L. (2006), Patterns of international scientific co-operation in Puerto Rico. *Scientometrics*, **67** (3), 335-350.

Abstract: Scientific activity has been increasing in Puerto Rico in recent years, a development mirrored not only by the amount of papers published, but by the international links established for scientific co-operation. The purpose of the present study is to identify and discuss the patterns of such cooperation, along with the trends in scientific research conducted in that context at Puerto Rican institutions. The methodology includes an analysis of the main areas of research addressed, defined as the area of specialization of the journals publishing papers indexed in the Science Citation Index (CD-ROM version) from 1980 to 1999. A total of 7271 studies, appearing ill 1240 scientific journals, were selected to study the co-operation established between Puerto Rican institutions and organizations in other countries. The findings showed a high rate of international co-operation: 46.07% of the papers published were co-authored by researchers from other countries. The country accounting for the highest percentage of joint research was the USA, followed by Germany, United Kingdom, Canada and Italy. The close relationship between the Puerto Rican and US scientific systems is not unusual, inasmuch as the economic and sociopolitical bonds between them play an essential role in Puerto Rican scientific activity. The results also revealed substantial differences between the nineteen eighties and the nineties in terms, of the nature of the links established, as well as growing internationalization of scientific research conducted on the island over the twenty-year period studied.

Keywords: Co-Authorship, Journals, Link Indicator, Profiles, Research Collaboration, Science, Small Country, Time

Wetterer, J.K. (2006), Quotation error, citation copying, and ant extinctions in Madeira. *Scientometrics*, **67** (3), 351-372.

Full Text: [2006\Scientometrics67, 351.pdf](2006/Scientometrics67,%20351.pdf)

Abstract: Many authors have written about how exotic ants invaded the Atlantic islands of Madeira and negatively impacted or even completely exterminated its native ants, despite the lack of first hand observations concerning such impact. I examine how quotation error (misrepresentation of previous work) and citation copying (citing unexamined publications referred to by others) led to the origin and spread of the erroneous story of ant extinctions in Madeira. Quotation error and citation copying may be more common than most scientists realize, particularly when authors cite references that are written in languages they do not understand.

Keywords: Argentine, Articles, Authors, Citation, Error, First, Formicidae, Hymenoptera, Impact, Iridomyrmex-Humilis, Island, Languages, Origin, Ortega-Hypothesis, Pheidole-Megacephala, Publications, Quotation, Quotation Error, References, Work

Thelwall, M., Barjak, F. and Kretschmer, H. (2006), Web links and gender in science: An exploratory analysis. *Scientometrics*, **67** (3), 373-383.

Full Text: [2006\Scientometrics67, 373.pdf](2006/Scientometrics67,%20373.pdf)

Abstract: Gender inequalities are prevalent in science despite many initiatives to try to eradicate them. Given the deep-rooted and complex nature of these inequalities there is a continuing need for research into their causes and manifestations. This study analyses one aspect of web communication, hyperlinks, to explore whether they are a potential source of insights into gender differences in this important scientific communication medium. A study of links to life sciences research groups in nine European found little evidence of gender differences, except in Germany. As a consequence, it is argued that hyperlinks are not a promising source of quantitative information about gender differences in communication strategies or online visibility, at least for senior researchers or research groups.

Keywords: Computer-Mediated Communication, Impact Factors, Scientists, Site Interlinking, Women

Robert, C., Wilson, C.S., Gaudy, J.F. and Arreto, C.D. (2006), A snapshot of EU publications in sleep research: A scientometric survey. *Scientometrics*, **67** (3), 385-405.

Full Text: [2006\Scientometrics67, 385.pdf](2006/Scientometrics67,%20385.pdf)

Abstract: A bibliometric analysis of the literature covering a one-year period (2003) was performed it) evaluate the number of scientific publications on sleep and its distribution among the European Union countries. 912 articles appearing in Life Sciences and Clinical Medicine journals indexed in the Institute for Scientific Information databases were downloaded. These articles were authored by EU researchers; Germany, the United Kingdom, France, and Italy rank at the top of the EU countries. The output distribution of the most productive EU countries are also presented and discussed. Despite the limitations of the methods used, the present results give all interesting snapshot of the EU publishing behavior in sleep research.

Keywords: Adults, Consequences, European-Union, Journals

Rivellini, G., Rizzi, E. and Zaccarin, S. (2006), The science network in Italian population research: An analysis according to the social network perspective. *Scientometrics*, **67** (3), 407-418.

Full Text: [2006\Scientometrics67, 407.pdf](2006/Scientometrics67,%20407.pdf)

Abstract: the scientific community organises its relationships into network patterns, where the nodes are individuals (scientists) and the links are acquaintance and common work, usually presented at workshops and conferences and, or published in books and scientific journals. A references review on Population Studies by Italian scientists is delivered every two years by the Demography Section of the Italian Statistical Society; the review is exhaustive for academic demographers. In this paper, the properties of the demographers’ network in 1998-1999 are evaluated. with the aim of identifying factors which may influence collaborative relations among actors. The probability of cooperation between couples (dyads) of demographers is modelled, conditionally oil observed characteristics of the dyad (sex, academic position, university affiliation). Main results suggest that ‘closeness’, defined in a wider sense and not simply as geographical proximity, plays a major role in determining actors’ relationships.

Keywords: Patterns

Notes: UUniversity

Huang, M.H., Chang, H.W. and Chen, D.Z. (2006), Research evaluation of research-oriented universities in Taiwan from 1993 to 2003. *Scientometrics*, **67** (3), 419-435.

Full Text: [2006\Scientometrics67, 419.pdf](2006/Scientometrics67,%20419.pdf)

Abstract: Publications have been regarded as the most significant output indicating the research performance of universities. This paper uses ISI Essential Science Indicators (ESI) database to investigate the academic performance of research-oriented universities in Taiwan, adopting the bibliometric method from both quantitative and qualitative perspectives. The data cover the time span for 11 years from 1993 to 2003. The performance indicators applied in this study includes the number of papers, the number of citations, the average citations per paper, the number of highly cited papers, the number of hot papers, and the number of top papers. The research performance and the strength of those universities are revealed in this study, and it is found that National Taiwan University leads among these universities though each university still shows strengths in various specific fields.

Keywords: Bibliometric Methods, Departments Research, Highly Cited Papers, Indicators, Publications, Research Performance

Atallah, G. and Rodriguez, G. (2006), Indirect patent citations. *Scientometrics*, **67** (3), 437-465.

Full Text: [2006\Scientometrics67, 437.pdf](2006/Scientometrics67,%20437.pdf)

Abstract: Patent citations are extensively used as a measure of patent quality. However, counting citations does not account for the fact that citations come from patents of different qualities, and that citations are of variable qualities. We develop a citation index which takes into account the cumulative quality of the citing patents. We apply this index to the 2,139,314 utility patents granted in the U.S. between 1975 and 1999. We study the properties of this index by year and by technological category, and analyse the links between patents.

Keywords: Indicators, Maximum-Likelihood Methods, Models

Kumari, L. (2006), Trends in synthetic organic chemistry research. Cross-country comparison of Activity Index. *Scientometrics*, **67** (3), 467-476.

Full Text: [2006\Scientometrics67, 467.pdf](2006/Scientometrics67,%20467.pdf)

Abstract: Chemistry is accepted as the central science since it encompasses the great divide between Physics and Biology with linkages to many othert disciplines. But recent emergence of other interdisciplinary sciences likes biomedicine, molecular biology, biotechnology etc. are overshadowing chemical research. Still one of the subfields of chemistry, Synthetic Organic Chemistry (SOC) retained its importance as it is a part of new drug discovery and is the basis of bulk of chemical industry. Scientometric evaluation of world’s research output in Synthetic Organic Chemistry has been quantified for two periods spans 1989-1993 and 1998-2003. The global trends in publication output are mapped and a cross-country comparison of the relative activity in the subspecialty is examined. The Activity Index trend reveals that though quantitatively USA, Japan and European nations produce more publications, their Activity Index recorded a declining trend and leads to the conclusion that these nations are shifting their interest towards other emerging specialties. Asian countries, having recorded a linear increase in tile Activity Index show that synthetic organic chemistry is still their priority.

Keywords: Indicators, Physics, Universities

Notes: TTopic

Patra, S.K. and Mishra, S. (2006), Bibliometric study of bioinformatics literature. *Scientometrics*, **67** (3), 477-489.

Full Text: [2006\Scientometrics67, 477.pdf](2006/Scientometrics67,%20477.pdf)

Abstract: Bioinformatics is a multidisciplinary and comparatively new area of science that has made a significant impact within a short period. A systematic analysis of the rise in bioinformatics literature is, however, not available. This study analyses the growth of the scientific literature in this area as available from NCBI PubMed using standard bibliometric techniques. Bradford’s law of scattering was used to identify core journals and Lotka’s law employed to analyze author’s productivity pattern. Study also explored publication type, language and the Country of publication. Twenty core journals were identified and the primary mode of dissemination of information was through journal articles. Authors with single publication were more predominant (73.58%) contrary to that predicted by Lotka’s law. The study provides useful information to scientists wishing to undertake work in this area.

Keywords: Lotkas Law, Science, Scientific Productivity

Notes: highly cited

Van Raan, A.F.J. (2006), Comparison of the Hirsch-Index with standard bibliometric indicators and with peer judgment for 147 chemistry research groups. *Scientometrics*, **67** (3), 491-502.

Full Text: [2006\Scientometrics67, 491.pdf](2006/Scientometrics67,%20491.pdf)

Abstract: In this paper we present characteristics of the statistical correlation between the Hirsch (h-) index and several standard bibliometric indicators, as well as with the results of peer review judgment. We use the results of a large evaluation study of 147 university chemistry research groups in the Netherlands covering the work of about 700 senior researchers during the period 1991-2000. Thus, we deal with research groups rather than individual scientists, as we consider the research group as the most important work floor unit in research, particularly in the natural sciences. Furthermore, we restrict the citation period to a three-year window instead of ‘life time counts’ in order to focus on the impact of recent work and thus on current research performance. Results show that the h-Index and our bibliometric ‘crown indicator’ both relate in a quite comparable way with peer judgments. But for smaller groups in fields with ‘less heavy citation traffic’ the crown indicator appears to be a more appropriate measure of research performance.

Keywords: Bibliometric, Bibliometric Indicators, Characteristics, Chemistry, Citation, Evaluation, h Index, h-Index, Hirsch, Hirsch Index, Impact, Indicator, Indicators, Life, Peer Review, Peer-Review, Ranking, Research, Research Performance, Review, Sciences, Scientists, Standard, the Netherlands, Traffic, University, Work

Schubert, A., Glänzel, W. and Thijs, B. (2006), The weight of author self-citations. A fractional approach to self-citation counting. *Scientometrics*, **67** (3), 503-514.

Full Text: [2006\Scientometrics67, 503.pdf](2006/Scientometrics67,%20503.pdf)

Abstract: the discussion about how to treat author self-citations driven by policy application and quality measurement intensified in the last years. The definition introduced by Snyder and Bonzi has - in lack of any reasonable alternative - been used in bibliometric practice for science policy purposes. This method, however, does not take into account the weight of self-citing authors among coauthors of both the cited and citing papers. The objective of the present paper is to quantify the weight of self-citations with respect to co-authorship. The analysis is conducted at two levels: at the macro level, namely, for fifteen subject fields and the most active forty countries, and at the meso level, for a set of selected research institutions.

Keywords: Science

Mika, P., Elfring, T. and Groenewegen, P. (2006), Application of semantic technology for social network analysis in the sciences. *Scientometrics*, **68** (1), 3-27.

Full Text: [2006\Scientometrics68, 3.pdf](2006/Scientometrics68,%203.pdf)

Abstract: the use of electronic data is steadily gaining ground in the study of the social organization of scientific and research communities, decreasing the researcher’s reliance on commercial databases of bibliographic entries, patents grants and other manually constructed records of scientific works. In our work we provide a methodological innovation based on semantic technology for dealing with heterogeneity in electronic data sources. We demonstrate the use of our electronic system for data collection and aggregation through a study of the Semantic Web research community. Using methods of network analysis, we confirm the effect of Structural Holes and provide novel explanations of scientific performance based on cognitive diversity in social networks.

Keywords: Aggregation, Analysis, Collaboration, Communities, Community, Data Collection, Diversity, Heterogeneity, Network, Network Analysis, Organization, Performance, Research, Social Network, Social Networks, Web

Gupta, V.K. (2006), References to literature in patent documents: A case study of CSIR in India. *Scientometrics*, **68** (1), 29-40.

Full Text: [2006\Scientometrics68, 29.pdf](2006/Scientometrics68,%2029.pdf)

Abstract: the paper examines the use of references by applicants and the examiners in US patent documents by R&D scientists from CSIR in India. It observes that scientists in CSIR use higher inputs of scientific information than the technical information in patenting. The examiners do make their own prior art search and add significantly to the patent and non-patent literature, which is distinctly different from the references given by the R&D scientists from CSIR. It identifies (a) the major disciplines and the sub-disciplines that contribute most of the scientific knowledge, and (b) the countries from where most references to patent literature are made. The applicants cite relatively less recent patent literature and more medium-term patent literature in comparison to citations by examiners. The paper observes that there is scope of improvement in making relevant prior art search, particularly, for patent literature by R&D scientists and in planning and organizing the information support for conducting patentable R&D in CSIR.

Keywords: India, Knowledge, Linkage, Literature, Planning, Recent, Science, Technology, US

Cozzarin, B.P. (2006), Performance measures for the socio-economic impact of government spending on R&D. *Scientometrics*, **68** (1), 41-71.

Full Text: [2006\Scientometrics68, 41.pdf](2006/Scientometrics68,%2041.pdf)

Abstract: the aims of this paper are to summarize Canadian government programs pertaining to research and development (R&D) and R&D support programs, and to propose a method for analyzing their socio-economic impact. The programs under investigation include: Canada Research Chairs Canada Millennium Scholarship Foundation Canada Foundation for Innovation Technology Partnerships Canada (TPC) Industrial Research Assistance Program (IRAP) Natural Sciences and Engineering Research Council (NSERC) Social Sciences and Humanities Research Council (SSHRC) Canada Institutes of Health Research (CIHR) Canadian Institute of Advanced Research (CIAR) Pre-Competitive Advanced Research Networks (PRECARN) Networks of Centres of Excellence.

Keywords: Basic Research, Canada, Development, Diffusion, Economics, Impact, Innovation, Method, Productivity Increase, Research, Returns, Science, Socioeconomic, Sponsored Research, Technical Change, Technology Policy

Skilton, P.F. (2006), A comparative study of communal practice: Assessing the effects of taken-for-granted-ness on citation practice in scientific communities. *Scientometrics*, **68** (1), 73-96.

Full Text: [2006\Scientometrics68, 73.pdf](2006/Scientometrics68,%2073.pdf)

Abstract: Building on the findings of recent ethnographic studies of scientific practice, I develop and test theory about the impact of taken-for-granted-ness on citation practice in scientific communities. Using data gathered from special issues of scientific journals I find support for the hypothesized differences in the practices of natural and social science communities. Post hoc analysis uncovers evidence of a third pattern of citation practice associated in part with engineering and technology research, and evidence that organization studies and strategic management communities tend to employ extreme versions of social science citation practices. I discuss the implications of the study for our understanding of communities of practice, for our beliefs about differences between the branches of science, and about science as a productive enterprise.

Keywords: Academic Publication, Advance, Analysis, Barriers, Beliefs, Communities, Effects, Evidence, Impact, Knowledge, Management, Organization, Organizational Science, Pattern, Recent, Research, Theory

Notes: CCountry

Molatudi, M. and Pouris, A. (2006), Assessing the knowledge base for biotechnology in South Africa: A bibliometric analysis of South African microbiology and molecular biology and genetics research. *Scientometrics*, **68** (1), 97-108.

Full Text: [2006\Scientometrics68, 97.pdf](2006/Scientometrics68,%2097.pdf)

Abstract: We review the knowledge base for biotechnology in South Africa in the light of government interventions aimed at establishing a biotechnology industry. We use bibliometric methods to analyse data from the ISI database on the performance of microbiology, genetics and molecular biology research over a 20-year period from 1980 to 2000. Genetics and molecular biology publications have seen a steady decline while microbiology has steadily increased its share of world publications. Although the quantity of the base is small the relative impact factor suggests that the quality of publications in these disciplines is comparable to world output. We conclude that the lack of adequate output in these disciplines poses a threat to government policies and investment aimed at increasing biotechnology commercialisation.

Keywords: Africa, Analysis, Genetics, Impact, Interventions, Knowledge, Light, Performance, Quality, Research, Review, Science, South Africa

Godin, B. (2006), On the origins of bibliometrics. *Scientometrics*, **68** (1), 109-133.

Full Text: [2006\Scientometrics68, 109.pdf](2006/Scientometrics68,%20109.pdf)

Abstract: Among the many statistics on science, called scientometrics, bibliometrics holds a privileged place. Bibliometrics is one of the few subfields concerned with measuring the output side of science. According to most ‘histories’, bibliometrics owes its systematic development mainly to D.J.D. Price and Eugene Garfield, as founders. The few works conducted before the 1950s are usually relegated to prehistory. This paper documents how the systematic counting of publications originated with psychologists. In the early 1900s, psychologists began collecting statistics on their discipline. Publications came to be counted in addresses, reviews and histories of psychology for several decades. The aim was to contribute to the advancement of psychology. Far from being a negligible output of a prehistoric type, both the volume and the systematicness of these efforts are witnesses to what should be considered as pioneering work, and their authors considered as forerunners to bibliometrics.

Keywords: Age, American-Psychological-Association, Articles, Development, Different Languages, Number, Performance, Psychology, Science, Scientific Productivity, Statistics, United-States, Vital-Statistics

Cheng, Y. and Liu, N.C. (2006), A first approach to the classification of the top 500 world universities by their disciplinary characteristics using scientometrics. *Scientometrics*, **68** (1), 135-150.

Full Text: [2006\Scientometrics68, 135.pdf](2006/Scientometrics68,%20135.pdf)

Abstract: In this study, the top 500 world universities are classified into 21 types according to their disciplinary characteristics using clustering method. The indicators used to represent the disciplinary characteristics of an institution are the proportion of publications in six broader disciplinary areas: Arts/Humanities & Social Sciences, Natural Sciences & Mathematics, Engineering/Technology & Computer Sciences, Life Sciences, Clinical Medicine, and Interdisciplinary & Multidisciplinary Sciences. Institutions have been classified into types of having focus in a disciplinary group, having priority in a disciplinary group, having orientation in a disciplinary group, and balanced. The distribution of different types of institutions with respect to countries and ranks are analyzed.

Keywords: Classification, Clustering, Distribution, Indicators, Method

Garg, K.C., Kumar, S. and Lal, K. (2006), Scientometric profile of Indian agricultural research as seen through Science Citation Index Expanded. *Scientometrics*, **68** (1), 151-166.

Full Text: [2006\Scientometrics68, 151.pdf](2006/Scientometrics68,%20151.pdf)

Abstract: An analysis of 16891 publications published by Indian scientists during 1993-2002 and indexed by Science Citation Index Expanded (Web of Science) indicates that the publication output in the agricultural sciences is on the decline since 1998 onwards. ‘Dairy and animal sciences’ followed by ‘veterinary sciences’ constitute the largest component of the Indian agricultural research output. Agricultural universities and institutes under the aegis of Indian Council of Agricultural Research (ICAR) are the major producers of research output. Most of the papers have been published in domestic journals and in low normalized impact factor journals with a low rate of citation per paper. Most of the highly productive institutions are either agricultural universities or the institutes under the aegis of ICAR. Most of the prolific authors are from the highly productive institutions. However, only a few highly cited authors are from highly productive institutions.

Keywords: Analysis, Impact, Research

Liu, Y., Cheng, G.P. and Yang, Y. (2006), Patent applications of the top 500 foreign investment corporations in China. *Scientometrics*, **68** (1), 167-177.

Full Text: [2006\Scientometrics68, 167.pdf](2006/Scientometrics68,%20167.pdf)

Abstract: the paper focuses on the top 500 foreign investment corporations (FICs) in China, by conducting data mining and system searching on the data-base of patent from the State Intellectual Property Office of the People’s Republic of China (SIPO). Structure of patent applications, industrial distribution of patent applications, monopolistic tendency, technological innovation of Chinese companies and directions of foreign investment are studied.

Keywords: China, Chinese, Corporations, Distribution, Mining

Batista, P.D., Campiteli, M.G., Kinouchi, O. and Martinez, A.S. (2006), Is it possible to compare researchers with different scientific interests? *Scientometrics*, **68** (1), 179-189.

Full Text: [2006\Scientometrics68, 179.pdf](2006/Scientometrics68,%20179.pdf)

Abstract: the number h of papers with at least h citations has been proposed to evaluate individuals scientific research production. This index is robust in several ways but yet strongly dependent on the research field. We propose a complementary index h(t) =h(2)/N-a((T)), with N-a((T)) being the total number of authors in the considered h papers. A researcher with Index h, has h, papers with at least ht citation if he/she had published alone. We have obtained the rank plots of h and ht for four Brazilian scientific communities. In contrast with the h-Index, the ht index rank plots collapse into a single curve allowing comparison among different research areas.

Keywords: Citation, Citations, Comparison, Complementary, h Index, h-Index, Index, Index h, Papers, Rank, Ranking, Research, Scientific Research

Notes: CCountry

Okubo, Y. and Yamashita, Y. (2006), Scientometrics research in Japan - Introduction. *Scientometrics*, **68** (2), 193-202.

Full Text: [2006\Scientometrics68, 193.pdf](2006/Scientometrics68,%20193.pdf)

Keywords: Bibliometrics, Japan, Research

Fujigaki, Y. (2006), Changes in the research stream by standardization: A content analysis of the Archives of General Psychiatry during the establishment of operational diagnostic criteria. *Scientometrics*, **68** (2), 203-212.

Full Text: [2006\Scientometrics68, 203.pdf](2006/Scientometrics68,%20203.pdf)

Abstract: Universality through standardization is at the heart of scientific and medical practices. In this study we dealt with the meaning, significance, and implications of standardization through ‘operationalization’ in psychiatric diagnostic criteria by focusing on the effects of the DSM (Diagnostic Statistical Manual) M. What does ‘operational’ mean?\* the discussion of ‘operationalization’ in psychiatric diagnosis poses quite a challenge. Given the importance of semantics and the word networks of everyday life in forming descriptions of symptoms and reaching clinical judgments, cultural differences in these semantics inevitably have strong impacts on psychiatric diagnosis. The link between sensitivity and semantics in words enhances this effect. In spite of the difficulties in approaching operationalization in psychiatric diagnosis, several attempts have been made to standardize diagnostic criteria. Prominent examples include the DSM of the American Psychiatric Association and the ICD (International Disease Classification) of the WHO. In this paper we analyzed the effects of standardized diagnostic criteria by performing a content analysis of papers published in the Archives of General Psychiatry from 1978 to 1990. Our results clearly show changes in the research questions, research designs, methodologies, target diseases, and selections of independent and dependent variables.

Keywords: American, Analysis, Citation, Clinical, Diagnosis, Diagnostic Criteria, Effects, Epidemiology, Heart, Impacts, Knowledge, Link, Medical, Networks, Psychiatric, Research, Sensitivity, Standardization, Stream, System

Fujimaki, K. and Haklak, R. (2006), Quantitative evaluation of positive or negative feelings for biotechnology- or health-related scenes in movies. *Scientometrics*, **68** (2), 213-226.

Full Text: [2006\Scientometrics68, 213.pdf](2006/Scientometrics68,%20213.pdf)

Abstract: Public attitude toward biotechnology- and health-related scenes in movies influences the development of the biomedical science itself and thereafter of our health- and technology-conscious society. We have developed a new quantitative indicator to evaluate positive and negative feelings toward such scenes. Thirty movies including nine biotechnology-related, twenty health-related, and one both-related movies were evaluated into 0 (0%) highly negative, 10 (33%) negative, 17 (57%) neutral, 3 (10%) positive, and 0 (0%) highly positive feeling movies. Biotechnology-related movies were negative, while health-related movies were neutral. This indicator is useful for rating the perception of biotechnology and health in movies.

Keywords: Attitude, Development, Evaluation, Film, Health, Indicator, Journalists, News, Perception, Portrayal, Science, Scientists, Smoking

Furukawa, R. and Goto, A. (2006), Core scientists and innovation in Japanese electronics companies. *Scientometrics*, **68** (2), 227-240.

Full Text: [2006\Scientometrics68, 227.pdf](2006/Scientometrics68,%20227.pdf)

Abstract: In this paper we examine the role of what we call core scientists in innovation in Japanese electronics companies. Core scientists are those who have the top total scores as measured by the number of their publications and citations received. We find that even though they may not apply for a large number of patents themselves, the scientific knowledge of the core scientists may have a positive effect in stimulating patent applications by their collaborators.

Keywords: Basic Research, Communication, Firms, Knowledge, Patterns, Performance, R-and-D

? Hayashi, T. and Tomizawa, H. (2006), Restructuring the Japanese national research system and its effect on performance. *Scientometrics*, **68** (2), 241-264.

Abstract: the Japanese government has been attempting to reform the national research system for the past 20 years. This paper describes the structural changes of the system and its performance based on bibliometric analyses and discusses the effects of S&T policy. The investigation indicates that although Japan gradually increased its production of highly cited publications, its share of low-cited publications is much higher than the former. Detailed analyses reveal that the top eight universities account for half of the highly cited publications in the university sector, while other hundreds of universities have massively increased their low-cited publications since 1990. The development of financial and human resources for research in the 1990s enabled new actors to be involved in scientific research, but the resources were concentrated to a small number of universities, reinforcing the collaboration between these universities and others.

Keywords: Collaboration, Development, Effects, Human, Japan, Performance, Policy, Production, Reform, Research, University

Suzuki, J., Gemba, K., Tamada, S., Yasaki, Y. and Goto, A. (2006), Analysis of propensity to patent and science-dependence of large Japanese manufacturers of electrical machinery. *Scientometrics*, **68** (2), 265-288.

Full Text: [2006\Scientometrics68, 265.pdf](2006/Scientometrics68,%20265.pdf)

Abstract: the paper aims to clarify the extent to which the results of scientific-oriented research conducted by corporations are reflected in their application-oriented research. Focusing on large Japanese manufacturers of electrical machinery, the paper analyses firm-level data on presentations of scientific papers that represent the results of scientific-oriented research activities, citations of scientific papers in patents, and inventions. The electrical machinery industry, a prototypical science-based industry, has been placing a growing emphasis on scientific-oriented research during the 1990’s as is evident from trends in R&D expenses, scientific papers, and inventions. Regression analysis results suggest a complementary relationship between citations of basic scientific knowledge as presented in scientific papers on the one hand and acts of invention on the other hand, in the sense that a rise in citations corresponds to a rise in inventions. Moreover, the results suggest that invention efficiency (number of patent claims per unit of R&D expenditure) has been increasing during the 1990’s. Furthermore, the results suggest that, given the exogenous influences on the patent system in Japan, it is necessary to include the number of patent claims when attempting to measure corporate technology development activity through the volume of patent applications. However, there was no finding of a clear relationship between the number of scientific papers and inventions. Implications of these results for corporate R&D strategy are examined.

Keywords: Activity, Analysis, Basic Research, Corporations, Development, Expenditure, Japan, Knowledge, Research, Trends

Tamada, S., Naito, Y., Kodama, F., Gemba, K. and Suzuki, J. (2006), Significant difference of dependence upon scientific knowledge among different technologies. *Scientometrics*, **68** (2), 289-302.

Full Text: [2006\Scientometrics68, 289.pdf](2006/Scientometrics68,%20289.pdf)

Abstract: the authors have constructed an original database of the full text of the Japanese Patent Gazette published since 1994. The database includes not only the front page but also the body text of more than 880,000 granted Japanese patents. By reading the full texts of all 1,500 patent samples, we found that some inventors cite many academic papers in addition to earlier patents in the body texts of their Japanese patents. Using manually extracted academic paper citations and patent citations as ‘right’ answers, we fine-tuned a search algorithm that automatically retrieves cited scientific papers and patents from the entire texts of all the Japanese patents in the database. An academic paper citation in a patent text indicates that the inventor used scientific knowledge in the cited paper when he/she invented the idea codified in the citing patent. The degree of science linkage, as measured by the number of research papers cited in patent documents, is particularly strong in biotechnology. Among other types of technology, those related to photographic-sensitized material, cryptography, optical computing, and speech recognition also show strong science linkage. This suggests that the degree of dependence on scientific knowledge differs from technology to technology and therefore, different ways of university-industry collaboration are necessary for different technology fields.

Keywords: Algorithm, Collaboration, Dependence, Knowledge, Optical, Research

Yamashita, Y. and Okubo, Y. (2006), Patterns of scientific collaboration between Japan and France: Inter-sectoral analysis using Probabilistic Partnership Index (PPI). *Scientometrics*, **68** (2), 303-324.

Full Text: [2006\Scientometrics68, 303.pdf](2006/Scientometrics68,%20303.pdf)

Abstract: In this article we present an indicator - Probabilistic Partnership Index (PPI) - for use in measuring scientific linkages. This indicator is based on the Monte-Carlo simulation which provides a standard model to each network established in collaboration between two countries. Any relationship that occurs within a (whole) network can be projected to a standard model respectively and thus PPI is useful in examining individual networks within complex exchanges. We investigate inter-sectoral cooperation between France and Japan for the period of 1981-2004, by classifying every research unit appearing in the data set by its sector. We examine international collaborative patterns, domestic collaborative patterns and multilateral relationships established within the French-Japanese cooperation. We also compare PPI with the classic collaborative linkage indexes - Jaccard Index, Salton-Ochiai Index and Probabilistic Affinity Index - in order to describe the specificity of the new indicator. Our hope is that PPI will prove to be a useful and complementary tool for the analysis of international collaboration.

Keywords: Analysis, Collaboration, Cooperation, Countries, France, Indicator, International, International Collaboration, Japan, Link Indicator, Model, Network, Networks, Profiles, Publications, Research, Science, Simulation, Universities

Glänzel, W. and Rousseau, R. (2006), Untitled. *Scientometrics*, **68** (3), 327.

Full Text: [2006\Scientometrics68, 327.pdf](2006/Scientometrics68,%20327.pdf)

Archambault, E., Vignola-Gagne, E., Cote, G., Larivière, V. and Gingras, Y. (2006), Benchmarking scientific output in the social sciences and humanities: the limits of existing databases. *Scientometrics*, **68** (3), 329-342.

Full Text: [2006\Scientometrics68, 329.pdf](2006/Scientometrics68,%20329.pdf)

Abstract: the goal of this paper is to examine the impact of linguistic coverage of databases used by bibliometricians on the capacity to effectively benchmark the work of researchers in social sciences and humanities. We examine the strong link between bibliometrics and the Thomson Scientific’s database and review the differences in the production and diffusion of knowledge in the social sciences and humanities (SSH) and the natural sciences and engineering (NSE). This leads to a re-examination of the debate on the coverage of these databases, more specifically in the SSH. The methods section explains how we have compared the coverage of Thomson Scientific databases in the NSE and SSH to the Ulrich extensive database of journals. Our results show that there is a 20 to 25% overrepresentation of English-language journals in Thomson Scientific’s databases compared to the list of journals presented in Ulrich. This paper concludes that because of this bias, Thomson Scientific databases cannot be used in isolation to benchmark the output of countries in the SSH.

Keywords: Behavioral-Sciences, Capacity, Coverage, Diffusion, Impact, Indicators, Journals, Knowledge, Link, Production, Research Performance, Review, Sociology Citation Index

Barjak, F. (2006), Research productivity in the internet era. *Scientometrics*, **68** (3), 343-360.

Full Text: [2006\Scientometrics68, 343.pdf](2006/Scientometrics68,%20343.pdf)

Abstract: the present study investigated the relationship between the use of different internet applications and research productivity, controlling for other influences on the latter. The control variables included dummies for country, discipline, gender and type of organization of the respondent; as well as variables for age, recognition, the degree of society-related and career-related motivation for research, and the size of the collaboration network. Simple variance analyses and more complex negative binomial hurdle models point to a positive relationship between internet use (for personal communication, information retrieval and information dissemination) and research productivity. However, the results should be interpreted with caution as it was not possible to test the role of the internet against other pre-internet tools which fulfil the same functions. Thus instance it may not be the use of e-mail per se, but the degree of communicating with colleagues that makes a productive scientist.

Keywords: Age, Collaboration, Communication, Computer-Mediated Communication, Control, Dissemination, Faculty, Gender, Information Dissemination, Internet, Level, Models, Motivation, Network, Organization, Patterns, Point, Productivity, Publication Productivity, Research, Research Performance, Science, Scientific Collaboration, University

Basu, A. (2006), Using ISI’s ‘Highly Cited Researchers’ to obtain a country level indicator of citation excellence. *Scientometrics*, **68** (3), 361-375.

Full Text: [2006\Scientometrics68, 361.pdf](2006/Scientometrics68,%20361.pdf)

Abstract: A high level of citation to an author’s work is, in general, a testimony to the fact that the author’s work has been noted and used by his peers. High citation is seen to be correlated with other forms of recognition and rewards, and is a key indicator of research performance, among other bibliometric indicators. The Institute for Scientific Information (ISI) defines a ‘highly cited researcher’ (HCR) as one of 250 most cited authors of journal papers in any discipline. Citation data for 20 years (1981-1999) is used to calculate the share of HCRs for countries in 21 subject areas. We find that the US dominates in all subject areas (US share similar to 40-90%). Based on the number of highly cited researchers in a country, an index of citation excellence is proposed. We find that rank order of countries based on this index is in conformity with our general understanding of research excellence, whereas the more frequently used indicator, citations per paper, gave an unacceptable rank order due to an inherent bias toward very small countries. Additionally, a high value of the index of citation excellence was found to be associated with higher concentration of highly cited researchers in affiliating organizations.

Keywords: Concentration, Indicator, Indicators, Inherent, Key, Organizations, Peers, Performance, Research, US

Van Den Besselaar, P. and Heimeriks, G. (2006), Mapping research topics using word-reference co-occurrences: A method and an exploratory case study. *Scientometrics*, **68** (3), 377-393.

Full Text: [2006\Scientometrics68, 377.pdf](2006/Scientometrics68,%20377.pdf)

Abstract: Mapping of science and technology can be done at different levels of aggregation, using a variety of methods. In this paper, we propose a method in which title words are used as indicators for the content of a research topic, and cited references are used as the context in which words get their meaning. Research topics are represented by sets of papers that are similar in terms of these word-reference combinations. In this way we use words without neglecting differences and changes in their meanings. The method has several advantages, such as high coverage of publications. As an illustration we apply the method to produce knowledge maps of information science.

Keywords: Aggregation, Combined Cocitation, Context, Indicators, Knowledge, Method, Research, Science

Bjorneborn, L. (2006), ‘Mini small worlds’ of shortest link paths crossing domain boundaries in an academic Web space. *Scientometrics*, **68** (3), 395-414.

Full Text: [2006\Scientometrics68, 395.pdf](2006/Scientometrics68,%20395.pdf)

Abstract: Combining webometric and social network analytic approaches, this study developed a methodology to sample and identify Web links, pages, and sites that function as small-world connectors affecting short link distances along link paths between different topical domains in an academic Web space. The data set comprised 7669 subsites harvested from 109 UK universities. A novel corona-shaped Web graph model revealed reachability structures among the investigated subsites. Shortest link path netsfunctioned as investigable small-world link structures-’mini small worlds’-generated by deliberate juxtaposition of topically dissimilar subsites. Indicative findings suggest that personal Web page authors and computer science subsites may be important small-world connectors across sites and topics in an academic Web space. Such connectors may counteract balkanization of the Web into insularities of disconnected and unreachable subpopulations.

Keywords: Citation Networks, Collaboration Networks, Complex Networks, Computer, Function, Graphs, Internet, Link, Methodology, Model, Network, Social Network, Space, UK

Borner, K., Penumarthy, S., Meiss, M. and Ke, W.M. (2006), Mapping the diffusion of scholarly knowledge among major US research institutions. *Scientometrics*, **68** (3), 415-426.

Full Text: [2006\Scientometrics68, 415.pdf](2006/Scientometrics68,%20415.pdf)

Abstract: This paper reports the results of a large scale data analysis that aims to identify the production, diffusion, and consumption of scholarly knowledge among top research institutions in the United States. A 20-year publication data set was analyzed to identify the 500 most cited research institutions and spatio-temporal changes in their inter-citation patterns. A novel approach to analyzing the dual role of institutions as producers and consumers of scholarly knowledge and to study the diffusion of knowledge among them is introduced. A geographic visualization metaphor is used to visually depict the production and consumption of knowledge. The highest producers and their consumers as well as the highest consumers and their producers are identified and mapped. Surprisingly, the introduction of the Internet does not seem to affect the distance over which scholarly knowledge diffuses as manifested by citation links. The citation linkages between institutions fall off with the distance between them, and there is a strong linear relationship between the log of the citation counts and the log of the distance. The paper concludes with a discussion of these results and future work.

Keywords: Analysis, Citation, Consumers, Data Analysis, Diffusion, Internet, Knowledge, Migration, Production, Research, Scale, United States, US

Bornmann, L. and Daniel, H.D. (2006), Selecting scientific excellence through committee peer review - A citation analysis of publications previously published to approval or rejection of post-doctoral research fellowship applicants. *Scientometrics*, **68** (3), 427-440.

Full Text: [2006\Scientometrics68, 427.pdf](2006/Scientometrics68,%20427.pdf)

Abstract: We investigated committee peer review for awarding long-term fellowships to post-doctoral researchers as practiced by the Boehringer Ingelheim Fonds (B.I.F.)-a foundation for the promotion of basic research in biomedicine. Assessing the validity of selection decisions requires a generally accepted criterion for research impact. A widely used approach is to use citation counts as a proxy for the impact of scientific research. Therefore, a citation analysis for articles published previous to the applicants’ approval or rejection for a B.I.F. fellowship was conducted. Based on our model estimation (negative binomial regression model), journal articles that had been published by applicants approved for a fellowship award (n = 64) prior to applying for the B.I.F. fellowship award can be expected to have 37% (straight counts of citations) and 49% (complete counts of citations) more citations than articles that had been published by rejected applicants (n = 333). Furthermore, comparison with international scientific reference values revealed (a) that articles published by successful and non-successful applicants are cited considerably more often than the ‘average’ publication and (b) that excellent research performance can be expected more of successful than non-successful applicants. The findings confirm that the foundation is not only achieving its goal of selecting the best junior scientists for fellowship awards, but also successfully attracting highly talented young scientists to apply for B.I.F. fellowships.

Keywords: Analysis, Foundation, Impact, International, Long Term, Model, Performance, Predictive-Validity, Productivity, Promotion, Proxy, Regression, Research, Review, Science, Validity, Values

Burrell, Q.L. (2006), Measuring concentration within and co-concentration between informetric distributions: An empirical study. *Scientometrics*, **68** (3), 441-456.

Full Text: [2006\Scientometrics68, 441.pdf](2006/Scientometrics68,%20441.pdf)

Abstract: There is a well-established literature on the use of concentration measures in informetrics. However, these works have usually been devoted to measures of concentration within a productivity distribution. In a pair of recent papers the author introduced two new measures, both based on the Gini ratio, for measuring the similarity of concentration of productivity between two different informetric distributions. The first of these was derived from Dagum’s notion of relative economic affluence; the second-in some ways analogous to the correlation coefficient-is completely new. The purpose of this study is to develop a purely empirical approach to comparative studies of concentration between informetric data sets using both within and between measures thereby greatly extending the original study which considered just two data sets for purposes of illustration of the methods of calculation of the measures.

Keywords: Concentration, Correlation, Distribution, Distributions, Economic, Empirical, Gini Index, Law, Literature, Productivity, Ratio, Recent

Glänzel, W., Schlemmer, B., Schubert, A. and Thijs, B. (2006), Proceedings literature as additional data source for bibliometric analysis. *Scientometrics*, **68** (3), 457-473.

Full Text: [2006\Scientometrics68, 457.pdf](2006/Scientometrics68,%20457.pdf)

Abstract: Scientific meetings have become increasingly important channels for scholarly communi-cation. In several fields of applied and engineering sciences they are-according to the statements of scientists active in those fields-even more important than publishing in periodicals. One objective of this study is to analyse the weight of proceedings literature in all fields of the sciences, social sciences and humanities as well as the use of the ISI Proceedings database as additional data source for bibliometric studies. The second objective is exploring the use of a further important feature of this database, namely, of information about conference location for the analysis of bibliometrically relevant aspects of information flow such as the relative attractivity, the extent of mobility and unidirectional or mutual affinity of countries.

Keywords: Analysis, Communication, Flow, Literature, Mobility, Participation, Science, Scientific Meetings

Klavans, R. and Boyack, K.W. (2006), Quantitative evaluation of large maps of science. *Scientometrics*, **68** (3), 475-499.

Full Text: [2006\Scientometrics68, 475.pdf](2006/Scientometrics68,%20475.pdf)

Abstract: This article describes recent improvements in mapping the world-wide scientific literature. Existing research is extended in three ways. First, a method for generating maps directly from the data on the relationships between hundreds of thoUSAnds of documents is presented. Second, quantitative techniques for evaluating these large maps of science are introduced. Third, these techniques are applied to data in order to evaluate eight different maps. The analyses suggest that accuracy can be increased by using a modified cosine measure of relatedness. Disciplinary bias can be significantly reduced and accuracy can be further increased by using much lower threshold levels. In short, much larger samples of papers can and should be used to generate more accurate maps of science.

Keywords: Evaluation, Knowledge Domains, Literature, Mapping, Method, Recent, Research

Kousha, K. and Thelwall, M. (2006), Motivations for URL citations to open access library and information science articles. *Scientometrics*, **68** (3), 501-517.

Full Text: [2006\Scientometrics68, 501.pdf](2006/Scientometrics68,%20501.pdf)

Abstract: We define the URL citations of a Web page to be the mentions of its URL in the text of other Web pages, whether hyperlinked or not. The proportions of formal and informal scholarly motivations for creating URL citations to Library and Information Science open access journal articles were identified. Five characteristics for each source of URL citations equivalent to formal citations were manually extracted and the relationship between Web and conventional citation counts at the e-journal level was examined. Results of Google searches showed that 282 research articles published in the year 2000 in 15 peer-reviewed LIS open access journals were invoked by 3,045 URL citations. of these URL citations, 43% were created for formal scholarly reasons equivalent to traditional citations and 18% for informal scholarly reasons. of the sources of URL citations, 82% were in English, 88% were full text papers and 58% were non-HTML documents. of the URL citations, 60% were text URLs only and 40% were hyperlinked. About 50% of URL citations were created within one year after the publication of the cited e-article. A slight correlation was found between average numbers of URL citations and average numbers of ISI citations for the journals in 2000. Separating out the citing HTML and non-HTML documents showed that formal scholarly communication trends on the Web were mainly influenced by text URL citations from non-HTML documents.

Keywords: Communication, Correlation, Links, Research, Sites, Trends, Web Impact Factors

Larivière, V., Gingras, Y. and Archambault, E. (2006), Canadian collaboration networks: A comparative analysis of the natural sciences, social sciences and the humanities. *Scientometrics*, **68** (3), 519-533.

Full Text: [2006\Scientometrics68, 519.pdf](2006/Scientometrics68,%20519.pdf)

Abstract: A basic dichotomy is generally made between publication practices in the natural sciences and engineering (NSE) on the one hand and social sciences and humanities (SSH) on the other. However, while researchers in the NSE share some common practices with researchers in SSH, the spectrum of practices is broader in the latter. Drawing on data from the CD-ROM versions of the Science Citation Index, Social Sciences Citation Index and the Arts & Humanities Citation Index from 1980 to 2002, this paper compares collaboration patterns in the SSH to those in the NSE. We show that, contrary to a widely held belief, researchers in the social sciences and the humanities do not form a homogeneous category. In fact, collaborative activities of researchers in the social sciences are more comparable to those of researchers in the NSE than in the humanities. Also, we see that language and geographical proximity influences the choice of collaborators in the SSH, but also in the NSE. This empirical analysis, which sheds a new light on the collaborative activities of researchers in the NSE compared to those in the SSH, may have policy implications as granting councils in these fields have a tendency to imitate programs developed for the NSE, without always taking into account the specificity of the humanities.

Keywords: Analysis, CD-ROM, Choice, Collaboration, Collaboration Networks, Data, Engineering, Humanities, Networks, Policy, Practices, Publication, Science Citation Index, Sciences, Social, Social Sciences, Specificity

Notes: TTopic

Liang, L.M., Rousseau, R. and Shi, F. (2006), A rhythm indicator for science and the rhythm of Science. *Scientometrics*, **68** (3), 535-544.

Full Text: [2006\Scientometrics68, 535.pdf](2006/Scientometrics68,%20535.pdf)

Abstract: the rhythm of science may be compared to the rhythm of music. The R-indicator studied in this article is a complex indicator, trying to reflect part of this rhythm. The R-indicator interweaves publication and citation data over a long period. In this way R-sequences can be used to describe the evolutionary rhythm of science considered in a novel way. As an example the R-sequence of the journal Science from 1945 on is calculated.

Keywords: Indicator

Meyer, M. (2006), Knowledge integrators or weak links? An exploratory comparison of patenting researchers with their non-inventing peers in nano-science and technology. *Scientometrics*, **68** (3), 545-560.

Full Text: [2006\Scientometrics68, 545.pdf](2006/Scientometrics68,%20545.pdf)

Abstract: Policy-makers in many countries emphasize the importance of non-publication output of university research. Increasingly, policies are pursued that attempt to encourage entrepreneurial activity in universities and public research institutes. Apart from generating spin-out companies, technology licensing, and collaborative research, attention is focused on patenting activities of researchers. Some analysts suggest that there is a trade-off between scholarly publication and patenting activity. This paper explores this relationship drawing on a data set of nanoscience publications and nanotechnology patents in three European countries. In particular, this study examines whether researchers who both publish and patent are more productive and more highly cited than their peers who concentrate on scholarly publication in communicating their research results. Furthermore, this study investigates the collaborative activity of inventor-authors and their position in their respective networks of scientific communication. The findings suggest that overall there seems to be no adverse relationship between publication and patenting activity, at least not in this area of science and technology. Patenting scientists appear to outperform their solely publishing, non-inventing peers in terms of publication counts and citation frequency. However, while they are considerably over-represented in the top performance class, the data indicates that inventor-authors may not occupy top positions within that group. An analysis of co-authorship links indicates that patenting authors can also play a prominent role within networks of scientific communication. The network maps also point to groups where inventor-authors occur frequently and others where this is not the case, which possibly reflects cognitive differences between sub-fields. Finally, the data indicates that inventor-authors account only for a marginal share of publishing scholars while they play a substantial role amongst inventors.

Keywords: Activity, Analysis, Class, Collaborative Research, Communication, Dynamics, Entrepreneurial Universities, Industry, Innovation, Marginal, Nanotechnology, Network, Patterns, Peers, Performance, Point, Research, Scientists, University

Persson, O. (2006), Exploring the analytical potential of comparing citing and cited source items. *Scientometrics*, **68** (3), 561-572.

Full Text: [2006\Scientometrics68, 561.pdf](2006/Scientometrics68,%20561.pdf)

Abstract: Comparing properties of citing and cited source items opens a wide variety of analytical possibilities. In a study of citations among papers in the journal Scientometrics a number of analytical themes are identified. The analysis shows: the way in which a citation graph can be decomposed into different subparts; country specific citation patterns; the effects of self-citations and domestic citations; the mapping of cited author relationships using direct citation and co-citation links; and time slicing effects on impact ranking of countries and papers.

Keywords: Analysis, Citations, Collaboration, Effects, Impact, Indicators, Mapping, Networks, Properties, Ranking, Time

Schneider, J.W. (2006), Concept symbols revisited: Naming clusters by parsing and filtering of noun phrases from citation contexts of concept symbols. *Scientometrics*, **68** (3), 573-593.

Full Text: [2006\Scientometrics68, 573.pdf](2006/Scientometrics68,%20573.pdf)

Abstract: the present study presents a semi-automatic method for parsing and filtering of noun phrases from citation contexts of concept symbols. The purpose of the method is to extract contextual, agreed upon, and pertinent noun phrases, to be used in visualization studies for naming clusters (concept groups) or concept symbols. The method is applied in a case study, which forms part of a larger dissertation work concerning the applicability of bibliometric methods for thesaurus construction. The case study is carried out within periodontology, a specialty area of dentistry. The result of the case study indicates that the method is able to identify highly important noun phrases, and that these phrases accurately describe their parent clusters. Hence, the method is able to reduce the labour intensive work of manual citation context analysis, though further refinements are still needed.

Keywords: Analysis, Bibliometrics, Citing Statements, Cocitation, Computer Recognition, Context, Knowledge, Method, Parent, Retrieval, Word Analysis

Small, H. (2006), Tracking and predicting growth areas in science. *Scientometrics*, **68** (3), 595-610.

Full Text: [2006\Scientometrics68, 595.pdf](2006/Scientometrics68,%20595.pdf)

Abstract: We explore the possibility of using co-citation clusters over three time periods to track the emergence and growth of research areas, and predict their near term change. Data sets are from three overlapping six-year periods: 1996-2001, 1997-2002 and 1998-2003. The methodologies of co-citation clustering, mapping, and string formation are reviewed, and a measure of cluster currency is defined as the average age of highly cited papers relative to the year span of the data set. An association is found between the currency variable in a prior period and the percentage change in cluster size and citation frequency in the following period. The conflating factor of ‘single-issue clusters’ is discussed and dealt with using a new metric called in-group citation.

Keywords: Age, Association, Citation-Index, Clustering, Cocitation, Growth, Literatures, Mapping, Mathematical Approach, Research, Scientific Discovery, Time

Vaughan, L. and You, J. (2006), Comparing business competition positions based on Web co-link data: the global market vs. The Chinese market. *Scientometrics*, **68** (3), 611-628.

Full Text: [2006\Scientometrics68, 611.pdf](2006/Scientometrics68,%20611.pdf)

Abstract: Based on the findings from earlier studies which showed that links to business Websites contain useful business information, we examined the feasibility of using Web co-link data to compare business competitive positions. We hypothesized that the number of co-links to a pair of business Websites is a measure of the similarity between the two companies. Since similar or related businesses are competing businesses, the co-link data can be used to map business competitive positions. We selected 32 telecommunications companies for the study and collected co-link data to these companies from Yahoo!. Multidimensional scaling (MDS) analysis on the co-link data correctly mapped these companies into telecommunications industry sectors. This proved our hypothesis and further confirmed the theory that links to business Websites can be objects for Web data mining. We collected data in a way that would reflect two markets, the global market and the Chinese market. Results from the two data sets revealed the competitive positions of the companies in the two markets. We propose that regular data collection and analysis based on this method can be used to monitor the business competitive environment and trigger early warnings on the change of the competitive landscape.

Keywords: Analysis, Chinese, Citation, Competition, Data Collection, Environment, Global, Impact Factors, Information, Landscape, Method, Mining, Scaling, Sites, Theory

Vinkler, P. (2006), Composite scientometric indicators for evaluating publications of research institutes. *Scientometrics*, **68** (3), 629-642.

Full Text: [2006\Scientometrics68, 629.pdf](2006/Scientometrics68,%20629.pdf)

Abstract: Both quantitative and qualitative evaluation of publications of research teams or institutes requires several scientometric indicators. In this paper a new composite indicator is introduced for the assessment of publications of research institutes working in different fields of science. The composite indicator consists of three part-indicators (Journal Paper Productivity, Relative Publication Strategy and Relative Paper Citedness). The different methods of calculating the composite index have only a slight effect on the value, whereas application of diverse weights for the individual part-indicators results in significant changes.

Keywords: Assessment, Chemistry, Evaluation, Impact, Indicator, Indicators, Performance, Physics, Qualitative, Research

Yoshikane, F., Nozawa, T. and Tsuji, K. (2006), Comparative analysis of co-authorship networks considering authors’ roles in collaboration: Differences between the theoretical and application areas. *Scientometrics*, **68** (3), 643-655.

Full Text: [2006\Scientometrics68, 643.pdf](2006/Scientometrics68,%20643.pdf)

Abstract: Many studies have analyzed ‘direct’ partnerships in co-authorship networks. On the other hand, the global network structure, including ‘indirect’ links between researchers, has not yet been sufficiently studied. This study analyzes researchers’ activities from the viewpoints considering their roles in the global structures of co-authorship networks, and compares the co-authorship networks between the theoretical and application areas in computer science. The modified HITS algorithm is used to calculate the two types of importance of researchers in co-authorship networks, i.e., the importance as the leader and that as the follower.

Keywords: Algorithm, Analysis, Coauthorship Networks, Collaboration, Computer, Global, Invisible-Colleges, Issues, Journal Literature, Network, Patterns, Psychology, Science

Callaert, J., Van Looy, B., Verbeek, A., Debackere, K. and Thijs, B. (2006), Traces of Prior Art: An analysis of non-patent references found in patent documents. *Scientometrics*, **69** (1), 3-20.

Full Text: [2006\Scientometrics69, 3.pdf](2006/Scientometrics69,%203.pdf)

Abstract: the recent developments towards more systemic conceptualizations of innovation dynamics and related policies highlight the need for indicators that mirror the dynamics involved. In this contribution, we assess the role that ‘non-patent references’, found in patent documents, can play in this respect. After examining the occurrence of these references in the USPTO and EPO patent systems, their precise nature is delineated by means of a content analysis of two samples of nonpatent references (n=10,000). Our findings reveal that citations in patents allow developing nontrivial and robust indicators. The majority of all non-patent references are journal references, which provide ample possibilities for large-scale analyses focusing on the extent to which technological developments are situated within the vicinity of scientific knowledge. Application areas, limitations and directions for future research are discussed.

Keywords: Academic Inventors, Analysis, Citation Analysis, Dynamics, Exploration, Indicators, Innovation, Knowledge, Limitations, Public Science, Recent, Research, Science-Technology Interactions, Statistics, Systems, Triple-Helix

Lukenda, J. (2006), Influence of the 1991-1995 war on Croatian publications in the MEDLINE database. *Scientometrics*, **69** (1), 21-36.

Full Text: [2006\Scientometrics69, 21.pdf](2006/Scientometrics69,%2021.pdf)

Abstract: Aim: to identify the influence of the 1991-1995 war on Croatian biomedical publications with reference to the Croatian universities and medical centers in Zagreb, Split, Rijeka and Osijek and their regions. Methods: Internet provider PubMed was used to search MEDLINE database in the pre-war (1988-1990), war (1991-1995) and post-war (1996-2000) periods. Annual numbers of publications in the MEDLINE and Core Clinical Journals (Abridged Index Medicus; AIM-journals) were calculated for each center in the above mentioned periods. Our analysis included socio-economic indicators such as gross domestic product (GDP) and total employment, human resources such as the number of full-time researchers, teachers and researchers in biomedical sciences, university graduates, master and doctoral thesis. Descriptive statistics and t-test were used. Results: In the 1988-2000 period the proportion of Croatian publications in the MEDLINE database was 0.076%. The proportion of AIM-publication in the MEDLINE was 11.5%, while the proportion of Croatian AIM-publications in Croatian publications in the MEDLINE was only 0.02%. Compared to the pre-war period, Croatia increased the number of publications in the MEDLINE in the war period (p < 0.05) and post-war period (p < 0.01). In the war period GDP and other socio-economic indicators decreased in contrast to an increase in biomedical publications. All centers increased the number of MEDLINE publications significantly in the war and post-war periods (p < 0.01), while the growth of AIM-publications in Zagreb and Split was not significant. The proportion of biomedical publications in Zagreb decreased in the war and post-war periods while it was almost doubled in the other centers. Croatia increased its biomedical publication rates (per 100,000 inhabitants per year) from 3.8 (the pre-war period) to 6.6 (the war period) and 9.0 (the post-war period). In those periods biomedical publication rates were also increased in all centers with belonging regions, in spite of the war. A small number of teachers and researchers in biomedical sciences in Split and Osijek produced more publications per person in the war period than a larger number of their colleagues in other two centers. Conclusion: Croatia and its centers, Zagreb, Split, Rijeka and Osijek increased biomedical publication rates despite enormous destruction and human losses caused by the war. Despite a significant increase in the quantity of Croatian publications in the MEDLINE database, the number of AIM-publications increased only slightly.

Keywords: Analysis, Biomedical Publications, Countries, Employment, European-Union, Geography, Growth, Human, Indicators, Internet, Journals, Medical, Output, Science, Socio-Economic Indicators, Socioeconomic, Statistics, University, War

? Campanario, J.M., González, L. and Rodríguez, C. (2006), Structure of the impact factor of academic journals in the field of Education and Educational Psychology: Citations from editorial board members. *Scientometrics*, **69** (1), 37-56.

Full Text: [2006\Scientometrics69, 37.pdf](2006/Scientometrics69,%2037.pdf)

Abstract: We present a new approach to study the structure of the impact factor of academic journals. This new method is based on calculation of the fraction of citations that contribute to the impact factor of a given journal that come from citing documents in which at least one of the authors is a member of the cited journal’s editorial board. We studied the structure of three annual impact factors of 54 journals included in the groups ‘Education and Educational Research’ and ‘Psychology, Educational’ of the Social Sciences Citation Index. The percentage of citations from papers authored by editorial board members ranged from 0% to 61%. In 12 journals, for at least one of the years analysed, 50% or more of the citations that contributed to the impact factor were from documents published in the journal itself.

Given that editorial board members are considered to be among the most prestigious scientists, we suggest that citations from papers authored by editorial board members should be given particular consideration.

Keywords: Self-Citations, Bibliometric Analysis, Information-Science, Stands Today, Quality, Index, Proposal, Performance, Indicators, Institute

Yoo, S.H. and Moon, H.S. (2006), A semi-parametric modeling of firms’ R&D expenditures with zero values. *Scientometrics*, **69** (1), 57-67.

Full Text: [2006\Scientometrics69, 57.pdf](2006/Scientometrics69,%2057.pdf)

Abstract: Modeling firms’ R&D expenditures often become complicated due to the zero values reported by a significant number of firms. The maximum likelihood (ML) estimation of the Tobit model, which is usually adopted in this case, however, is not robust to heteroscedastic and/or non-normal error structure. Thus, this paper attempts to apply symmetrically trimmed least squares estimation as a semi-parametric estimation of the Tobit model in order to model firms’ R&D expenditures with zero values. The result of specification test indicates the semi-parametric estimation outperforms the parametric ML estimation significantly.

Keywords: Econometrics, Limited Dependent-Variables, Maximum Likelihood, Misspecification, Model, Modeling, Specification, Values

Medoff, M.H. (2006), The efficiency of self-citations in economics. *Scientometrics*, **69** (1), 69-84.

Full Text: [2006\Scientometrics69, 69.pdf](2006/Scientometrics69,%2069.pdf)

Abstract: Are prior self-citations an effective input in increasing a subsequent article’s citation count? Examination of 418 articles in eight economics journals found that, after controlling for article length, journal and author quality, lead article position, and coauthorship, an author’s prior stock of self-citations is not statistically related to a subsequent article’s total citation count or the quality of the journals in which those citations appear. Self-citations that appear in prestigious high-impact economics journals have a statistically positive, but numerically small, effect on a subsequent article’s total citation count and on the quality of the citing journal. The productive effect of a prior self-citation is inversely related to its age. Prior self-citations of the second author listed in a collaborative article have no significant effect on a subsequent article’s total citation count or the quality of the economics journals in which those citations appear.

Keywords: Age, Collaboration, Departments, Economics, Lead, Quality, Rankings, Trends

Meng, W., Hu, Z.H. and Liu, W.B. (2006), Efficiency evaluation of basic research in China. *Scientometrics*, **69** (1), 85-101.

Full Text: [2006\Scientometrics69, 85.pdf](2006/Scientometrics69,%2085.pdf)

Abstract: Following the increasing investment on basic research in China, the outputs of basic research have been greatly enhanced. In this paper, the relative efficiency of investments in basic research is analyzed by adopting statistical regressions and Data Envelopment Analysis (DEA) method. Preliminary results show that injected investment seems to be the main driving force for the increased basic research outputs in China. It is found that there were significant improvements on overall efficiency from 1991 to 1996, although this trend has noticeably slowed down since 1996. Possible causes of this slow-down are discussed.

Keywords: China, Data Envelopment Analysis, DEA, Evaluation, Impact, Management, Method, Performance, Relative Efficiency, Research, Science, Trend, Universities

Calvino, A.M. (2006), Assessment of research performance in food science and technology: Publication behavior of five Iberian-American countries (1992-2003). *Scientometrics*, **69** (1), 103-116.

Full Text: [2006\Scientometrics69, 103.pdf](2006/Scientometrics69,%20103.pdf)

Abstract: This study is a follow-up to a published descriptive outline on the publications of Iberian-American (IA) countries in food science and technology field. The number of articles and citations attained by IA producers (Argentina, Brazil, Mexico, Portugal and Spain) were examined on 48 journals indexed in Science Citation Index (SCI) database. The growth rate in publication between 1992 and 2003 depicted differences across journals, those with high impact factor were most preferred by IA authors. Different patterns of collaboration and frequency of citations were obtained. Spain and Argentina show the greatest counts of publications and citations but present the lowest percentages of collaboration with outside authors. Instead, three out of ten papers from Portugal, Mexico and Brazil are signed by at least one foreign author. The association of publication productivity to demographic and socio-economic indicators revealed that Spain and Portugal have the highest ratios of publications or citations by human resources followed by Argentina. Argentina showed the highest ratios of publications or citations by expenditure on science and technology activities.

Keywords: Argentina, Association, Behavior, Bibliometric Indicators, Brazil, Citation-Index, Collaboration, Descriptive, Expenditure, Follow-Up, Food, Growth, Growth Rate, Human, Impact, Impact Factors, Indicators, Journals, Mexico, Output, Performance, Portugal, Productivity, Ratios, Research, SCI, Scientific Production, Socio-Economic Indicators, Socioeconomic, Spain

Saad, G. (2006), Exploring the h-Index at the author and journal levels using bibliometric data of productive consumer scholars and business-related journals respectively. *Scientometrics*, **69** (1), 117-120.

Full Text: [2006\Scientometrics69, 117.pdf](2006/Scientometrics69,%20117.pdf)

Abstract: Using both author-level and journal-level data, Hirsch’s h-Index is shown to possess substantial heuristic value in that it yields accurate results whilst requiring minimal informational acquisition effort. As expected, the h-Index of productive consumer scholars correlated strongly with their total citation counts. Furthermore, the h-indices as obtained via ISI/Thompson and GoogleScholar were highly correlated albeit the latter yielded higher values. Finally, using a database of business-relevant journals, a significant correlation was found between the journals’ h-indices and their citation impact scores.

Keywords: Bibliometric, Citation, Citation Counts, Database, h Index, h-Index, Impact, Journal, Journals, Scientists, Value

Notes: MModel

Egghe, L. and Rousseau, R. (2006), An informetric model for the Hirsch-Index. *Scientometrics*, **69** (1), 121-129.

Full Text: [2006\Scientometrics69, 121.pdf](2006/Scientometrics69,%20121.pdf)

Abstract: the h-Index (or Hirsch-Index) was defined by Hirsch in 2005 as the number h such that, for a general group of papers, h papers received at least h citations while the other papers received no more than h citations. This definition is extended here to the general framework of Information Production Processes (IPPs), using a source-item terminology. It is further shown that in each practical situation an IPP always has a unique h-Index. In Lotkaian systems h = T-1/alpha, where T is the total number of sources and alpha is the Lotka exponent. The relation between h and the total number of items is highlighted.

Keywords: Citations, Framework, General, h Index, h-Index, Hirsch, Hirsch Index, IPP, Lotka, Model, Papers, Ranking, Scientists, Terminology

Notes: MModel

Egghe, L. (2006), Theory and practise of the g-index. *Scientometrics*, **69** (1), 131-152.

Full Text: [2006\Scientometrics69, 131.pdf](2006/Scientometrics69,%20131.pdf)

Abstract: the g-index is introduced as an improvement of the h-Index of Hirsch to measure the global citation performance of a set of articles. If this set is ranked in decreasing order of the number of citations that they received, the g-index is the (unique) largest number such that the top g articles received (together) at least g(2) citations. We prove the unique existence of g for any set of articles and we have that g 3 h. The general Lotkaian theory of the g-index is presented and we show that g = (alpha-1/alpha-2)T-alpha-1/alpha(1/alpha) where alpha > 2 is the Lotkaian exponent and where T denotes the total number of sources. We then present the g-index of the (still active) Price medallists for their complete careers up to 1972 and compare it with the h-Index. It is shown that the g-index inherits all the good properties of the h-Index and, in addition, better takes into account the citation scores of the top articles. This yields a better distinction between and order of the scientists from the point of view of visibility.

Keywords: Careers, Citation, Citations, g Index, g-Index, General, h Index, h-Index, Hirsch, the Good, Theory, Visibility

Notes: MModel

Liang, L.M. (2006), h-Index sequence and h-Index matrix: Constructions and applications. *Scientometrics*, **69** (1), 153-159.

Full Text: [2006\Scientometrics69, 153.pdf](2006/Scientometrics69,%20153.pdf)

Abstract: the calculation of Hirsch’s h-Index is a detail-ignoring way, therefore, single h-Index could not reflect the difference of time spans for scientists to accumulate their papers and citations. In this study the h-Index sequence and the h-Index matrix are constructed, which complement the absent details of single h-Index, reveal different increasing manner and the increasing mechanism of the h-Index, and make the scientists at different scientific age comparable.

Keywords: Age, Citations, h Index, h-Index, Mechanism, Papers, Ranking, Scientists

Banks, M.G. (2006), An extension of the Hirsch Index: Indexing scientific topics and compounds. *Scientometrics*, **69** (1), 161-168.

Full Text: [2006\Scientometrics69, 161.pdf](2006/Scientometrics69,%20161.pdf)

Abstract: An interesting twist of the Hirsch Index is given, in terms of an index for topics and compounds. By comparing both the hb index and m for a number of compounds and topics, it can be used to differentiate between a new so-called hot topic with older topics. This quick method is shown to help new comers to identify how much interest and work has already been achieved in their chosen area of research.

Keywords: Method, Research

Braun, T., Glänzel, W. and Schubert, A. (2006), A Hirsch-type index for journals. *Scientometrics*, **69** (1), 169-173.

Full Text: [2006\Scientometrics69, 169.pdf](2006/Scientometrics69,%20169.pdf)

Abstract: We suggest that a h-type index - equal to h if you have published h papers, each of which has at least h citations - would be a useful supplement to journal impact factors.

Keywords: Impact, Ranking, Scientists

Zanotto, E.D. (2006), The scientists pyramid. *Scientometrics*, **69** (1), 175-181.

Full Text: [2006\Scientometrics69, 175.pdf](2006/Scientometrics69,%20175.pdf)

Abstract: In this short paper I propose a combination of qualitative and quantitative criteria to classify the quality, talent and creative thinking of the scientists of the ‘hard’, medical and biological sciences. The rationale for the proposed classification is to focus on the impact and overall achievements of each individual scientist and on how he is perceived by his own community. This new method is probably more complete than any other form of traditional judgment of a scientist’s achievements and reputation, and may be useful for funding agencies, editors of scientific journals, science academies, universities, and research laboratories.

Keywords: Classification, Community, Funding, Impact, Medical, Method, Qualitative, Quality, Research

Rey-Rocha, J., Garzon-Garcia, B. and Martin-Sempere, J. (2006), Scientists’ performance and consolidation of research teams in Biology and Biomedicine at the Spanish Council for Scientific Research. *Scientometrics*, **69** (2), 183-212.

Full Text: [2006\Scientometrics69, 183.pdf](2006/Scientometrics69,%20183.pdf)

Abstract: Empirical evidence is given on how membership in a consolidated, well-established research team provides researchers with some competitive advantage as compared to their colleagues in non-consolidated teams. Data were obtained from a survey of researchers ascribed to the ‘Biology and Biomedicine’ area of the Spanish Council for Scientific Research, as well as from their curricula vitae. One quarter of the scientists work as members of teams in the process of consolidation. Our findings illustrate the importance, for the development and consolidation of research teams, of the availability of a minimum number of researchers with a permanent position and of a minimum number of support staff and non-staff personnel (mainly post-doctoral fellows). Consolidation of research teams has a clear influence on the more academic-oriented quantitative indicators of the scientific activity of individuals. Researchers belonging to consolidated teams perform quantitatively better than their colleagues in terms of the number of articles published in journals covered in the Journal Citation Reports, but not in terms of the impact of these publications. Consolidation favours publication, but not patenting, and it also has a positive effect on the academic prestige of scientists and on their capacity to train new researchers. It does not significantly foster participation in funded R&D projects, nor does it influence the establishment of international collaborations. Impact is influenced to a remarkable degree by seniority and professional background, and is significantly greater for young scientists who have spent time abroad at prestigious research laboratories.

Keywords: Activity, Age, Background, Bibliometric Analysis, Capacity, Career, Curricula, Determinants, Development, Evidence, Impact, Indicators, International, Laboratory Size, Nov, Participation, Performance, Process, Projects, Publication Productivity, Research, Research Collaboration, Research Productivity, Staff, Survey, Time, University

Pinto, M. (2006), A grounded theory on abstracts quality: Weighting variables and attributes. *Scientometrics*, **69** (2), 213-226.

Full Text: [2006\Scientometrics69, 213.pdf](2006/Scientometrics69,%20213.pdf)

Abstract: the goal is to deepen the knowledge of both sides of the abstract/ing topic: abstracting variables and abstract attributes. Six abstracting variables (representing abstract, represented source, abstracting means, documentary goal, cognitive domain and user needs) and eight abstract attributes (representativeness, comprehensiveness, usefulness, accuracy, consistency, coherence, density and perceived quality) are proposed and weighted. While abstracting means is uncovered as the main abstracting variable, the representativeness and accuracy attributes stand out, and usefulness, comprehensiveness, consistency, coherence and density are regarded as the basic ones. The feedback of this quality model is performed by the perceived quality attribute, which depends exclusively on users.

Keywords: Abstract, Consistency, Density, Feedback, Information, Knowledge, Model, Needs, Nov, Quality, Research Articles, Theory

Bollen, J. and de Sompel, H.V. (2006), Mapping the structure of science through Usage. *Scientometrics*, **69** (2), 227-258.

Full Text: [2006\Scientometrics69, 227.pdf](2006/Scientometrics69,%20227.pdf)

Abstract: Science has traditionally been mapped on the basis of authorship and citation data. Due to publication and citation delays such data represents the structure of science as it existed in the past. We propose to map science by proxy of journal relationships derived from Usage data to determine research trends as they presently occur. This mapping is performed by applying a principal components analysis superimposed with a k-means cluster analysis on networks of journal relationships derived from a large set of article Usage data collected for the Los Alamos National Laboratory research community. Results indicate that meaningful maps of the interests of a local scientific community can be derived from Usage data. Subject groupings in the mappings corresponds to Thomson ISI subject categories. A comparison to maps resulting from the analysis of 2003 Thomson ISI Journal Citation Report data reveals interesting differences between the features of local Usage and global citation data.

Keywords: Analysis, Citation, Cluster Analysis, Combined Cocitation, Community, Global, Impact, Journals, Mapping, Networks, Nov, Proxy, Publication Delays, Research, Scientific Literature, Social Desirability Bias, Trends, Word Analysis

Notes: CCountry

Nwagwu, W. (2006), A bibliometric analysis of productivity patterns of biomedical authors of Nigeria during 1967-2002. *Scientometrics*, **69** (2), 259-269.

Full Text: [2006\Scientometrics69, 259.pdf](2006/Scientometrics69,%20259.pdf)

Abstract: Bibliographic data on biomedical literature of Nigeria drawn from articles listed in MEDLINE covering the period 1967-2002, and numbering 6820 were analysed to study the pattern of productivity of various author categories using Lotka’s law. The total of 2184 authors who wrote the papers was divided into four different files, namely all authors, first authors, non-collaborative authors and co-authors. We hypothesized that the productivity patterns of each of the categories of authors differed from Lotka’s inverse power law. The results showed that only the co-author category differed from the inverse power version of the law, while the other categories did not, although they yielded various exponents.

Keywords: Analysis, Distributions, Literature, Lotka Law, Nigeria, NOV, Pattern, Productivity, Scientific Productivity

Peng, D., Loh, M. and Mondry, A. (2006), Publication lag in biomedical journals varies due to the periodical’s publishing model. *Scientometrics*, **69** (2), 271-286.

Full Text: [2006\Scientometrics69, 271.pdf](2006/Scientometrics69,%20271.pdf)

Abstract: Research manuscripts face various time lags from initial submission to final publication in a scientific periodical. Three publishing models compete for the market. Professional publishing houses publish in print and/or online in a ‘reader-pays’ model, or follow the open access model of ‘author-pays’, while a number of periodicals are bound to learned societies. The present study aims to compare the three business models of publishing, with regards to publication speed. 28 topically similar biomedical journals were compared. Open access journals have a publication lag comparable to journals published by traditional publishers. Manuscript submitted to and accepted in either of these two types of periodicals are available to the reader much faster than manuscripts published in journals with strong ties to specialized learned societies.

Keywords: Articles, Controlled-Trials, Impact, Model, Models, NOV, Time

? Ventura, O.N. and Mombrú, A.W. (2006), Use of bibliometric information to assist research policy making. A comparison of publication and citation profiles of Full and Associate Professors at a School of Chemistry in Uruguay. *Scientometrics*, **69** (2), 287-313.

Full Text: [2006\Scientometrics69, 287.pdf](2006/Scientometrics69,%20287.pdf)

Abstract: Publication and citation profiles of Full and Associate Professors at the School of Chemistry of the Universidad de la Republica in Uruguay were investigated. The groups do not exhibit markedly different age averages. However, the average time since they started publishing, as well as other characteristics of their publication records, like productivity or citations, set them apart. From the point of view of both the number of papers per author and per year of activity, on one side, and of the number of citations per year of activity, on the other, the group of Full Professors has statistically significant larger averages than the Associate Professors. The impact of self-citations, multi-authorship and internationalization of the publications were analyzed within the two groups and shown to have no excessive or predictable influence on those parameters, except in the case of few (<= 2) or many (> 8) authors. It is suggested in this paper that these two indicators, number of papers per author per production year and number of citations per production year, combined in a plot allowing a bidimensional ranking of the individuals in the groups, may be used profitably as one of the components in the development of a policy toward promotion of Associate Professors. The analysis showed also that the quotient of citations received to number of papers published, even when derived from actual citation data of the scientists without involving the impact factors of the journals in which they publish, are not good parameters to use for that purpose, essentially because there is a reduction in the information content of the indicator with respect to those described before.

Keywords: Activity, Age, Analysis, Author Self-Citations, Collaboration, Development, Economics, Impact, Indicator, Indicators, Journal Impact, Macro, NOV, Output, Point, Policy, Policy Making, Production, Productivity, Promotion, Ranking, Research, Science, Time, Uruguay

Siddiqi, A.F. (2006), Age likes some years - A case study for ages more prone to death. *Scientometrics*, **69** (2), 315-321.

Full Text: [2006\Scientometrics69, 315.pdf](2006/Scientometrics69,%20315.pdf)

Abstract: A person can die at any age. It is an omni-spoken common saying. Is it really true? Are all ages equally prone to die? Does there exist some predictable pattern that may conjecture the incidence of death? These are the questions that are attempted here in this article. Literature is replete with cohort dependant age distributions and pyramids that focus, and are adjusted, primarily for the living persons. The current article is using a cohort free group of people and focuses exclusively on age at death to rummage for some pattern in these ages. A statistical investigation is made of the life span of human beings of previous two centuries. The life span, or age, distribution is revealed to be a quadric modal in nature, refuting the prevailed myth that all ages are equally susceptible to death.

Keywords: Age, Cohort, Distribution, Distributions, Human, Incidence, Life-Span, NOV, Pattern

Galvez, C. and Moya-Anegon, F. (2006), The unification of institutional addresses applying parametrized finite-state graphs (P-FSG). *Scientometrics*, **69** (2), 323-345.

Full Text: [2006\Scientometrics69, 323.pdf](2006/Scientometrics69,%20323.pdf)

Abstract: We propose a semi-automatic method based on finite-state techniques for the unification of corporate source data, with potential applications for bibliometric purposes. Bibliographic and citation databases have a well-known problem of inconsistency in the data at micro-level and meso-level, affecting the quality of bibliometric searches and the evaluation of research performance. The unification method applies parametrized finite-state graphs (P-FSG) and involves three stages: (1) breaking of corporate source data in independent units of analysis; (2) creation of binary matrices; and (3) drawing finite-state graphs. This procedure was tested on university departmental addresses, downloaded from the ISI Web of Science. Evaluation was in terms of an adaptation of the measures of precision and recall. The results demonstrate the usefulness of this approach, though it requires some human processing.

Keywords: Adaptation, Analysis, Bibliometric Indicators, Citation Analysis, Creation, Databases, Delimitation, Evaluation, Human, Institutional, Issues, Method, NOV, Output, Performance, Physics, Quality, Research, Stages, Standardization, Strategies, Universities, University

Notes: TTopic

Kademani, B.S., Kumar, V., Sagar, A. and Kumar, A. (2006), World literature on thorium research: A scientometric study based on Science Citation Index. *Scientometrics*, **69** (2), 347-364.

Full Text: [2006\Scientometrics69, 347.pdf](2006/Scientometrics69,%20347.pdf)

Abstract: This paper attempts to highlight quantitatively the growth and development of world literature on thorium in terms of publication output as per Science Citation Index (1982-2004). During 1982-2004 a total of 3987 papers were published by the scientists in the field ‘thorium’. The average number of publications published per year were 173. The highest number of papers 249 were published in 2001. The spurt in the literature output was reported during 1991-2004. There were 94 countries involved in the research in this field. USA is the top producing country with 1000 authorships (21.11%) followed by India with 498 authorships (10.51%). Authorship and collaboration trend was towards multi-authored papers. Intensive collaboration was found during 1990-2004.One paper ‘Nuclear Instruments and Methods in Physics Research - A 406 (3) (1998) 411-426’ had 64 collaborators. There were 586 international collaborative papers. Bilateral collaboration accounted for 80.55 percent of total collaborative papers. Bhabha Atomic Research Centre (India) topped the list with 153 authorships followed by Los Alamos National Laboratory (USA) with 105 authorships.The most preferred journals by the scientists were: Journal of Radioanalytical Nuclear Chemistry with 181 papers, Radiochimica Acta with 139 papers, Journal of Radioanalytical Nuclear Chemistry -Articles with 127 papers, Geochimica Cosmochimica Acta with 96 papers, Health Physics with 91 papers, Applied Radiation and Isotopes with 88 papers, Journal of Alloys and Compounds with 65 papers, Earth and Planetary Science letters with 59 papers and Chemical Geology, Indian Journal of Chemistry -A, Radiation Protection Dosimetry with 55 papers each. English was the most predominant language used by the scientists for communication. The high frequency keywords were: Thorium (500), Uranium (284), Separation (94), Thorium Isotopes (90), Thorium (IV) (86), Seawater (73), Solvent Extraction (70), and Rare Earth Elements (68).

Keywords: Collaboration, Communication, Development, Field, Growth, India, Indicators, Industry, Interface, International, IV, Literature, NOV, Nuclear-Fuels, Research, Thorium, Trend, USA

Campanario, J.M. and Gonzalez, L. (2006), Journal self-citations that contribute to the impact factor: Documents labeled ‘editorial material’ in journals covered by the Science Citation Index. *Scientometrics*, **69** (2), 365-386.

Full Text: [2006\Scientometrics69, 365.pdf](2006/Scientometrics69,%20365.pdf)

Abstract: We investigated the distribution of citations included in documents labeled by the ISI as ‘editorial material’ and how they contribute to the impact factor of journals in which the citing items were published. We studied all documents classified by the ISI as ‘editorial material’ in the Science Citation Index between 1999 and 2004 (277,231 records corresponding to editorial material published in 6141 journals). The results show that most journals published only a few documents that included 1 or 2 citations that contributed to the impact factor, although a few journals published many such documents. The data suggest that manipulation of the impact factor by publishing large amounts of editorial material with many citations to the journal itself is not a widely used strategy to increase the impact factor.

Keywords: Distribution, Impact, Manipulation, NOV

Baldini, N. (2006), The Act on inventions at public research institutions: Danish universities’ patenting activity. *Scientometrics*, **69** (2), 387-407.

Full Text: [2006\Scientometrics69, 387.pdf](2006/Scientometrics69,%20387.pdf)

Abstract: This paper focuses on the Danish Act No. 347 of 1999, which granted IPRs on inventions at public research institutions to the institutions themselves. After summarizing the situation in Denmark prior to the new law, I describe the Act’s main features and then I turn my attention to the solutions adopted by Danish academia to face the opportunities and challenges posed by the new situation. Finally, using a unique dataset including all patents filed by Danish universities from 1982 to 2003, I describe university patenting activity.

Keywords: Academic Knowledge, Activity, Bayh-Dole Act, Denmark, Entrepreneurial, European University, Growth, Industry, Intellectual Property, Ivory Tower, NOV, of-Technology, Research, Technology-Transfer, University

Schubert, A. and Glänzel, W. (2006), Cross-national preference in co-authorship, references and citations. *Scientometrics*, **69** (2), 409-428.

Full Text: [2006\Scientometrics69, 409.pdf](2006/Scientometrics69,%20409.pdf)

Abstract: the macro-level country-by-country co-authorship, cross-reference and cross-citation analysis started in our previous paper, 1 continues with revealing the cross-national preference stucture of the 36 selected countries. Preference indicators of co-authorship, cross-reference and cross-citation are defined, presented and discussed. The study revealed that geopolitical location, cultural relations and language are determining factors in shaping preferences whether in co-authorship, cross-reference or cross-citation. Areas like Central Europe, Scandinavia, Latin America (supplemented with Spain and Portugal), The Far East or the Australia-New Zealand-South Africa triad form typical ‘clusters’ with mutually strong preferences towards each other. The USA appears to have a distinguished role enjoying universal preference, which - in the cross-reference and cross-citation case - is asymmetric for the greater part of the countries under study.

Keywords: Africa, Analysis, Cooperation, Countries, Europe, Indicators, International Collaboration, Latin America, Link Indicator, Matrices, NOV, Portugal, Profiles, Science, Spain, Typology, USA

Roth, C. and Bourgine, P. (2006), Lattice-based dynamic and overlapping taxonomies: the case of epistemic communities. *Scientometrics*, **69** (2), 429-447.

Full Text: [2006\Scientometrics69, 429.pdf](2006/Scientometrics69,%20429.pdf)

Abstract: We present a method for describing taxonomy evolution. We focus on the structure of epistemic communities (ECs), or groups of agents sharing common knowledge concerns. Introducing a formal framework based on Galois lattices, we categorize ECs in an automated and hierarchically structured way and propose criteria for selecting the most relevant epistemic communities - for instance, ECs gathering a certain proportion of agents and thus prototypical of major fields. This process produces a manageable, insightful taxonomy of the community. Then, the longitudinal study of these static pictures makes possible an historical description. In particular, we capture stylized facts such as field progress, decline, specialization, interaction (merging or splitting), and paradigm emergence. The detection of such patterns in epistemic networks could fruitfully be applied to other contexts.

Keywords: Authors, Communities, Community, Evolution, Galois Lattices, Knowledge, Longitudinal Study, Map, Method, Model, Networks, NOV, Process, Sciences, Taxonomy, Zebrafish

Huang, C., Varum, C.A. and Gouveia, J.B. (2006), Scientific productivity paradox: the case of China’s S&T system. *Scientometrics*, **69** (2), 449-473.

Full Text: [2006\Scientometrics69, 449.pdf](2006/Scientometrics69,%20449.pdf)

Abstract: In 1985 China began the reform of its Science & Technology (S&T) sector inherited from the planned economy. To disclose the impact of the drawn-out reform on the efficiency of the whole sector, we measure the scientific productivity of China’s S&T institutes. The analysis is based on R&D input and output data at the country aggregate and provincial level. We utilize Polynomial Distributed Lag model to uncover the structure of the lag between R&D input and output. The findings reveal that the growth rate of scientific productivity of China’s S&T institutes has been negative since the 1990s.

Keywords: Analysis, China, Computer-Science, Exploration, Growth, Growth Rate, Impact, India, Innovation, Model, NOV, Policy, Productivity, Reform, Research Performance, Scientometrics, Time-Series, Unit-Root

Mattes, E., Stacey, M.C. and Marinova, D. (2006), Surveying inventors listed on patents to investigate determinants of innovation. *Scientometrics*, **69** (3), 475-498.

Full Text: [2006\Scientometrics69, 475.pdf](2006/Scientometrics69,%20475.pdf)

Abstract: This paper reviews the methods and findings of studies surveying inventors on nationally representative sample of patents or patent applications. These studies show that the most common inventor is a middle-aged man with a postgraduate qualification, with women representing only 0.4% to 3.5% of inventors. They demonstrate that 43% to 68% of granted patents become innovations (52% on average). Despite Such findings this body of work has only been cited 61 times in scientific journals. Thus, Surveys of inventors provide good insights into the process of coin mercial ISIng patents and yet are an underutilised method especially within the literature on innovation.

Keywords: Applications, Individual Inventor, Industry, Methods, Paper, Reviews, Rights, United-States, Women

Walters, G.D. (2006), Predicting subsequent citations to articles published in twelve crime-psychology journals: Author impact versus journal impact. *Scientometrics*, **69** (3), 499-510.

Full Text: [2006\Scientometrics69, 499.pdf](2006/Scientometrics69,%20499.pdf)

Abstract: Four hundred and twenty-eight articles published in 12 crime-psychology journals during the 2003 calendar year were reviewed for subsequent citations in the Social Science Citation Index (SSCI). Fifteen potential predictors were reduced to nine after subjecting the 15 variables to a principal components analysis with varimax rotation. The nine predictors included author characteristics - gender, occupational affiliation (acadeinic-nonacademic), national affiliation (U.S.-other), citations per 2001-2002 first author publications - article characteristics collaboration (single author-multiple author), article length, reviews, subject matter (coffectioiis/criminology-legal/foreiisic) - and journal characteristics - journal impact. Negative binomial regression of the citations earned by these 428 journal articles in a 23 to 34 month follow-up (M = 28 months) revealed significant effects for citations per 2001-2002 first author publications, national affiliation, and review articles. These results suggest that author impact may be a more powerful predictor of citations received by a journal article than the periodical in which the article appears.

Keywords: Analysis, Effects, Eminence, Evaluating Research, Follow Up, Follow-Up, Gender, Impact, Matter, Occupational, Predictors, Principal Components, Principal Components Analysis, Review, Reviews, Rotation, Science, Scientific Productivity

Yu, G., Guo, R. and Li, Y.J. (2006), The influence of publication delays on three ISI indicators. *Scientometrics*, **69** (3), 511-527.

Full Text: [2006\Scientometrics69, 511.pdf](2006/Scientometrics69,%20511.pdf)

Abstract: Based on the transform function model of the observed citing process, the analytical expression of the age distribution of citations is deduced, and it is theoretically proved that the peak Value of the citation distribution curve Would fall and shift backward along with increasing the average publication delay and the peak age has a direct proportion relation with the pure delay and would be prolonged along with increasing the delay or decreasing the aging rate. The influence of the average publication delay on three ISI indicators impact factor, immediacy index and cited half-life are studied; in one subject discipline, the bigger the delay, the lower the three indicators of journals. Using the sensitivity theory, sensitivity formulae of the three indicators to publication delay parameters are deduced and it is found that responses of these indicators to changes of publication delays are different according to different time constant of the aging process: the faster the aging rate of a discipline literature is, the worse the influence of publication delays on the indicators of journals in the discipline.

Keywords: Age, Age Distribution, Aging, Citations, Cited Half-Life, DEC, Distribution, Fall, Function, Half-Life, Immediacy Index, Impact, Impact Factor, Index, Indicators, ISI, Model, Parameters, Process, Publication, Sensitivity, Theory

Meneghini, R., Mugnaini, R. and Packer, A.L. (2006), International versus national oriented Brazilian scientific journals. A scientometric analysis based on SciELO and JCR-ISI databases. *Scientometrics*, **69** (3), 529-538.

Full Text: [2006\Scientometrics69, 529.pdf](2006/Scientometrics69,%20529.pdf)

Abstract: SciELO (Scientific Electronic Library on Line, www.scielo.bireme.br) is a program aimed at offering a core of Brazilian Scientific Journals in an open access mode at internet. This initiative has been followed by other Latin American, Caribbean and Iberian countries. Along with the development of the open accessed electronic library, a complementary scientometric/bibliometric database has been set up which permit to retrieve citation data of more than 40,000 articles. The robustness that this database has now achieved allows one to make important studies which were not possible before, using only the international Institute for Scientific Information (ISI) database.

Keywords: Access, Analysis, Caribbean, Citation, Core, Databases, Dec, Development, Institute for Scientific Information, Internet, ISI, Journals, Program, Robustness, Scientific Journals

Chen, T.J., Chen, Y.C., Hwang, S.J. and Chou, L.F. (2006), The rise of China in gastroenterology? A bibliometric analysis of ISI and MEDLINE databases. *Scientometrics*, **69** (3), 539-549.

Full Text: [2006\Scientometrics69, 539.pdf](2006/Scientometrics69,%20539.pdf)

Abstract: China has made great progress in economy and science in the last two decades. Its scientific development in gastroenterology has been seldom reported. Using two authoritative bibliographic databases, Science Citation Index Expanded (SCI-E) and MEDLINE, we analyze China’s research output in gastroenterology journals from 1990 to 2004. After detailed analysis, we found that China have greatly advanced in gastroenterology research, but the growth of Chinese articles in gastroenterology journals can largely be attributed to the selection of China-based journals into international bibliographic databases.

Keywords: Analysis, Bibliographic Databases, Bibliometric, Bibliometric Analysis, China, Chinese, Databases, DEC, Development, Economy, Growth, Hepatology, Impact, ISI, Japan, Journals, Made, MEDLINE, Output, Research, Science, Science Citation Index, Scientific Publications, Selection, World

Shin, J., Lee, W. and Park, Y. (2006), On the benchmarking method of patent-based knowledge flow structure: Comparison of Korea and Taiwan with USA. *Scientometrics*, **69** (3), 551-574.

Full Text: [2006\Scientometrics69, 551.pdf](2006/Scientometrics69,%20551.pdf)

Abstract: This paper suggests an international benchmarking method of disembodied knowledge flow structure. Using patent citation as a proxy measure of disembodied knowledge flow, national knowledge network is developed. Structural equivalence measure is applied to comparing the knowledge network of Korea and Taiwan with that of USA. Static and dynamic compafison make it possible to benchmark disembodied knowledge flow structure efficiently and identify convergent and divergent industries between developing countries and USA. It is also a mesostudy that could be conducive to building a comprehensive analytical framework of national innovation system.

Keywords: Building, China, Determinants, Developing Countries, Flow, Innovation Systems, Knowledge, Paper, Proxy, Structure, Taiwan, USA

Lundberg, J., Tomson, G., Lundkvist, I., Skar, J. and Brommels, M. (2006), Collaboration uncovered: Exploring the adequacy of measuring university-industry collaboration through co-authorship and funding. *Scientometrics*, **69** (3), 575-589.

Full Text: [2006\Scientometrics69, 575.pdf](2006/Scientometrics69,%20575.pdf)

Abstract: Analysing co-authored publications has become the standard way to measure research collaborations. At the same time bibliometric researchers have advised that co-authorship based indicators should be handled with care as a source of evidence on actual scientific collaboration. The aim of this study is to assess how well university-industry collaborations can be identified and described rising co-authorship data. This is done through a comparison of co-authorship data with industrial funding to a medical university. In total 436 companies were identified through the two methods. Our results show that one third of the companies that have provided funding to the university had not co-authored any publications with the university. Further, the funding indicator identified only 16% of the companies that had co-authored publications. Thus, both co-authorship and funding indicators provide incomplete results. We also observe a case of conflicting trends between funding and co-authorship indicators. We conclude that uncritical use of the two indicators may lead to misinterpretation of the development of collaborations and thus provide incorrect data for decision-making.

Keywords: Adequacy, Bibliometric, Co-Authorship, Collaboration, Comparison, DEC, Decision Making, Decision-Making, Development, Funding, Indicator, Indicators, Industrial, Innovations, Lead, Medical, Methods, Partnerships, Publications, Reflections, Research, Scientific Collaboration, Source, Standard, Trends

Jayasinghe, U.W., Marsh, H.W. and Bond, N. (2006), A new reader trial approach to peer review in funding research grants: An Australian experiment. *Scientometrics*, **69** (3), 591-606.

Full Text: [2006\Scientometrics69, 591.pdf](2006/Scientometrics69,%20591.pdf)

Abstract: Peer reviews are highly valued in academic life, but are notoriously unreliable. A major problem is the substantial measurement error due to the idiosyncratic responses when large numbers of different assessors each evaluate only a single or a few submissions (e.g., journal articles, grants, etc.). To address this problem. The main funding body of academic research in Australia conducted a trial ‘reader system’ in which each of a small number of senior academics read all proposals within their subdiscipline. The traditional peer review process for 1996 (2,989 proposals, 6,233 assessors) resulted in unacceptably low reliabilities comparable with those found in other research (0.475 for research project, 0.572 for researcher). for proposals from psychology and education in 1997, the new reader system resulted in substantially higher reliabilities: 0.643 and 0.881, respectively. In comparison to the traditional peer review approach, the new reader system is substantially more reliable, timely, and cost efficient - and applicable to many peer review situations.

Keywords: Australia, Context, Cost, Decisions, Education, Experiment, Interjudgmental Reliability, Journals, Life, Manuscript, Measurement, Peters, Proposals, Ratings, Research, Review, Reviews, Science, Validity

Ceci, A., De Marchi, M. and Rocchi, M. (2006), A note on innovation in the chemical industry in Italy. *Scientometrics*, **69** (3), 607-614.

Full Text: [2006\Scientometrics69, 607.pdf](2006/Scientometrics69,%20607.pdf)

Abstract: In our analysis we have recalled the general results of recent studies on innovation according to which innovation within the manufacturing industry is a complex phenomenon which does not lend itself to description or explanation utilising simplistic analytical models. We have then taken into account clues garnered from various descriptions of the innovative behaviour of companies Utilising several indicators of how innovative they are. Our results confirm the belief that notable differences exist between the two sub-sectors into which the chemical industry is divided: pharmaceutical and basic chemicals. Regarding the policy implications of our research, the close correlation between patents and basic research expenditure suggests that the Italian Fund for Basic Research might play a useful role in promoting innovation in the chemical industry.

Keywords: Analysis, Basic Research, Chemical, Chemicals, Complex, Correlation, Indicators, Italy, Manufacturing, Models, Policy, Policy Implications, Recent, Research, Science

Balaban, A.T. and Klein, D.J. (2006), Is chemistry ‘The Central Science’? How are different sciences related? Co-citations, reductionism, emergence, and posets. *Scientometrics*, **69** (3), 615-637.

Full Text: [2006\Scientometrics69, 615.pdf](2006/Scientometrics69,%20615.pdf)

Abstract: According to a widely used introductory chemistry text by T. E. Brown et al.,(1) chemistry is ‘The Central Science’. But scientometric co-citation analyses indicate that biochemistry seems presently to be more interconnected to other sciences. On the other hand, mathematics is considered by many to permeate all sciences and hence might compete as the choice for centrality. A critical commentary and argument leads to a proposal for an alternative partially ordered hierarchical \*’framework’ map of sciences. This argument is supplemented by a scientometric approach based on university Course requirements for different curricula, so as to support our partially ordered map. This alternative ‘framework’ mapping then is seen to indicate a special position for chemistry, as where significant branching begins.

Keywords: Biochemistry, Biology, Co-Citation, Cocitation, Curricula, dec, Emergence, Hand, Mapping, Position, Requirements, Sciences, Scientific Literatures, Support, Understanding Life

Peña-Rey, I., Pérez-Farinós, N. and Campos, P.M. (2006), Scientific production on tetrachloro-dibenzo-dioxins: A bibliometric study. *Scientometrics*, **69** (3), 639-650.

Full Text: [2006\Scientometrics69, 639.pdf](2006/Scientometrics69,%20639.pdf)

Abstract: Tetrachloro-dibenzo-dioxins were declared as human carcinogenic substances in 1997. Objective: to analyse the scientific production about tetrachloro-dibenzo-dioxins between 1976 and 2005. Sella Price and Bradford models were applied. Different aspects of papers were analysed. Impact factor of journals was studied. 3484 articles were found. The number of articles published each year is fitted to Solla Price model. It has been shown the scientific literature dispersion. Specialisation of some journals of Nucleus and 1(st) Bradford Zone has been shown.

Keywords: Bibliometric, Bibliometric Study, Cancer, Carcinogenic, DEC, Dispersion, Human, Index, Journals, Law, Model, Models, Population, Production, Scientific Production

Maier, G. (2006), Impact factors and peer judgment: the case of regional science journals. *Scientometrics*, **69** (3), 651-667.

Full Text: [2006\Scientometrics69, 651.pdf](2006/Scientometrics69,%20651.pdf)

Abstract: This paper discusses the relationship between Journal Impact Factors and the scientific community’s judgment of the quality of journals in regional science, a discipline closely related to economics and geography. The paper compares the results of a survey inquiring the quality of journals in the discipline with the impact factors of these journals for a total of five years. The comparison shows that no significant positive correlation between the impact factors and the peer judgments can be found. In many cases the correlation turns out to be negative - in some cases even significantly.

Keywords: Bibliometric Indicators, Citation, Comparison, Correlation, Criteria, DEC, Economics, Geography, Impact, Impact Factors, Journals, Market, Paper, Quality, Ranking, Ratings, Regional, Science, Survey, Universities

Bollen, J., Rodriguez, M.A. and Van De Sompel, H. (2006), Journal status. *Scientometrics*, **69** (3), 669-687.

Full Text: [2006\Scientometrics69, 669.pdf](2006/Scientometrics69,%20669.pdf)

Abstract: the status of an actor in a social context is commonly defined in terms of two factors: the total number of endorsements the actor receives from other actors and the prestige of the endorsing actors. These two factors indicate the distinction between popularity and expert appreciation of the actor. respectively. We refer to the former as popularity and to the latter as prestige. These notions of popularity and prestige also apply to the domain of scholarly assessment. The ISI Impact Factor (ISI IF) is defined as the mean number of citations a journal receives over a 2 year period. By merely Counting the amount of citations and disregarding the prestige of the citing journals, the ISI IF is a metric of popularity, not of prestige. We demonstrate how a weighted version of the popular PageRank algorithm can be used to obtain a metric that reflects prestige. We contrast the rankings of journals according to their ISI IF and their Weighted PageRank, and we provide an analysis that reveals both significant overlaps and differences. Furthermore, we introduce the Y-factor which is a simple combination of both the ISI IF and the weighted PageRank, and find that the resulting journal rankings correspond well to a general understanding of journal status.

Keywords: Algorithm, Analysis, Assessment, Impact Factor, Index, Quality, Research Output, Researchers, Social

Contreras, C., Edwards, G. and Mizala, A. (2006), The Current Impact Factor and the long-term impact of scientific journals by discipline: A logistic diffusion model estimation. *Scientometrics*, **69** (3), 689-695.

Full Text: [2006\Scientometrics69, 689.pdf](2006/Scientometrics69,%20689.pdf)

Abstract: This paper estimates the long-term impact of journals aggregated in 24 different fields, using a simple logistic diffusion model, and relates the results to the current impact factor. Results show that while the current and the long-term impact factors have a high cot-relation coefficient, some fields are systematically slower-moving than others, as they often differ in the proportion of the overall impact through time that occurs in the short term.

Keywords: Diffusion, Estimation, Impact, Impact Factors, Model, Paper

Galvez, C. and Moya-Anegon, F. (2007), Standardizing formats of corporate source data. *Scientometrics*, **70** (1), 3-26.

Full Text: [2007\Scientometrics70, 3.pdf](2007/Scientometrics70,%203.pdf)

Abstract: This paper describe an approach for improving the data quality of corporate sources when databases are used for bibliometric purposes. Research management relies on bibliographic databases and citation index systems as analytical tools, yet the raw resources for bibliometric studies are plagued by a lack of consistency in fied formatting for institution data. The present contribution puts forth a Natural Language Processing (NLP)-oriented method for the identification of the structures guiding corporate data and their mapping into a standardized format. The proposed unification process is based on the definition of address patterns and the ensuing application of Enhanced Finite-State Transducers (E-FST). Our procedure was tested on address formats downloaded from the INSPEC, MEDLINE and CAB Abstracts. The results demonstrate the helpfulness of the method as long as close control of errors is exercised as far as the formats to be unified. The computational efficacy of the model is noteworthy, due to the fact that it is firmly guided by the definition of data in the application domain.

Keywords: Analytical Tools, Application Domain, Bibliographic Databases, Bibliometric, Bibliometric Indicators, Bibliometric Studies, Citation, Citation Analysis, Computational, Control, Databases, Delimitation, Efficacy, Errors, Identification, Index, Information, Institutions, Management, Mapping, MEDLINE, Model, Output, Paper, Process, Publications, Quality, Research Performance, Source, Sources, Strategies, Tools

Lee, Y.G., Lee, J.D., Song, Y.I. and Lee, S.J. (2007), An in-depth empirical analysis of patent citation counts using zero-inflated count data model: the case of KIST. *Scientometrics*, **70** (1), 27-39.

Full Text: [2007\Scientometrics70, 27.pdf](2007/Scientometrics70,%2027.pdf)

Abstract: Patent citation counts represent an aspect of patent quality and knowledge flow. Especially, citation data of US patents contain most valuable pieces of the information among other patents. This paper identifies the factors affecting patent citation counts using US patents belonging to Korea Institute of Science and Technology (KIST). for patent citation count model, zero-inflated models are announced to handle the excess zero data. for explanatory factors, research team characteristics, invention-specific characteristics, and geographical domain related characteristics are suggested. As results, the size of invention and the degree of dependence upon Japanese technological domain significantly affect patent citation counts of KIST.

Keywords: Analysis, Dependence, Flow, Information, Innovation, Inventors, Knowledge, Knowledge Flows, Model, Models, Paper, Quality, Regression, Research, Science, Spillovers, Technology, US

Albert, A., Granadino, B. and Plaza, L.M. (2007), Scientific and technological performance evaluation of the Spanish Council for Scientific Research (CSIC) in the field of Biotechnology. *Scientometrics*, **70** (1), 41-51.

Full Text: [2007\Scientometrics70, 41.pdf](2007/Scientometrics70,%2041.pdf)

Abstract: An evaluation of the Spanish CSIC performance in Biotechnology, as compared with those of the French CNRS and the Italian CNR, has been carried out to determine the balance between the generation of scientific knowledge and the transfer of technology. This study shows a high scientific productivity mostly in journals with moderate impact factor, a low generation of patents and an insufficient transfer of knowledge to the Spanish companies. Other indicators confirm the existence of competitive human resources in biotechnological research producing scientific knowledge of interest for the development of patents and that cooperates successfully at European level.

Keywords: Development, Evaluation, Human, Impact, Indicators, Knowledge, Performance, Productivity, Research, Science, Sectors, Transfer

Aleixandre-Benavent, R., Zurian, J.C.V., Miguel-Dasit, A., Arroyo, A.A. and Gomez, M.C. (2007), Hypothetical influence of non-indexed Spanish medical journals on the impact factor of the Journal Citation Reports-indexed journals. *Scientometrics*, **70** (1), 53-66.

Full Text: [2007\Scientometrics70, 53.pdf](2007/Scientometrics70,%2053.pdf)

Abstract: the purpose of this study is to analyze the hypothetical changes in the 2002 impact factor (IF) of the biomedical journals included in the Science Citation Index-Journal Citation Reports (SCI-JCR) by also taking into account cites coming from 83 non-indexed Spanish journals on different medical specialties. A further goal of the study is to identify the subject categories of the SCI-JCR with the largest increase in their IF, and to estimate the 2002 hypothetical impact factor (2002 HIF) of these 83 non-indexed Spanish journals. It is demonstrated that the inclusion of cites from a selection of non SCI-JCR-indexed Spanish medical journals in the SCI-JCR-indexed journals produces a slight increase in their 2002 IF, specially in journals edited in the USA and in the UK. More than half of the non-indexed Spanish journals has a higher 2002 HIF than that of the SCI-JCR-indexed journal with the lowest IF in the same subject category.

Keywords: Bias, Bibliometric Indicators, Biomedical Journals, Goal, Impact, Impact Factor, Inclusion, Information, Journal, Journals, Medical, Medical Journals, Medical Specialties, Publications, Quality, SCI, Science, Scientific Activity, Selection, Tool, UK, USA

Notes: TTpopic

Lin, C.T. and Chiang, C.T. (2007), Evaluating the performance of sponsored Chinese herbal medicine research. *Scientometrics*, **70** (1), 67-84.

Full Text: [2007\Scientometrics70, 67.pdf](2007/Scientometrics70,%2067.pdf)

Abstract: Chinese herbal medicine has recently become a hot research field internationally; an increasing number of pharmaceutical researchers and scientists have dedicated themselves to such research work. Based on papers in the American Journal of Chinese Medicine from 2002 to 2004, 60% of papers published in the journal were sponsored by different institutions in the authors’ countries. This fact indicates that researchers receive sponsorship for their work, and sponsors should pay more attention on the control of the researchers to use financial support more efficiency. This study applied Analytic Hierarchy Process, AHP to evaluating the performance of sponsored Chinese herbal medicine research, and this method can help sponsors weight evaluation elements without having to change the system of every category of research. To explain the process and application of AHP, a Taiwanese case study is presented. The analytical results presented in this study, provide a reference for institutes supporting research on Chinese Herbal Medicine.

Keywords: AHP, Attention, Case Study, Chinese, Control, Efficiency, Elements, Evaluation, Institutions, Performance, Research, Research Impact, Taiwanese

Zabala-Iturriagagoitia, J.M., Jimenez-Saez, F., Castro-Martinez, E. and Gutierrez-Gracia, A. (2007), What indicators do (or do not) tell us about Regional Innovation Systems. *Scientometrics*, **70** (1), 85-106.

Full Text: [2007\Scientometrics70, 85.pdf](2007/Scientometrics70,%2085.pdf)

Abstract: This paper analyses some of the methodologies and R&D and innovation indicators used to measure Regional Innovative Capacity in Spain for the period 1996-2000. The results suggest that the approaches examined are not sufficiently rigorous; they vary depending on the methodology and indicators employed. Therefore, we would suggest that the right balance between quantitative and qualitative approaches could produce a better evaluation of innovation system performance which would be more useful to policy makers and other stakeholders.

Keywords: Evaluation, Indicators, Methodology, Nations, Paper, Performance, Policy, Qualitative, Spain

Guan, J.C. and Ma, N. (2007), A bibliometric study of China’s semiconductor literature compared with other major Asian countries. *Scientometrics*, **70** (1), 107-124.

Full Text: [2007\Scientometrics70, 107.pdf](2007/Scientometrics70,%20107.pdf)

Abstract: In this paper we compare the scientific research in the semiconductor-related field in China with some other major nations in Asia. It is based on the bibliometric information from SCI-Expanded database during the time period of 1995-2004. We show that China has been developing fast in semiconductor research, and become the second productive country in Asia as reflected by the publication profile. The evidences indicate a significant increasing trend in the research efforts and readership among Asian countries. Similar to the scientists in Japan and South Korea, Chinese scientists were more inclined to work in larger groups, typically 4 or more authors. The assessment of research quality is further conducted based on citation-based measures. As benchmarks, two western countries, namely USA and Germany, have been compared in the citation analysis. It is revealed that the impacts of research outputs in the Asian countries, except for Japan, have been badly incommensurate with their devoted research efforts compared with USA and Germany. Like most of other Asian countries the research results of Chinese scientists in semiconductor have a low international visibility despite their strong research efforts and increasingly large domestic readership. The application of Leimkuhler curve illustrates vividly the inequality of citation times among the compared countries. Furthermore, the Gini Indices of each country and each pair of countries are calculated which illustrates again the inequality of informetric productivities.

Keywords: Analysis, Asia, Asian, Assessment, Basic Research, Bibliometric, Bibliometric Study, China, Chinese, Citation, Citation Analysis, Citation Impact, Germany, GINI Index, Groups, Impacts, Indicators, Information, Japan, Journals, Korea, Low, Paper, Profile, Publication, Publication Output, Quality, Research, Research Performance, Research Quality, Research Results, Science, South Korea, Trend, USA, Visibility

Heinze, T., Shapira, P., Senker, J. and Kuhlmann, S. (2007), Identifying creative research accomplishments: Methodology and results for nanotechnology and human genetics. *Scientometrics*, **70** (1), 125-152.

Full Text: [2007\Scientometrics70, 125.pdf](2007/Scientometrics70,%20125.pdf)

Abstract: Motivated by concerns about the organizational and institutional conditions that foster research creativity in science, we focus on how creative research can be defined, operationalized, and empirically identified. A functional typology of research creativity is proposed encompassing theoretical, methodological and empirical developments in science. We then apply this typology through a process of creative research event identification in the fields of nanotechnology and human genetics in Europe and the United States, combining nominations made by several hundred experts with data on prize winners. Characteristics of creative research in the two respective fields are analyzed, and there is a discussion of broader insights offered by our approach.

Keywords: Europe, Genetics, Human, Identification, Made, Organizational, Research, Science, Scientific Creativity, Typology, United States

Pasterkamp, G., Rotmans, J.I., de Kleijn, D.V.P. and Borst, C. (2007), Citation frequency: A biased measure of research impact significantly influenced by the geographical origin of research articles. *Scientometrics*, **70** (1), 153-165.

Full Text: [2007\Scientometrics70, 153.pdf](2007/Scientometrics70,%20153.pdf)

Abstract: Context. The use of citation frequency and impact factor as measures of research quality and journal prestige is being criticized. Citation frequency is augmented by self-citation and for most journals the majority of citations originate from a minority of papers. We hypothesized that citation frequency is also associated with the geographical origin of the research publication. Objective. We determined whether citations originate more frequently from institutes that are located in the same country as the authors of the cited publication than would be expected by chance. Design. We screened citations referring to 1200 cardiovascular publications in the 7 years following their publication. for the 1200 citation recipient publications we documented the country where the research originated (9 countries/regions) and the total number of received citations. for a selection of 8864 citation donor papers we registered the country/region where the citing paper originated. Results. Self-citation was common in cardiovascular journals (n = 1534, 17.8%). After exclusion of self-citation, however, the number of citations that originated from the same country as the author of the citation recipient was found to be on average 31.6% higher than would be expected by chance (p < 0.01 for all countries/regions). In absolute numbers, nation oriented citation bias was most pronounced in the USA, the country with the largest research output (p < 0.001). Conclusion. Citation frequency was significantly augmented by nation oriented citation bias. This nation oriented citation behaviour seems to mainly influence the cumulative citation number for papers originating from the countries with a larger research output.

Keywords: Bias, Cardiovascular, Impact, Journal Impact, Output, Paper, Quality, Research, Research Articles, Research Quality, Science, Selection, USA

Egghe, L. (2007), Probabilities for encountering genius, basic, ordinary or insignificant papers based on the cumulative nth citation distribution. *Scientometrics*, **70** (1), 167-181.

Full Text: [2007\Scientometrics70, 167.pdf](2007/Scientometrics70,%20167.pdf)

Abstract: This article calculates probabilities for the occurrence of different types of papers such as genius papers, basic papers, ordinary papers or insignificant papers. The basis of these calculations are the formulae for the cumulative n(th) citation distribution, being the cumulative distribution of times at which articles receive their n(th) (n = 1,2,3,...) citation. These formulae (proved in previous papers) are extended to allow for different aging rates of the papers. These new results are then used to define different importance classes of papers according to the different values of n, in function of time t. Examples are given in case of a classification into four parts: genius papers, basic papers, ordinary papers and (almost) insignificant papers. The fact that, in these examples, the size of each class is inversely related to the importance of the journals in this class is proved in a general mathematical context in which we have an arbitrary number of classes and where the threshold values of n in each class are defined according to the natural law of Weber-Fechner.

Keywords: Aging, Classification, Distribution, Importance, Law, Natural, Sleeping Beauties, Threshold

Lo, S.C. (2007), Patent analysis of genetic engineering research in Japan, Korea and Taiwan. *Scientometrics*, **70** (1), 183-200.

Full Text: [2007\Scientometrics70, 183.pdf](2007/Scientometrics70,%20183.pdf)

Abstract: the aim of this study is to reveal the research growth, the distribution of research productivity and impact of genetic engineering research in Japan, Korea and Taiwan by taking patent bibliometrics approach. This study uses quantitative methods adopt from bibliometrics to analyze the patents granted to Japan, Korea and Taiwan by United States Patent and Trademark Office (USPTO) from 1991 to 2002. In addition to patent and citation count, Bradford’s Law is applied to identify core assignees in genetic engineering. Patent coupling approach is taken to further analyze the patents granted to the core assignees to enclose the correlations among the core assignees. 13,055 genetic engineering patents were granted during the period of 1991 to 2002. Japan, Korea and Taiwan own 841 patents and Japan owns most of them. 270 assignees shared 841 patents and 16 core assignees are identified by the Bradford’s Law. 18,490 patents were cited by the 13,055 patents and 1,146 out of the 18,490 cited patents were granted to Japan, Korea and Taiwan. The results show Japan performs best in productivity and research impact among three countries. The core assignees are also Japan based institutions and four technical clusters are identified by patent coupling.

Keywords: Analysis, Bibliometrics, Biotechnology, Citation, Clusters, Core, Correlations, Coupling, Distribution, Engineering, Genetic, Genetic Engineering, Growth, Impact, Indicators, Institutions, Japan, Knowledge, Korea, Methods, Patents, Productivity, Research, Research Productivity, Scientific Papers, Sectors, Statistics, Taiwan, United States

Schubert, A. (2007), Successive h-indices. *Scientometrics*, **70** (1), 201-205.

Full Text: [2007\Scientometrics70, 201.pdf](2007/Scientometrics70,%20201.pdf)

Abstract: It is suggested that h-indices themselves may form the basis of a series of h-indices at successively higher levels of aggregation. The concept of successive h-indices may usefully contribute to develop a coherent frame for multi-level assessments.

Keywords: Aggregation, Assessments, Concept, Levels

Notes: UUniversity

Leydesdorff, L. and Meyer, M. (2007), The scientometrics of a Triple Helix of university-industry-government relations (Introduction to the topical issue). *Scientometrics*, **70** (2), 207-222.

Full Text: [2007\Scientometrics70, 207.pdf](2007/Scientometrics70,%20207.pdf)

Abstract: We distinguish between an internal differentiation of science and technology that focuses on instrumentalities and an external differentiation in terms of the relations of the knowledge production process to other social domains, notably governance and industry. The external contexts bring into play indicators and statistical techniques other than publications, patents, and citations. Using regression analysis, for example, one can examine the importance of knowledge and knowledge spill-over for economic development. The relations can be expected to vary among nations and regions. The field-specificity of changes is emphasized as a major driver of the research agenda. In a knowledge-based economy, institutional arrangements can be considered as support structures for cognitive developments.

Keywords: Analysis, Base, Changes, Citations, Development, Economic Development, Indicators, Innovation, Knowledge, Nations, Patents, Publications, Regression Analysis, Relations, Research, Research Agenda, Science, Science and Technology, Scientometrics, Systems, Techniques, Technology, Topical

Wong, P.K. and Ho, Y.P. (2007), Knowledge sources of innovation in a small open economy: the case of Singapore. *Scientometrics*, **70** (2), 223-249.

Full Text: [2007\Scientometrics70, 223.pdf](2007/Scientometrics70,%20223.pdf)

Abstract: By tracing the flows of patent citation to prior patents and scientific journal articles, we investigate the sources of knowledge for innovation output in Singapore, a small, highly open economy that has traditionally been significantly dependent on foreign multinational corporations (MNCs). We found that the local production of new knowledge by indigenous Singaporean firms depends disproportionately on *technological* knowledge produced by MNCs with operational presence in Singapore and *scientific* knowledge generated by foreign universities. Locally produced new knowledge by indigenous firms and local universities/public research institutes constitutes an as yet insignificant, albeit growing, source for innovation in Singapore.

Azagra-Caro, J.M., Archontakis, F. and Yegros-Yegros, A. (2007), In which regions do universities patent and publish more? *Scientometrics*, **70** (2), 251-266.

Full Text: [2007\Scientometrics70, 251.pdf](2007/Scientometrics70,%20251.pdf)

Abstract: the main objective of this contribution is to test whether university patents share common determinants with university publications at regional level. We build some university production functions with 1,519 patents and 180,239 publications for the 17 Spanish autonomous regions (NUTS-2) in a time span of 14 years (1988-2001). We use econometric models to estimate their determinants. Our results suggest that there is little scope for regional policy to compensate the production of patents vs. publications through different university or joint research institutional settings. On the contrary, while patents are more reactive to expenditure on R&D, publications are more responsive to the number of researchers, so the sustained promotion of both will make it compatible for regions their joint production. However, standing out in the generation of both outputs requires costly investment in various inputs.

Keywords: Economics, Growth, Innovation, Inputs, Models, Policy, Production, Regional, Research, Research Productivity, Science, Systems, Technology-Transfer, United-States

Glänzel, W. and Schlemmer, B. (2007), National research profiles in a changing Europe (1983-2003) - An exploratory study of sectoral characteristics in the Triple Helix. *Scientometrics*, **70** (2), 267-275.

Full Text: [2007\Scientometrics70, 267.pdf](2007/Scientometrics70,%20267.pdf)

Abstract: Eight Eastern European countries joined the European Union in 2004. In this paper, bibliometric methods are used to analyse if the integration of these countries into the EU was accompanied by corresponding changes in their sectoral research profiles. In addition, the authors discuss changes in the national profiles of three accession countries and three EU15 member states during the last two decades. The results confirm that a process of European homogenisation and convergence is taking place, but also show that this process is slow and that member countries have maintained their individual peculiarities and preferences during this evolution.

Keywords: Bibliometric, Bibliometric Methods, Characteristics, EU, Europe, European Union, Evolution, Integration, Methods, Paper, Process, Profiles, Research

Bhattacharya, S. and Arora, P. (2007), Industrial linkages in Indian universities: What they reveal and what they imply? *Scientometrics*, **70** (2), 277-300.

Full Text: [2007\Scientometrics70, 277.pdf](2007/Scientometrics70,%20277.pdf)

Abstract: the study investigated industrial interactions in science and ‘applied science’ departments of seven universities in India. Motivating factors and constraints perceived by university departments and the role of the government in initiating and sustaining interactions were examined. Different types of interactions with industry were exhibited in the seven selected universities. Some specific initiatives like creation of special centers to facilitate interaction with industry were observed in the majority of the selected universities. Personal contact was indicated as the major motivator in the initiation of linkages. The government had taken some important initiatives to strengthen the university-industry link. The study points to the need of developing further linkages so that they can lead to successful and mutually beneficial outcomes for both university and industry.

Keywords: Creation, India, Industrial, Interaction, Interactions, Lead, Science, Spillovers

Belkhodja, O. and Landry, R. (2007), ‘The Triple-Helix collaboration: Why do researchers collaborate with industry and the government? What are the factors that influence the perceived barriers?’. *Scientometrics*, **70** (2), 301-332.

Full Text: [2007\Scientometrics70, 301.pdf](2007/Scientometrics70,%20301.pdf)

Abstract: This paper addresses four questions: What is the extent of the collaboration between the natural sciences and engineering researchers in Canadian universities and government agencies and industry? What are the determinants of this collaboration? Which factors explain the barriers to collaboration between the university, industry and government? Are there similarities and differences between the factors that explain collaboration and the barriers to collaboration? Based on a survey of 1554 researchers funded by the Natural Sciences and Engineering Research Council of Canada (NSERC), The results of the multivariate regressions indicate that various factors explain the decision of whether or not to collaborate with industry and the government. The results also differed according to the studied fields. Overall, the results show that the variables that relate to the researcher’s strategic positioning, to the set- up of strategic networks, to the costs related to the production of the transferred knowledge and transactions explain in large part the researcher’s collaboration. The results of the linear regression pointed to various factors that affect collaboration with researchers: research budget, university localization, radicalness of research, degree of risk-taking culture and researcher’s publications. Finally, the last part of the paper presents the results, and what they imply for future research and theory building.

Keywords: Barriers, Budget, Building, Canada, Costs, Culture, Knowledge, Multivariate, Natural, Paper, Production, Research, Risk-Taking, Science, Scientific Co-Authorship, Survey, University

Baldini, N., Grimaldi, R. and Sobrero, M. (2007), To patent or not to patent? A survey of Italian inventors on motivations, incentives, and obstacles to university patenting. *Scientometrics*, **70** (2), 333-354.

Full Text: [2007\Scientometrics70, 333.pdf](2007/Scientometrics70,%20333.pdf)

Abstract: This paper reports results from a survey of 208 Italian faculty members, inventors of university-owned patents, on their motivation to get involved in university patenting activities, the obstacles that they faced, and their suggestions to foster the commercialization of academic knowledge through patents. Findings show that respondents get involved in patenting activities to enhance their prestige and reputation, and look for new stimuli for their research; personal earnings do not represent a main incentive. University-level patent regulations reduce the obstacles perceived by inventors, as far as they signal universities’ commitment to legitimate patenting activities. Implications for innovation policies are discussed.

Keywords: Academic Knowledge, Bayh-Dole Act, Biotechnology, Commercialization, Commitment, Entrepreneurial, Incentives, Intellectual Property, Knowledge, Motivation, Paper, Public Research, Research, Research-And-Development, Science, Survey, Technology-Transfer

Moutinho, P.S.F., Fontes, M. and Godinho, M.M. (2007), Do individual factors matter? A survey of scientists’ patenting in Portuguese public research organisations. *Scientometrics*, **70** (2), 355-377.

Full Text: [2007\Scientometrics70, 355.pdf](2007/Scientometrics70,%20355.pdf)

Abstract: This paper addresses scientists’ behaviour regarding the patenting of knowledge produced in universities and other public sector research organisations (PSROs). Recent years have witnessed a rapid growth in patenting and licensing activities by PSROs. We argue that the whole process depends to a certain extent on scientists’ willingness to disclose their inventions. Given this assumption, we conduct research into individual behaviour in order to understand scientists’ views concerning the patenting of their research results. Data from a questionnaire survey of Portuguese researchers from nine PSROs in life sciences and biotechnology is presented and analysed and complemented with in-depth interviews. The results reveal that overall the scientists surveyed show a low propensity to become involved in patenting and licensing activities, despite the fact that the majority had no ‘ethical’ objections to the disclosure of their inventions and the commercial exploitation of these. Perceptions about the impacts of these activities on certain fundamental aspects of knowledge production and dissemination are however divergent. This may account for the low participation levels. Furthermore, most scientists perceived the personal benefits deriving from this type of activity to be low. Similarly, the majority also believed that there are many difficulties associated with the patenting process and that they receive limited support from their organisations, which lack the proper competences and structures to assist with patenting and licensing.

Keywords: Academia, Activity, Biotechnology, Economics, Growth, Impacts, Knowledge, Levels, Life, Matter, Paper, Participation, Performance, Production, Questionnaire, Questionnaire Survey, Research, Science, Survey, Systems, Technology, Universities

Cassiman, B., Glenisson, P. and Van Looy, B. (2007), Measuring industry-science links through inventor-author relations: A profiling methodology. *Scientometrics*, **70** (2), 379-391.

Full Text: [2007\Scientometrics70, 379.pdf](2007/Scientometrics70,%20379.pdf)

Abstract: In this pilot study we examine the performance of text-based profiling in recovering a set of validated inventor-author links. In a first step we match patents and publications solely based on their similarity in content. Next, we compare inventor and author names on the highest ranked matches for the occurrence of name matches. Finally, we compare these candidate matches with the names listed in a validated set of inventor-author names. Our text-based profile methodology performs significantly better than a random matching of patents and publications, suggesting that text-based profiling is a valuable complementary tool to the name searches used in previous studies.

Keywords: Matching, Methodology, Performance, Profile

Iversen, E.J., Gulbrandsen, M. and Klitkou, A. (2007), A baseline for the impact of academic patenting legislation in Norway. *Scientometrics*, **70** (2), 393-414.

Full Text: [2007\Scientometrics70, 393.pdf](2007/Scientometrics70,%20393.pdf)

Abstract: As the commercialization of academic research has risen as a target area in many countries, the need for better empirical data collection to evaluate policy changes on this front has increasingly been recognized. This need is exemplified in the Norwegian case where legislative changes went into effect in 2003 expressly to encourage greater commercialization through patenting research results. This policy ambition faces the problem that no record of the patenting activity of academic researchers is available before 2003 when the country’s ‘professor’s privilege’ was phased out. This article addresses the fundamental difficulty of how to empirically test the effect of such policy aims. It develops a methodology which can be used to reliably baseline changes in the extent and focus of academic patents. The purpose is to describe the empirical approach and results, while also providing insight into the changes in Norwegian policy on this front and their context.

Keywords: Activity, Data Collection, Entrepreneurial, Evolution, Front, Impact, Industry, Inventors, Methodology, Norway, Performance, Policy, Research, Science, Technology, Triple-Helix, University

Meyer, M.S. and Tang, P. (2007), Exploring the ‘value’ of academic patents: IP management practices in UK universities and their implications for Third-Stream indicators. *Scientometrics*, **70** (2), 415-440.

Full Text: [2007\Scientometrics70, 415.pdf](2007/Scientometrics70,%20415.pdf)

Abstract: Third-Stream activities have become increasingly important in the UK. However, valuing them in a meaningful way still poses a challenge to science and technology analysts and policy makers alike. This paper reviews the general literature on ‘patent value’ and assesses the extent to which these established measures, including patent citation, patent family, renewal and litigation data, can be applied to the university context. Our study examines indicators of patent value for short and mid-term evaluation purposes, rather than indicators that suffer from long time lags. We also explore the extent to which differences in IP management practices at universities may have an impact on the validity and robustness of possible indicators. Our observations from four UK universities indicate that there are considerable differences between universities as to how they approach the IP management process, which in turn has implications for valuing patents and how they track activity in this area. In their current form, data as collected by universities are not sufficiently robust to serve as the basis for evaluation or resource allocation.

Keywords: Activity, Evaluation, Family, Impact, Indicators, Innovation, Litigation, Management, Management Practices, Paper, Policy, Resource Allocation, Reviews, Robustness, Science, Semiconductor Industry, Systems, Technology, UK, Validity

Van Looy, B., Magerman, T. and Debackere, K. (2007), Developing technology in the vicinity of science: An examination of the relationship between science intensity (of patents) and technological productivity within the field of biotechnology. *Scientometrics*, **70** (2), 441-458.

Full Text: [2007\Scientometrics70, 441.pdf](2007/Scientometrics70,%20441.pdf)

Abstract: In this paper we investigate-at a country level-the relationship between the science intensity of patents and technological productivity, taking into account differences in terms of scientific productivity. The number of non patent references in patents is considered as an approximation of the science intensity of technology whereas a country’s technological and scientific performance is measured in terms of productivity (i.e., number of patents and publications per capita). We use USPTO patent-data pertaining to biotechnology for 20 countries covering the time period 1992-1999. Our findings reveal mutual positive relationships between scientific and technological productivity for the respective countries involved. At the same time technological productivity is associated positively with the science intensity of patents. These results are confirmed when introducing time effects. These observations corroborate the construct validity of science intensity as a distinctive indicator and suggest its usefulness for assessing science and technology dynamics.

Keywords: Alliances, Citation Analysis, Dynamics, Effects, Exploration, Indicator, Indicators, Industry-Government Relations, Innovation, Linkage, Paper, Performance, Productivity, Public Science, References, Science, Triple-Helix, Validity

Ramlogan, R., Mina, A., Tampubolon, G. and Metcalfe, J.S. (2007), Networks of knowledge: the distributed nature of medical innovation. *Scientometrics*, **70** (2), 459-489.

Full Text: [2007\Scientometrics70, 459.pdf](2007/Scientometrics70,%20459.pdf)

Abstract: Innovation in medicine is a complex process that unfolds unevenly in time and space. It is characterised by radical uncertainty and emerges from innovation systems that can hardly be comprehended within geographical, technological or institutional boundaries. These systems are instead highly distributed across countries, competences and organisations. This paper explores the nature, rate and direction of the growth and transformation of medical knowledge in two specific areas of research, interventional cardiology and glaucoma. We analyse two large datasets of bibliometric information extracted from ISI and adopt an empirical network approach to try to uncover the fine structure of the relevant micro-innovation systems and the mechanisms through which these evolve along trajectories of change shaped by the search for solutions to interdependent problems.

Keywords: Bibliometric, Biotechnology, Cardiology, Collaboration, Complex, Connectivity, Fine Structure, Glaucoma, Growth, Information, Innovation, ISI, Knowledge, Mechanisms, Medical, Medicine, Paper, Process, Radical, Rate, Research, Solutions, Structure, Trajectories, Transformation, Uncertainty

Klitkou, A., Nygaard, S. and Meyer, M. (2007), Tracking techno-science networks: A case study of fuel cells and related hydrogen technology R&D in Norway. *Scientometrics*, **70** (2), 491-518.

Full Text: [2007\Scientometrics70, 491.pdf](2007/Scientometrics70,%20491.pdf)

Abstract: This study explores boundary-crossing networks in fuel-cell science and technology. We use the case of Norwegian fuel cell and related hydrogen research to explore techno-science networks. Standard bibliometric and patent indicators are presented. Then we explore different types of network maps-maps based on co-authorship, co-patenting and co-activity data. Different network configurations occur for each type of map. Actors reach different levels of prominence in the different maps, but most of them are active both in science and technology. This illustrates that to appreciate fully the range of science-technology interplay, all three analyses need to be taken into account.

Keywords: Bibliometric, Case Study, Cells, Co-Authorship, Co-Authorships, Fuel Cell, Fuel Cells, Hydrogen, Indicators, Industry-Government Relations, Interface, Knowledge, Levels, Networks, Norway, Patents, Patterns, Range, Research, Research Collaboration, Science, Science and Technology, Triple-Helix, University

Kretschmer, H., Kretschmer, U. and Kretschmer, T. (2007), Reflection of co-authorship networks in the Web: Web hyperlinks versus Web visibility rates. *Scientometrics*, **70** (2), 519-540.

Full Text: [2007\Scientometrics70, 519.pdf](2007/Scientometrics70,%20519.pdf)

Abstract: methods used in webometrics and scientometrics or informetrics are evident from the literature. Are there also similarities between scientometric and Web indicators of collaboration for possible use in technology policy making? Usually, the bibliometric method used to study collaboration is the investigation of co-authorships. In this paper, Web hyperlinks and Web visibility indicators are examined to establish their usefulness as indicators of collaboration and to explore whether similarities exist between Web-based structures and bibliographic structures. Three empirical studies of collaboration between institutions and individual scientists show that hyperlink structures at the Web don’t reflect collaboration structures collected by bibliographic data. However Web visibility indicators of collaboration are different from hyperlinks and can be successfully used as Web indicators of collaboration.

Keywords: Bibliometric, Co-Authorship, Co-Authorship Networks, Collaboration, Communication, Hyperlinks, Indicators, Informetrics, Institutions, International Scientific Collaboration, Investigation, Methods, Networks, Paper, Patterns, Policy, Policy Making, Policy-Making, Science, Scientometrics, Technology Policy, Visibility, Webometrics

Notes: CCountry

? Pouris, A. (2007), Nanoscale research in South Africa: A mapping exercise based on scientometrics. *Scientometrics*, **70** (3), 541-553.

Full Text: [2007\Scientometrics70, 541.pdf](2007/Scientometrics70,%20541.pdf)

Abstract: This article reports the findings of a scientometric analysis of nanoscale research in South Africa during the period 2000-2005. The ISI databases were identified as the most appropriate information platform for the objectives of the investigation and have been interrogated for the identification of South African authors publishing in the field. The article identifies trends over time, major institutional contributors, journals in which South African authors publish their research, international collaborators and performance in comparison to four comparator countries (India, Brazil, South Korea and Australia). The major findings of the investigation are as follows: nanoscale research in South Africa is driven by individual researchers interests up to date and it is in its early stages of development; the country’s nanoscale research is below what would one expect in light of its overall publication output; the country’s nano-research is distributed to a number of Universities with subcritical concentration of researchers.

Keywords: Africa, Analysis, Australia, Brazil, Collaboration, Comparison, Concentration, Databases, Development, Exercise, Identification, India, Information, Investigation, ISI, Journals, Korea, Light, Mapping, Nanoscale, Nanoscience, Nanotechnology, Output, Performance, Publication, Publications, Publishing, Research, Scientometrics, Sector, South Africa, South Korea, Trends

? Lin, M.W. and Zhang, J.J. (2007), Language trends in nanoscience and technology: the case of Chinese-language publications. *Scientometrics*, **70** (3), 555-564.

Full Text: [2007\Scientometrics70, 555.pdf](2007/Scientometrics70,%20555.pdf)

Abstract: Nanoscience and technology (NST) is a young scientific and technological field that has generated great worldwide interest in the past two decades. Previous bibliometric analyses have unmistakably demonstrated the remarkable growth of the global NST literature. While almost all published research articles in NST are in English, increasingly a larger share of NST publications is published in the Chinese language. Perplexingly, Chinese is the only language - apart from English - that displays an ascendant trend in the NST literature. In this brief note, we explore and evaluate three arguments that could explain this phenomenon: coverage bias, language preference, and community formation.

Keywords: Bias, Bibliometric, Brief, Chinese, Community, Developing-World, English, Formation, Global, Growth, Language, Nanoscience, Nanotechnology, Preference, Publications, Research, Research Articles, Research Performance, Science-Citation-Index, Scientific Journals, Trend, Trends

Notes: TTopic

? Kostoff, R.N., Koytcheff, R.G. and Lau, C.G.Y. (2007), Global nanotechnology research metrics. *Scientometrics*, **70** (3), 565-601.

Full Text: [2007\Scientometrics70, 565.pdf](2007/Scientometrics70,%20565.pdf)

Abstract: Text mining was used to extract technical intelligence from the open source global nanotechnology and nanoscience research literature. An extensive nanotechnology/nanoscience-focused query was applied to the Science Citation Index/Social Science Citation Index (SCI/SSCI) databases. The nanotechnology/nanoscience research literature infrastructure (prolific authors, key journals/institutions/countries, most cited authors/journals/documents) was obtained using bibliometrics. A novel addition was the use of institution and country auto-correlation maps to show co-publishing networks among institutions and among countries, and the use of institution-phrase and country-phrase cross-correlation maps to show institution networks and country networks based on use of common terminology (proxy for common interests). The use of factor matrices quantified further the strength of the linkages among institutions and among countries, and validated the co-publishing networks shown graphically on the maps.

Keywords: Bibliometrics, Databases, Global, Institutions, Key, Metrics, Mining, Nanoscience, Nanotechnology, Networks, Proxy, Research, Science Citation Index, Source, Strength, T, Terminology

? Lucio-Arias, D. and Leydesdorff, L. (2007), Knowledge emergence in scientific communication: From ‘fullerenes’ to ‘nanotubes’. *Scientometrics*, **70** (3), 603-632.

Full Text: [2007\Scientometrics70, 603.pdf](2007/Scientometrics70,%20603.pdf)

Abstract: This article explores the emergence of knowledge from scientific discoveries and their effects on the structure of scientific communication. Network analysis is applied to understand this emergence institutionally as changes in the journals; semantically as changes in the codification of meaning in terms of words; and cognitively as the new knowledge becomes the emergent foundation of further developments. The discovery of fullerenes in 1985 is analyzed as the scientific discovery that triggered a process which led to research in nanotubes.

Keywords: Algorithm, Analysis, Collaboration, Communication, Effects, Emergence, Indicators, Interdisciplinarity, Knowledge, Meaning, Nanoscience, Nanotechnology, Patterns, Research, Science, Structure

? Rafols, I. and Meyer, M. (2007), How cross-disciplinary is bionanotechnology? Explorations in the specialty of molecular motors. *Scientometrics*, **70** (3), 633-650.

Full Text: [2007\Scientometrics70, 633.pdf](2007/Scientometrics70,%20633.pdf)

Abstract: Nanotechnology has been presented in the policy discourse as an intrinsically interdisciplinary field, requiring collaborations among researchers with different backgrounds, and specific funding schemes supporting knowledge-integration activities. Early bibliometric studies supported this interdisciplinary vision (MEYER & PERSSON, 1998), but recent results suggest that nanotechnology is (yet) a mixed bag with various mono-disciplinary subfields (SCHUMMER, 2004). We have reexamined the issue at the research project level, carrying out five case studies in molecular motors, a specialty of bionanotechnology. Relying both in data from interviews and bibliometric indicators, we have developed a multidimensional analysis (SANZ-MENENDEZ et al., 2001) in order to explore the extent and types of cross-disciplinary practices in each project. We have found that there is a consistent high degree of cross-disciplinarity in the cognitive practices of research (i.e., use of references and instrumentalities) but a more erratic and narrower degree in the social dimensions (i.e., affiliation and researchers’ background). This suggests that cross-disciplinarity is an eminently epistemic characteristic and that bibliometric indicators based on citations and references capture more accurately the generation of cross-disciplinary knowledge than approaches tracking co-authors’ disciplinary affiliations. In the light of these findings we raise the question whether policies focusing on formal collaborations between laboratories are the most appropriate to facilitate cross-disciplinary knowledge acquisition and generation.

Keywords: Analysis, Background, Bibliometric, Bibliometric Indicators, Bibliometric Studies, Citations, Collaboration, Dynamics, Fields, Funding, Indicators, Interdisciplinarity, Interdisciplinary, Interviews, Knowledge, Knowledge Integration, Light, Multidimensional Analysis, Nanotechnology, Order, Patterns, Policy, Recent, Research, Science, Social, Technology, Tracking, Vision

? Braun, T., Zsindely, S., Diospatonyi, I. and Zador, E. (2007), Gatekeeping patterns in nano-titled journals. *Scientometrics*, **70** (3), 651-667.

Full Text: [2007\Scientometrics70, 651.pdf](2007/Scientometrics70,%20651.pdf)

Abstract: Activities on nanoscale research have seen a skyrocketting growth beginning during the nineties. This can be documented by the birth of no less than 16 science journals dedicated entirely to this field of science. The topics of these journals reflect the true interdisciplinary character of nanoscale research. In this paper the decision-makers on what and when appears in those journals, the gatekeepers, i.e., the editorial members of those journals and their national identity are analyzed and some conclusions are drawn on the decisional power of the countries these gatekeepers are located in. It came out that although the United States is still the leading power in the nanoscale research field, the EU is strongly catching up and due to intensive efforts in this directions by some Far East countries as China and Japan but also of India, Asia is nearing and in some cases even overtaking the big powers.

Keywords: Asia, China, Collaboration, EU, Growth, Identity, India, Interdisciplinarity, Interdisciplinary, Japan, Nanoscience, Nanotechnology, Paper, Research, Science, United States

? Schummer, J. (2007), The global institutionalization of nanotechnology research: A bibliometric approach to the assessment of science policy. *Scientometrics*, **70** (3), 669-692.

Full Text: [2007\Scientometrics70, 669.pdf](2007/Scientometrics70,%20669.pdf)

Abstract: Based on bibliometric methods, this paper describes the global institutionalization of nanotechnology research from the mid-1980s to 2006. Owing to an extremely strong dynamics, the institutionalization of nanotechnology is likely to surpass those of major disciplines in only a few years. A breakdown of the relative institutionalizations strengths by the main geographical regions, countries, research sectors, disciplines, and institutional types provides a very diverse picture over the time period because of different national science policies. The results allow a critical assessment of the different science policies based on the relative institutionalizations strengths as well as the conclusion that the institutionalization process has run out of control of individual governments who once induced the development.

Keywords: Assessment, Bibliometric, Bibliometric Methods, Breakdown, Control, Development, Dynamics, Global, Methods, Nanotechnology, Paper, Policy, Process, Research, Science, Science Policy, Science-Policy, Strengths

? Leydesdorff, L. and Zhou, P. (2007), Nanotechnology as a field of science: Its delineation in terms of journals and patents. *Scientometrics*, **70** (3), 693-713.

Full Text: [2007\Scientometrics70, 693.pdf](2007/Scientometrics70,%20693.pdf)

Abstract: the Journal Citation Reports of the Science Citation Index 2004 were used to delineate a core set of nanotechnology journals and a nanotechnology-relevant set. In comparison with 2003, the core set has grown and the relevant set has decreased. This suggests a higher degree of codification in the field of nanotechnology: the field has become more focused in terms of citation practices. Using the citing patterns among journals at the aggregate level, a core group of ten nanotechnology journals in the vector space can be delineated on the criterion of betweenness centrality. National contributions to this core group of journals are evaluated for the years 2003, 2004, and 2005. Additionally, the specific class of nanotechnology patents in the database of the U. S. Patent and Trade Office (USPTO) is analyzed to determine if non-patent literature references can be used as a source for the delineation of the knowledge base in terms of scientific journals. The references are primarily to general science journals and letters, and therefore not specific enough for the purpose of delineating a journal set.

Keywords: Aggregate, Algorithm, Centrality, Core, Group, Indicators, Knowledge, Knowledge Base, Patterns, Science, Source, Technology, Trends

? Wong, P.K., Ho, Y.P. and Chan, C.K. (2007), Internationalization and evolution of application areas of an emerging technology: the case of nanotechnology. *Scientometrics*, **70** (3), 715-737.

Full Text: [2007\Scientometrics70, 715.pdf](2007/Scientometrics70,%20715.pdf)

Abstract: Nanotechnology patenting has grown rapidly in recent years as an increasing number of countries are getting into the global nanotechnology race. Using a refined methodology to identify and classify nanotechnology patents, this paper analyses the changing pattern of internationalization of nanotechnology patenting activities from 1976-2004. We show that the dominance of the G5 countries have declined in recent years, not only in terms of quantity, but also in terms of quality as measured by citation indicators. In addition, using a new approach to classifying the intended areas of commercial applications, we show that nanotechnology patenting initially emphasized instrumentation, but exhibited greater diversification to other application areas in recent years. Significant differences in application area specialization are also found among major nanotechnology nations. Moreover, universities are found to play a significant and increasing role in patenting, particularly in US, UK and Canada.

Keywords: Applications, Canada, Collaboration, Country, Evolution, Field, Global, Indicators, Institution, Instrumentation, Interdisciplinarity, Methodology, Nanoscience, Paper, Patents, Patterns, Quality, Quantity, Race, Recent, Role, Science, UK, US

Notes: TTopic

? Hullmann, A. (2007), Measuring and assessing the development of nanotechnology. *Scientometrics*, **70** (3), 739-758.

Full Text: [2007\Scientometrics70, 739.pdf](2007/Scientometrics70,%20739.pdf)

Abstract: Nanotechnology merits having a major impact on the world economy because its applications will be used in virtually all sectors. Scientists, researchers, managers, investors and policy makers worldwide acknowledge this huge potential and have started the nano-race. The purpose of this paper is to analyse the state of the art of nanotechnology from an economic perspective, by presenting data on markets, funding, companies, patents and publications. It will also raise the question of how much of the nano-hype is founded on economic data and how much is based on wishful thinking. It focuses on a comparison between world regions, thereby concentrating on Europe and the European Union in relation to their main competitors - the United States and Japan and the emerging ‘nano-powers’ China and Russia.

Keywords: Applications, China, Development, Economic, Economy, Europe, European Union, Impact, Japan, Paper, Policy, Russia, Thinking, United States

? Kuusi, O. and Meyer, M. (2007), Anticipating technological breakthroughs: Using bibliographic coupling to explore the nanotubes paradigm. *Scientometrics*, **70** (3), 759-777.

Full Text: [2007\Scientometrics70, 759.pdf](2007/Scientometrics70,%20759.pdf)

Abstract: There is general consensus that the field of nanotechnology will be very important in the future. An open question is, however, which technological approaches or paradigms will be important in the field. The paper assumes that the carbon nanotube will be a key element of an emerging technological paradigm in nanotechnology. This study employs a bibliometric method - bibliographic coupling - to identify important nanotubes-related ‘leitbilder’ - a concept meaning ‘guiding images’ that provide a basis for different professions and disciplines to work in the same direction. Until recently, bibliographic coupling has been applied rarely for purposes of research evaluation, not to mention technology foresight. Our case study seems to suggest that bibliographic coupling is particularly suitable for anticipating technological breakthroughs. Bibliographic coupling analysis of recent nanotube-related patents focused our attention to recent patents owned by Nantero Inc. Nantero’s main focus is the development of NRAM - a high-density nonvolatile random access memory. The NRAM leitbild seems to be an important emerging leitbild. It connects technical opportunities and promising applications relating to the memories in devices such as cell phones, MP3 players, digital cameras, as well as applications in networking arena.

Keywords: Access, Analysis, Applications, Attention, Bibliometric, Carbon, Carbon Nanotube, Case Study, Cocitation, Concept, Consensus, Coupling, Development, Documents, Evaluation, General, Indicators, Key, Meaning, Memory, Nanotechnology, Paper, Patents, Recent, Research, Research Evaluation, Science

? Meyer, M. (2007), What do we know about innovation in nanotechnology? Some propositions about an emerging field between hype and path-dependency. *Scientometrics*, **70** (3), 779-810.

Full Text: [2007\Scientometrics70, 779.pdf](2007/Scientometrics70,%20779.pdf)

Abstract: This contribution formulates a number of propositions about the emergence of novel nanoscience and nanotechnology (N&N). Seeking to complement recent work that aims to define a research agenda and draws on general insights from the innovation literature, this paper aims to synthesize knowledge from innovation-related studies of the N&N field. More specifically, it is suggested that N&N is often misconstrued as either a field of technology or an area of (broadly) converging technologies while evidence to date suggests rather that N&N be considered a set of inter-related and overlapping about not necessarily merging technologies. The role of instrumentation in connecting the various N&N fields is underlined. Finally, the question is raised whether change in N&N tends to be incremental rather than discontinuous, being the result of technological path-dependencies and lock-ins in industry-typical search regimes that are only slowly giving way to more boundary-crossing activities.

Keywords: Collaboration, Directions, Domains, Emergence, Exploration, Instrumentation, Interdisciplinarity, Knowledge, Nano-Science, Nanoscience, Paper, Patterns, Recent, Research, Role, Technical Change, Technology

? Heinze, T. and Bauer, G. (2007), Characterizing creative scientists in nano-S&T: Productivity, multidisciplinarity, and network brokerage in a longitudinal perspective. *Scientometrics*, **70** (3), 811-830.

Full Text: [2007\Scientometrics70, 811.pdf](2007/Scientometrics70,%20811.pdf)

Abstract: While some believe that publication and citation scores are key predictors of breakthroughs in science, others claim that people who work at the intersection of scientific communities are more likely to be familiar with selecting and synthesizing alternatives into novel ideas. This paper contributes to this controversy by presenting a longitudinal comparison of highly creative scientists with equally productive researchers. The sample of creative scientists is identified by combining information on science awards and nominations by international peers covering research accomplishments in the mid-1990s. Results suggest that it is not only the sheer quantity of publications that causes scientists to produce creative pieces of work. Rather, their ability to effectively communicate with otherwise disconnected peers and to address a broader work spectrum also enhances their chances to be widely cited and to develop novel ideas.

Keywords: Communities, Information, Key, Longitudinal, Nanotechnology, Paper, Performance, Predictors, Quantity, Research, Science

? Robinson, D.K.R., Ruivenkamp, M. and Rip, A. (2007), Tracking the evolution of new and emerging S&T via statement-linkages: Vision assessment in molecular machines. *Scientometrics*, **70** (3), 831-858.

Full Text: [2007\Scientometrics70, 831.pdf](2007/Scientometrics70,%20831.pdf)

Abstract: the past 10 years has seen an explosion of interest for the area of science and technology labelled ‘nanotechnology.’ Although at an early stage, nanotechnology is providing a space for the creation of new alliances and the forging of new ties in many actor arenas, initiated based on promises and high expectations of the fruits that could be harvested from development and investment into nanotechnology. Those trying to characterise the dynamics of emerging ties and networks within this field are faced with a number of complexities which are characteristic of the nanotechnology umbrella term, which covers many technologies, various mixes of disciplines and actors, and ongoing debates about definitions of fields and terminology. In this paper we explore an approach for capturing dynamics of emergence of a particular area of nanotechnology by investigating visions of possible futures in relation to molecular mechanical systems (molecular machines). The focus of this text is to outline an approach used to map and analyse visions in an emerging field by taking as the unit of analysis linkages made in statements in texts, and the agglomeration of linkages around certain nodes. Taking the linkage, rather than node, allows one to probe deeper into the dynamics of emergence at early stages when definitions and meanings of certain words/nodes are in flux and patterns of their use change dramatically over short periods of time. As part of a larger project on single and macromolecular machines we explore the dynamics of visions in the field of molecular machines with the eventual aim to elucidate the shaping strength of visions within nanotechnology.

Keywords: Analysis, Assessment, Creation, Development, Dynamics, Economics, Emergence, Evolution, Expectations, Flux, Futures, Made, Motors, Paper, Science, Sociology, Technology, Terminology

? Bassecoulard, E., Lelu, A. and Zitt, M. (2007), Mapping nanosciences by citation flows: A preliminary analysis. *Scientometrics*, **70** (3), 859-880.

Full Text: [2007\Scientometrics70, 859.pdf](2007/Scientometrics70,%20859.pdf)

Abstract: This article presents a citation-based mapping exercise in the nanosciences field and a first sketch of citation transactions (a measure of cognitive dependences). Nanosciences are considered to be one of the ‘convergent’ components shaping the future of science and technology. Recurrent questions about the structure of the field concern its diversity and multi- or inter-disciplinarity. Observations made from various points of view confirm a strong differentiation of the field, which is scattered in multiple galaxies with moderate level of exchanges. The multi-disciplinarity of themes and super-themes detected by mapping also appears moderate, most of the super-themes being based on physics and chemistry in various proportions. Structural analysis of the list of references in articles suggests that the moderate multi-disciplinarity observed at the aggregate level partly stems from an actual inter-disciplinarity at the article level.

Keywords: Aggregate, Analysis, Cocitation, Collaboration, Differentiation, Diversity, Exercise, Flows, Indicators, Interdisciplinarity, Made, Mapping, Modern Science, Nanotechnology, Patterns, Science, Structure

? Bailón-Moreno, R., Jurado-Alameda, E., Ruiz-Baños, R., Courtial, J.P. and Jimenez-Contreras, E. (2007), The pulsing structure of science: Ortega y Gasset, Saint Matthew, fractality and transfractality. *Scientometrics*, **71** (1), 3-24.

Full Text: [2007\Scientometrics71, 3.pdf](2007/Scientometrics71,%203.pdf)

Abstract: By a new fractal/transfractal geometry of the Unified Scientometric Model, it is possible to demonstrate that science presents an oscillating or pulsing dynamic. It goes alternatively through two types of phases. Some phases are fractal, with crystalline networks, where the Matthew effect clearly manifests itself with regard to the most notable actors and those that provide the best contributions. The other phases are transfractal, with deformed, amorphous networks, in which the actors, considered mediocre, present greater capacity to restructure the network than the more renowned actors. The result after any transfractal deformation is a new crystalline fractal network. Behind this vision lies the Kuhn paradigms. As examples, the scientific fields of surfactants and autism have been analysed.

Keywords: Amorphous, Autism, Capacity, Cocitations, Dynamic, Dynamics, Model, Networks, Science, Scientific Networks, Structure, Surfactants, Translation, Vision

Notes: UUniversity

? Kademani, B.S., Kumar, V., Surwase, G., Sagar, A., Mohan, L., Kumar, A. and Gaderao, C.R. (2007), Research and citation impact of publications by the chemistry division at Bhabha Atomic Research Centre. *Scientometrics*, **71** (1), 25-57.

Full Text: [2007\Scientometrics71, 25.pdf](2007/Scientometrics71,%2025.pdf)

Abstract: the paper analyses the citations to 1733 publications published during 1970-1999 by the Chemistry Division at Bhabha Atomic Research Centre, using Science Citation Index 1982-2003 as the source data. The extent of citations received, in terms of the number of citations per paper, yearwise break up of citations, domainwise citations, self-citations and citations by others, diachronous self-citation rate, citing authors, citing institutions, highly cited papers, the categories of citing documents, citing journals and distribution of citations among them etc. are determined. During 1982-2003 chemistry Division publications have received a total of 11041 citations. The average number of citations per year was 501.86. The average number of citations per publication was 6.37. The highest number of citations received were 877 in 2001. The citation rate was peaked during 1990-2003 as maximum 9145 (82.82%) citations were received during the period. Total self-citations were 3716 (33.66%) and citations by others were 7325 (66.34%). Mean diachronous self-citation rate was 36.16. Citation time lag was zero for 144 (15.52%) papers and one year for 350 (37.72%) papers. Single authored publications (168) have received 456 (4.13%) citations and 1565 multi-authored publications have received 10585 (95.87%) citations. The core citing authors were: J. P. Mittal (695) followed by V. K. Jain (524), H. Mohan (471), T. Mukherjee (307), R. M Iyer (253), H. Pal (251), J. V. Yakhmi (211), A. V. Sapre (174), D. K. Palit (161), N. M. Gupta (128), and S. K. Kulshrestha (116). Citation life cycles of four highly cited papers was discussed. The core journals citing Chemistry Division publications were: J. Phys. Chem.-A (436 citations), Chem. Phys. Lett. (372), J. Phys. Chem. (355), J. Chem. Phys. (353), J. Organomet. Chem. (285), J. Phys. Chem.-B (279), J. Photochem. Photobiol.-A (263), Langmuir (245), J. Am. Chem. Soc. (226), Physica-C (225), Radiat. Phys. Chem. (217), Inorg. Chem. (215) and Indian J. Chem.-A (207).

Keywords: Academic-Institutions, Articles, Basic Research, Bibliometric Analysis, Citation, Citations, Core, Distribution, Impact, Indicators, Institutions, Journals, Langmuir, Life, P, Paper, Performance, Publication, Publications, Quality, Rate, Research, Science Citation Index, Scientific Productivity, Source, Time Lag, Time-Lag, Uncitedness, University Departments

? Royle, J., Coles, L., Williams, D. and Evans, P. (2007), Publishing in international journals - An examination of trends in Chinese co-authorship. *Scientometrics*, **71** (1), 59-86.

Full Text: [2007\Scientometrics71, 59.pdf](2007/Scientometrics71,%2059.pdf)

Abstract: This paper examines patterns of Chinese authorship, focusing particularly on international co-authorship, in a sample of 37,526 articles from Elsevier journals published in 2004. Trends relating to potential influences such as subject, journal impact factor and article type are explored. A slightly higher proportion of articles with at least one Chinese author was observed as compared to previous studies. Articles that are a product of Chinese international collaboration account for almost 20% of the Chinese sample as a whole, a similar proportion to levels of international collaboration within the sample overall. Chinese international co-authorship is most common in the Earth & Environmental Sciences. Where China is involved in international collaboration, it is often a proactive participant: 49% of articles that are a result of Chinese international collaboration have a Chinese corresponding author. With some minor variations in subject categories, countries favoured in international co-authorship reflect world shares in publishing and factors such as geographical proximity and political links.

Keywords: Articles, Authorship, Bibliometric Indicators, Biomedical-Research, China, Chinese, Co-Authorship, Collaboration, Cooperation, Examination, Impact, Impact Factor, International Collaboration, Journal, Journals, Levels, Molecular-Biology, Networks, Paper, Publication, Publishing, Science, Scientific Collaboration, Trends

? Calero, C., Van Leeuwen, T.N. and Tijssen, R.J.W. (2007), Research cooperation within the bio-pharmaceutical industry: Network analyses of co-publications within and between firms. *Scientometrics*, **71** (1), 87-99.

Full Text: [2007\Scientometrics71, 87.pdf](2007/Scientometrics71,%2087.pdf)

Abstract: Bio-pharmaceutical R&D is increasingly an international affair. Research articles published in the peer-reviewed international scientific and technical journals represent quantifiable research outputs of bio-pharmaceutical firms. Large-scale systemic measurements of worldwide trends and sectoral patterns within bio-pharmaceutical science can be gauged from these articles, where coauthored research papers are assumed to reflect research cooperation and associated knowledge flows and exchanges. We focus our attention on the largest science-based multinational enterprises (MNEs), those that produce relatively large quantities of research articles. The study deals with the worldwide output of research articles that are co-produced by corporate researchers during the years 1996-2001. We employ these publications to examine structural factors characterizing research cooperation networks within industry at the level of major geographical regions (North America, Europe, Pacific-Asia), with a breakdown by within-MNE and between-MNE network linkages. The descriptive statistics on publication output and results of network analyses of co-publication linkages not only indicate regional differences, with a central role for US companies in biopharmaceutical research, but also a variety of firm-specific research cooperation networks which enabled us to develop a tentative typology of MNEs in terms of their intra- and interorganizational patterns of research cooperation linkages.

Keywords: Attention, Bibliometric Analysis, Breakdown, Enterprises, Europe, Flows, Journals, Knowledge, Measurements, Networks, North America, Organization, Output, Publication, Publications, Regional, Research, Research Articles, Research-and-Development, Role, Science, States, Statistics, Trends, Typology, US

? Chen, D.Z., Lin, W.Y.C. and Huang, M.H. (2007), Using essential patent index and essential technological strength to evaluate industrial technological innovation competitiveness. *Scientometrics*, **71** (1), 101-116.

Full Text: [2007\Scientometrics71, 101.pdf](2007/Scientometrics71,%20101.pdf)

Abstract: the aim of this article is to develop new patent indicators for evaluating technological innovation competitiveness between companies. A novel indicator representing an industrial’s patent performance, Essential Patent Index (EPI), was developed by incorporating information on who cited these patents and when these patents were cited, based on the assumption that both contribute to meaningful quality assessment. By combining EPI and Chi’s well known Technological Strength (TS) indicator, a second novel indicator Essential Technological Strength (ETS) was developed to represent the innovation competitiveness of an individual company. In this study, patent performance of three high-tech industries in Taiwan were analyzed using ETS as well as the traditional TS for comparison. Results from this analysis demonstrated that ETS provided better insights by clearly verifying the latent influence of citations, reinforcing the impact of essential patents, and aggrandizing the differences of innovation competitiveness between companies.

Keywords: Analysis, Assessment, Citations, ETS, Flows, Impact, Index, Indicator, Indicators, Industrial, Information, Performance, Quality, Taiwan

Notes: UUniversity

? Ramos, R., Royuela, V. and Surinach, J. (2007), An analysis of the determinants in Economics and Business publications by Spanish universities between 1994 and 2004. *Scientometrics*, **71** (1), 117-144.

Full Text: [2007\Scientometrics71, 117.pdf](2007/Scientometrics71,%20117.pdf)

Abstract: the objective of this study consists, firstly, of quantifying differences between Spanish universities’ output (in terms of publications and citations), and secondly, analysing its determinants. The results obtained show that there are factors which have a positive influence on these indicators, such as having a third-cycle programme, with public financing obtained in competitive selection procedures, having a large number of full-time researchers or involvement in collaborations with international institutions. However, other factors which appear to have the opposite effect were also noted. These include a higher number of students per lecturer or a lower proportion of lecturers with recognised six-year periods.

Keywords: Analysis, Constraints, Departments, Efficiency, Financing, Incentives, Indicators, Institutions, Management, Output, Productivity, Rankings, Research Output, Scientific Performance, Selection, Students, US

? Neuhaus, C., Litscher, A. and Daniel, H.D. (2007), Using scripts to streamline citation analysis on STN International. *Scientometrics*, **71** (1), 145-150.

Full Text: [2007\Scientometrics71, 145.pdf](2007/Scientometrics71,%20145.pdf)

Abstract: the database host STN International allows for extensive citation analysis in the SCISEARCH database (Science Citation Index Expanded) and in the CAplus database (Chemical Abstracts). Along with its powerful browsing, searching and analyzing facilities, STN International also features scripts. In this paper we examine the usefulness of the script language in the automation of citation analysis in SCISEARCH and CAplus.

Keywords: Analysis, Automation, Features, Language, Online Databases, Paper, Searching

? Chen, T.J., Chen, Y.C., Hwang, S.J. and Chou, L.F. (2007), The contribution of Hong Kong to China’s international scientific publications. *Scientometrics*, **71** (1), 151-154.

Full Text: [2007\Scientometrics71, 151.pdf](2007/Scientometrics71,%20151.pdf)

Keywords: Clinical-Research, Gastroenterology, Hepatology, Hong Kong, Science

? Braun, T., Diospatonyi, I., Zador, E. and Zsindely, S. (2007), Journal gatekeepers indicator-based top universities of the world, of Europe and of 29 countries - A pilot study. *Scientometrics*, **71** (2), 155-178

Full Text: [2007\Scientometrics71, 155.pdf](2007/Scientometrics71,%20155.pdf)

Keywords: Europe, Science Indicators, Universities

Anuradha, K.T. and Urs, S.R. (2007), Bibliometric indicators of Indian research collaboration patterns: A correspondence analysis. *Scientometrics*, **71** (2), 179-189.

Full Text: [2007\Scientometrics71, 179.pdf](2007/Scientometrics71,%20179.pdf)

Abstract: International collaboration is becoming an increasingly significant issue in science. During the last few years, a large number of bibliometric studies of co-authorships have been reported. Mostly, these studies have concentrated on country-to-country collaboration, revealing general patterns of interaction. In this study we analyze international collaborative patterns as indicated in the Indian publications by tracking out multi author publications as given in Science Citation Index (SCI) database. Correspondence analysis is used for analysis and interpretation of the results. According to correspondence analysis of the data set, Physics, Chemistry, Clinical medicine are the first, second and third largest subjects having international collaboration. USA, Italy, Germany, France, England are the top five countries with which India is collaborating. The data set shows an association between Physics and Italy, Switzerland, Algeria, Finland, South Korea, Russia, Netherlands contrasting an association between Biology & Biochemistry, Immunology, Ecology & Environment, Geosciences, Multidisciplinary subjects and England, Japan, Canada. It also shows an association between Agriculture and Philippines, Canada, Denmark in contrast to an association between Chemistry and Malaysia, Germany, France. An association between Clinical medicine, Astrophysics and England, Sweden, USA, New Zealand in contrast to an association between Agriculture and Canada, Philippines, Denmark is shown. An association between Engineering, Mathematics, Computer Science, Neuroscience and Singapore, Canada, USA in contrast to an association between Chemistry, Astrophysics and Malaysia, Spain is shown. This association of collaborating countries and disciplines almost tallies with the publication productivity of these countries in different disciplines.

Keywords: 48 Countries, Analysis, Bibliometric, Bibliometric Studies, Canada, Collaboration, Correspondence Analysis, Denmark, England, Finland, France, General, Germany, India, Indicators, Interaction, International Collaboration, Italy, Japan, Korea, Malaysia, Medicine, New Zealand, Philippines, Productivity, Publication, Publications, Research, Research Collaboration, Russia, SCI, Science, Science Citation Index, Singapore, South Korea, Spain, Sweden, Switzerland, Tracking, USA

? Krampen, G., Becker, R., Wahner, U. and Montada, L. (2007), On the validity of citation counting in science evaluation: Content analyses of references and citations in psychological publications. *Scientometrics*, **71** (2), 191-202.

Full Text: [2007\Scientometrics71, 191.pdf](2007/Scientometrics71,%20191.pdf)

Abstract: In reference to the increasing significance of citation counting in evaluations of scientists and science institutes as well as in science historiography, it is analyzed empirically what is cited in which frequency and what types of citations in scientific texts are used. Content analyses refer to numbers of references, self-references, publication language of references cited, publication types of references cited, and type of citation within the texts. Validity of citation counting is empirically analyzed with reference to random samples of English and German journal articles as well as German textbooks, encyclopedias, and test-manuals from psychology. Results show that 25% of all citations are perfunctory, more than 50% of references are journal articles and up to 40% are books and book-chapters, 10% are self-references. Differences between publications from various psychological sub-disciplines, publication languages, and types of publication are weak. Thus, validity of evaluative citation counting is limited because at least one quarter refers to perfunctory citations exhibiting a very low information utility level and by the fact that existing citation-databases refer to journal articles only.

Keywords: Evaluation, Information, Language, Low, Motivations, Psychological, Psychology, Publication, Publications, Quality, Science, United-States, Utility, Validity

? Davis, P.M. and Fromerth, M.J. (2007), Does the arXiv lead to higher citations and reduced publisher downloads for mathematics articles? *Scientometrics*, **71** (2), 203-215.

Full Text: [2007\Scientometrics71, 203.pdf](2007/Scientometrics71,%20203.pdf)

Abstract: An analysis of 2,765 articles published in four math journals from 1997 to 2005 indicate that articles deposited in the arXiv received 35% more citations on average than non-deposited articles (an advantage of about 1.1 citations per article), and that this difference was most pronounced for highly-cited articles. Open Access, Early View, and Quality Differential were examined as three non-exclusive postulates for explaining the citation advantage. There was little support for a universal Open Access explanation, and no empirical support for Early View. There was some inferential support for a Quality Differential brought about by more highly-citable articles being deposited in the arXiv. In spite of their citation advantage, arXiv-deposited articles received 23% fewer downloads from the publisher’s website (about 10 fewer downloads per article) in all but the most recent two years after publication. The data suggest that arXiv and the publisher’s website may be fulfilling distinct functional needs of the reader.

Keywords: Access, Analysis, Functional, Impact, Lead, Publication, Recent, Support

? Sangam, S.L., Savanur, K. and Manjunath, M. (2007), Communication and collaborative research pattern of Sivaraj Ramaseshan: A scientometric portrait. *Scientometrics*, **71** (2), 217-230.

Full Text: [2007\Scientometrics71, 217.pdf](2007/Scientometrics71,%20217.pdf)

Abstract: S. Ramaseshan has contributed for the better understanding of various subjects in which he specialized during his years at the Indian Institute of Science, University of Madras and the Raman Research Institute. In this paper we would like to emphasis on his scientific contributions in various journals and some classic papers. In his entire career as a scientist he has collaborated with 47 eminent scientists and students and has published a total of 178 papers during the years 1944-2000. His field of interest has been varied and thus classified into 4 main area, i.e.: Crystallographic studies, Magneto-optics & Optics, Solid State Physics and Miscellaneous topics.

Keywords: Journals, Paper, Research, Students

? Hudson, J. (2007), Be known by the company you keep: Citations - quality or chance? *Scientometrics*, **71** (2), 231-238.

Full Text: [2007\Scientometrics71, 231.pdf](2007/Scientometrics71,%20231.pdf)

Abstract: We examine the determinants of five year citations to papers published in the American Economic Review and the Economic Journal. Citations are positively related to page length and position in the journal. Both of these variables are consistent with the hypothesis that citations reflect paper quality, as is the number of subsequent self-citations. However, the publication of a major paper, as judged by subsequent citations, significantly increases the citations of other papers in an issue and this indicates the importance of chance in determining citations.

Keywords: Economics Departments, Importance, Journals, Paper, Position, Publication, Quality, Rankings, Trends, US

? Rodriguez, V., Janssens, F., Debackere, K. and De Moor, B. (2007), Do material transfer agreements affect the choice of research agendas? the case of biotechnology in Belgium. *Scientometrics*, **71** (2), 239-269.

Full Text: [2007\Scientometrics71, 239.pdf](2007/Scientometrics71,%20239.pdf)

Abstract: In this paper we examine whether and to what extent material transfer agreements influence research agenda setting in biotechnology. Research agendas are mapped through patents, articles, letters, reviews, and notes. Three groups are sampled: (1) documents published by government and industry which used research materials received through those agreements, (2) documents published by government and industry which used in-house materials, (3) documents published by academia. Methodologically, a co-word analysis is performed to detect if there is a difference in underlying scientific structure between the first two groups of documents. Secondly, interviews with practitioners of industry and government are intended to capture their opinion regarding the impact of the signed agreements on their own research agenda choices. The existence of synchronic and diachronic common terms between co-word clusters, stemming from the first two groups of publications, suggests cognitive linkage. Moreover, interviewees generally do not consider themselves constrained in research agenda setting when signing agreements for receiving research materials. Finally, after applying a co-word analysis to detect if the first group of documents overlaps with the third group we cannot conclude that agreements signed by industry and government affect research agenda setting in academia.

Keywords: Access, Affect, Analysis, Belgium, Clusters, Co-Word Analysis, Economics, Genetic Inventions, Group, Groups, Impact, Innovation, Interviews, Materials, Models, Network, Paper, Patents, Policy, Publications, Research, Reviews, Science, Structure, Transfer

? Imperial, J. and Rodriguez-Navarro, A. (2007), Usefulness of Hirsch’s h-Index to evaluate scientific research in Spain. *Scientometrics*, **71** (2), 271-282.

Full Text: [2007\Scientometrics71, 271.pdf](2007/Scientometrics71,%20271.pdf)

Abstract: the applicability of Hirsch’s h Index (Hirsch, 2005) for evaluating scientific research in Spain has been investigated. A series of derivative indexes that take into account: i) the overall low scientific production in Spain before the’ 80s; ii) differences among areas due to size (overall number of citations for publications in a given area); and iii) the number of authors, are suggested. Their applicability has been tested for two different areas in the Biological Sciences. The proposed set of indexes accurately summarizes both the success and evolution of scientists’ careers in Spain, and it may be useful in the evaluation of other not well established national scientific research systems.

Keywords: Careers, Citations, Evaluation, Evolution, h Index, h-Index, Hirsch, Impact, Publications, Ranking, Research, Scientific Production, Scientific Research, Size, Spain

? Sombatsompop, N., Markpin, T., Buranathiti, T., Ratchatahirun, P., Metheenukul, T., Premkamolnetr, N. and Yochai, W. (2007), Categorization and trend of materials science research from Science Citation Index (SCI) database: A case study of ceramics, metallurgy, and polymer subfields. *Scientometrics*, **71** (2), 283-302.

Full Text: [2007\Scientometrics71, 283.pdf](2007/Scientometrics71,%20283.pdf)

Abstract: This article offers information on the characteristics and number of materials research articles indexed in the Science Citation Index (SCI) database in the year of 2004. 22,843 articles in full-text forms from 169 journals from the materials field (which included ceramics, metallurgy, and polymer journals) were retrieved from the SCI database and exported to EndNote software. The retrieved articles were carefully analyzed by eight scientists and experts in those subfields and categorized using SPSS into eight different categories, being (1) New materials, (2) Materials characterizations, (3) Materials improvement, (4) New process and/or process improvement, (5) Mathematical and theoretical models and/or computer simulations, (6) Novel and comprehensive explanations, (7) Testing conditions, and (8) Comparative studies, whose definitions were clearly indicated. The results were then considered in terms of the percentage of the number of articles in each materials subfield, country of corresponding author, and number of authors. The overall results suggested that, most materials articles published in 2004 were focused on new process and process improvement (27%), while materials characterizations (23%) and testing conditions (12%) took the 2nd and 3rd places, especially for the ceramics and polymer articles. The highest numbers of articles in the ceramics and polymer subfields were focused on new processes and/or process improvement, and those for the metallurgy subfield were on materials characterization. In the SCI database, the largest number of materials articles was authored from Asian scientists although the majority of the materials journals were run by editors from Europe in North America/Canada continents. There was no coherent relationship between the authors’ and editors’ affiliations. China, Japan and the United States of America (USA) were shown to be the top three countries which had the highest publication numbers in the materials field. Japan had the highest publication numbers in the ceramics subfield while China possessed most publications in polymer and metallurgy subfields. However, when considering the journal impact factors, the leading positions of the countries changed. The results from this work could assist materials scientists to select suitable international journals in relevant association with the contents of their to-publish works. Finally, it was noted that most material research articles were written by 3-4 authorships.

Keywords: Asian, Case Study, Ceramics, Characterization, China, Europe, Impact, Impact Factors, Information, Japan, Materials, Models, Polymer, Process, Publication, Publications, Research, Research Articles, SCI, Science, Science Research, Software, Testing, Trend, United States, USA

? Tijssen, R.J.W. (2007), Africa’s contribution to the worldwide research literature: New analytical perspectives, trends, and performance indicators. *Scientometrics*, **71** (2), 303-327.

Full Text: [2007\Scientometrics71, 303.pdf](2007/Scientometrics71,%20303.pdf)

Abstract: This paper examines general characteristics of African science from a quantitative ‘scientometric’ perspective. More specifically, that of research outputs of Africa-based authors published in the scientific literature during the years 1980-2004, either within the international journals representing ‘mainstream’ science, or within national and regional journals reflecting ‘indigenous science’. As for the international journals, the findings derived from Thomson Scientific’s Citation Indexes show that while Africa’s share in worldwide science has steadily declined, the share of international co-publications has increased very significantly, whereas low levels of international citation impact persist. A case study of South African journals reveals the existence of several journals that are not processed for these international databases but nonetheless show a distinctive citation impact on international research communities.

Keywords: Case Study, Characteristics, Citation, Communities, Databases, Developing-Countries, General, Impact, Indicators, Journals, Levels, Low, Output, Paper, Performance, Performance Indicators, Regional, Research, Science, Scientific Activity, South-Africa, Technological Capabilities, Third-World, Trends

? Pouris, A. (2007), Is fundamentalism a threat to science? Evidence from scientometrics. *Scientometrics*, **71** (2), 329-338.

Full Text: [2007\Scientometrics71, 329.pdf](2007/Scientometrics71,%20329.pdf)

Abstract: This article aims to provide scientometric evidence in order to confirm or refute the statement that the ‘rise in literalist religious thinking in the 1990s devastated science in the Islamic world by promoting the idea that all knowledge could be found in the Koran’ published in a Special Report in the New Scientist and to map the literature related to fundamentalism over time and space during the last ten years. We find that despite the rise of fundamentalism, science was thriving in eight Islamic countries (Iran, Jordan, Indonesia, Egypt, Turkey, Malaysia, Morocco, and Pakistan) during the period and hence the statement is refuted. The mapping of the ‘fundamentalist’ literature indicates that there are a constant number of articles per year (60 to 70) covering disciplines ranging from religion and sociology to political sciences and international relations. The center of research is revealed to be the Anglo-Saxon world with epicenter the USA. Finally, we identify that the debate of fundamentalism versus science is in an embryonic stage.

Keywords: Egypt, Indonesia, Iran, Jordan, Knowledge, Malaysia, Mapping, Order, Pakistan, Religion, Research, Science, Sciences, Scientometrics, South-Africa, Thinking, Turkey, USA

? Yu, G. and Li, Y.J. (2007), Parameter identification of the observed citation distribution. *Scientometrics*, **71** (2), 339-348.

Full Text: [2007\Scientometrics71, 339.pdf](2007/Scientometrics71,%20339.pdf)

Abstract: Based on the transfer function model of the observed citation distribution and the expression of the cumulative citation probability distribution, parameters of 12 citation distributions are identified from statistical data of age distributions of references of 10 journals in JCR using the parameter optimization fitting method. At same time, based on the steady state solution of differential equations of the publication delay process and data of publication delays of 10 journals, the publication delay parameters of every journal are identified using the fitting method. Identified parameters of every journal citation distribution are compared with the journal’s publication delay parameters and some valuable conclusions are deduced.

Keywords: Age, Differential, Distribution, Distributions, Function, Identification, Model, Optimization, Parameters, Probability, Process, Publication, Publication Delays, Steady-State, Transfer

? Buela-Casal, G., Gutiérrez-Martínez, O., Bermúdez-Sánchez, M.P. and Vadillo-Muñoz, O. (2007), Comparative study of international academic rankings of universities. *Scientometrics*, **71** (3), 349-365.

Full Text: [2007\Scientometrics71, 349.pdf](2007/Scientometrics71,%20349.pdf)

Abstract: International academic rankings that compare world universities have proliferated recently. In accordance with latter conceptual and methodological advances in academic rankings approaches, five selection criteria are defined and four international university rankings are selected. A comparative analysis of the four rankings is presented taking into account both the indicators frequency and its weights. Results show that, although some indicators differ considerably across selected rankings and even many indicators are unique, indicators referred to research and scientific productivity from university academic staff have a prominent role across all approaches. The implications of obtained data for main rankings consumers are discussed.

Keywords: Academic, Analysis, Comparative Analysis, Consumers, Fatal Attraction, Indicators, Journals, Productivity, Rankings, Research, Role, Scientific Productivity, Scientometrics, Selection, Universities, Weights

? Jappe, A. (2007), Explaining international collaboration in global environmental change research. *Scientometrics*, **71** (3), 367-390.

Full Text: [2007\Scientometrics71, 367.pdf](2007/Scientometrics71,%20367.pdf)

Abstract: This paper maps the domain of earth and environmental sciences (EES) and investigates the relationship between cognitive problem structures and internationalisation patterns, drawing on the concepts of systemic versus cumulative global environmental change (GEC) and mutual task dependence in scientific fields. We find that scientific output concentration and internationalisation are significantly higher in the systemic GEC fields of Meteorology & Atmospheric Sciences and Oceanography than in the cumulative GEC fields Ecology and Water Resources. The relationship is explained by stronger mutual task dependence in systemic GEC fields. In contrast, the portion of co-authorships with developing, emerging and transition countries among all international publications is larger for Water Resources than for the three other fields, consistent with the most pressing needs for STI capacity development in these countries.

Keywords: Capacity, Collaboration, Concentration, Countries, Dependence, Development, Earth, Environmental, Environmental Change, Global, International Collaboration, Output, Paper, Publications, Research, Science, Sciences, Scientific Output, Technology

? Leydesdorff, L. (2007), Mapping interdisciplinarity at the interfaces between the science citation index and the Social Science Citation index. *Scientometrics*, **71** (3), 391-405.

Full Text: [2007\Scientometrics71, 391.pdf](2007/Scientometrics71,%20391.pdf)

Abstract: the two Journal Citation Reports of the Science Citation Index 2004 and the Social Science Citation Index 2004 were combined in order to analyze and map journals and specialties at the edges and in the overlap between the two databases. for journals which belong to the overlap (e.g., Scientometrics), The merger mainly enriches our insight into the structure which can be obtained from the two databases separately; but in the case of scientific journals which are more marginal in either database, the combination can provide a new perspective on the position and function of these journals (e.g., Environment and Planning B - Planning and Design). The combined database additionally enables us to map citation environments in terms of the various specialties comprehensively. Using the vector-space model, visualizations are provided for specialties that are parts of the overlap (information science, science & technology studies). On the basis of the resulting visualizations, ‘betweenness’ - a measure from social network analysis - is suggested as an indicator for measuring the interdisciplinarity of journals.

Keywords: Analysis, Citation, Databases, Function, Index, Indicator, Information, Information Science, Interfaces, Journal Citation Reports, Journals, Model, Network Analysis, Order, Position, Science, Science Citation Index, Scientific Journals, Social, Social Network, Social Network Analysis, Social Science Citation Index, Structure

? Ye, F.Y. (2007), A quantitative relationship between per capita GDP and scientometric criteria. *Scientometrics*, **71** (3), 407-413.

Full Text: [2007\Scientometrics71, 407.pdf](2007/Scientometrics71,%20407.pdf)

Abstract: There exists a quantitative relationship, which can be expressed as G=kF(lgP)N, where G is per capita GDP, F gross expenditure on R&D as % of GDP, P patent applications, N Internet users per 10,000 inhabitants, and k a constant ranging from 0.4 to 1.2 in most countries. The mechanism of the relationship is explained in the paper.

Keywords: Applications, GDP, Internet, Mechanism, P, Paper

? Yaman, H. and Atay, E. (2007), PhD theses in Turkish sports sciences: A study covering the years 1988-2002. *Scientometrics*, **71** (3), 415-421.

Full Text: [2007\Scientometrics71, 415.pdf](2007/Scientometrics71,%20415.pdf)

Abstract: Aims: Undergraduate education in physical education is widely common in Turkey. Postgraduate training is provided mostly by institutes of health sciences, educational science and social sciences. The aim of this study was to evaluate the characteristics of PhD theses in sports sciences. Methods: the database of the Turkish Council of Higher Education has been searched the years 1988-2002 for PhD theses with different combinations of keywords like ‘Sport(s)’, ‘All Dissertations’ and ‘Physical Education’. Theses were classified according to the institute, year, university, the title of the mentors and the field of sports sciences. The inter-and intra-validity of ratings were high (Kendall Tau\_b=0.84 and 1.00, p < 0.01). Results: Most of theses were prepared in Institutes for Health Sciences (n=196, 86.3%), second mostly in Institutes of Social Sciences (n=25, 11.0%). Theses originated mostly from Marmara (n=90, 39.6%), Gazi (n=59, 25.9%) and Dokuz Eylul Universities (n=25, 11.0%). Ninety two theses (46.9%) were prepared in Training and Movement Sciences, 40 (20.4%) in Sports Management, 29 (14.7%) Psycho-Social Fields of Sports Sciences, 23 (11.7%) Sports Health Sciences and 13 (6.6%) in Sports Pedagogy. Conclusion: Most theses were prepared in Institutes of Health Sciences, but the subjects covered the field of training and movement sciences. The unique and multi-disciplinary nature of sports sciences seems to warrant the foundation of an Institute of Sports.

Keywords: Characteristics, Education, Health, Health Sciences, Mentors, Movement, Multidisciplinary, Physical, Science, Sciences, Social, Social Sciences, Sports, Training, Turkey

? Guerrero-Bote, V.P., Zapico-Alonso, F., Espinosa-Calvo, M.E., Gómez-Crisóstomo, R. and de Moya-Anegón, F. (2007), Import-export of knowledge between scientific subject categories: the iceberg hypothesis. *Scientometrics*, **71** (3), 423-441.

Full Text: [2007\Scientometrics71, 423.pdf](2007/Scientometrics71,%20423.pdf)

Abstract: the capacity to attract citations from other disciplines - or knowledge export - has always been taken into account in evaluating the quality of scientific papers or journals. Some of the JCR’s (ISI’s Journal Citation Report) Subject Categories have a greater exporting character than others because they are less isolated. This influences the rank, JIF (ISI’s Journal Impact Factor) distribution of the category. While all the categories fit a negative power law fairly well, those with a greater External JIF give distributions with a more sharply defined peak and a longer tail - something like an iceberg. One also observes a major relationship between the rates of export and import of knowledge.

Keywords: Capacity, Citations, Distribution, Distributions, Export, Fields, Impact, Journals, Knowledge, Law, Quality, Science System

? Junquera, B. and Mitre, M. (2007), Value of bibliometric analysis for research policy: A case study of Spanish research into innovation and technology management. *Scientometrics*, **71** (3), 443-454.

Full Text: [2007\Scientometrics71, 443.pdf](2007/Scientometrics71,%20443.pdf)

Abstract: the primary aim of this paper is to assess the contribution to the international literature of Spanish scientific production in the research stream of innovation and technology management. for this purpose 72 articles published in the last decade in the most prestigious international journals in this research stream have been evaluated. From this analysis we have concluded that there has been a positive evolution from 1995 to the present time, as much from a qualitative as from a quantitative point of view. Likewise, we have found that research in this research stream is concentrated fundamentally on a reduced group of universities. Nevertheless, these do not focus exclusively on one or a few research subjects, but on a wide range thereof.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Case Study, Empirical-Analysis, Evolution, Group, Industry, Innovation, Journals, Knowledge Management, Linking, Management, Manufacturing Firms, Operations Strategy, Paper, Policy, Production, Qualitative, Range, Research, Research Organizations, Research-and-Development, Scientific Production, Spain, Stream, Systems, Technology Management, Universities

? Om, K., Lee, J. and Chang, J. (2007), Using supply chain management to enhance industry-university collaborations in IT higher education in Korea. *Scientometrics*, **71** (3), 455-471.

Full Text: [2007\Scientometrics71, 455.pdf](2007/Scientometrics71,%20455.pdf)

Abstract: Facing such serious problems in cultivating IT engineers as a mismatch in supply and demand of IT workers, shortage of globally competitive IT professionals, and insufficient education and training of university graduates, the Korean government has decided to adopt a new paradigm in national IT engineering education, based on supply chain management (SCM) in manufacturing. SCM weights improving competitiveness of the supply chain as a whole via a long-term commitment to supply chain relationships and a cooperative, integrated approach to business processes. These characteristics of SCM are believed to provide insight into a more effective IT education and industry-university relationship. On the basis of the SCM literature, a model for industry-oriented IT higher education is designed, and then applied in the field of computer-software engineering in Korea.

Keywords: Chain, Characteristics, Commitment, Education, Effective, Government Relations, Higher Education, Innovation, Korea, Long-Term, Management, Manufacturing, Model, Supply Chain Management, Systems, Training, Triple-Helix, Weights

Notes: CCountry

? Sapa, R. (2007), International contribution to library and information science in Poland: A bibliometric analysis. *Scientometrics*, **71** (3), 473-493.

Full Text: [2007\Scientometrics71, 473.pdf](2007/Scientometrics71,%20473.pdf)

Abstract: This article reports findings from the study of the international contribution to the system of library and information science communication in Poland in the years 2003-2005. The sample consists of articles published both in selected journals and collective works. Two important dimensions determining the internationalization of local scholarly communication are considered: direct contribution (foreign authors’ articles and papers and their translations published in Poland) and indirect contribution (citedness of foreign authors’ documents in articles and papers published in Poland). Bibliographic data about the geographical distribution and affiliation of foreign authors are gathered and analyzed. Furthermore, the findings of citation analysis are presented to determine the percentage share of citations received by foreign documents as well as to find out what is the structure of such citations regarding the language and form, which thematic areas are most replete with such citations and which foreign journals are most cited in Poland.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Citation, Citation Analysis, Citations, Communication, Distribution, Impact, Information, Information Science, Journals, Language, Library and Information Science, Local, Science, Structure

? Van der Panne, G. (2007), Issues in measuring innovation. *Scientometrics*, **71** (3), 495-507.

Full Text: [2007\Scientometrics71, 495.pdf](2007/Scientometrics71,%20495.pdf)

Abstract: Innovation research builds on the analysis of micro level data describing innovative behaviour of individual firms. One increasingly popular type of data are Literature-based Innovation Output (LBIO) data. These are compiled by screening specialist trade journals for new-product announcements. Notwithstanding the substantial advantages, the eligibility of LBIO data for innovation research remains controversial. In this paper the merits of LBIO data are examined by means of comparative analysis. A newly built LBIO database is systematically compared with the widely used Community Innovation Survey. It shows that both databases identify similar innovators in terms of firm size, distribution across industries and degree of innovativeness: LBIO data can be considered a fully fledged alternative to traditional innovation data, highly eligible for innovation research.

Keywords: Analysis, Comparative Analysis, Databases, Distribution, Indicators, Innovation, Paper, Research, Screening

? Wang, S.J. (2007), Factors to evaluate a patent in addition to citations. *Scientometrics*, **71** (3), 509-522.

Full Text: [2007\Scientometrics71, 509.pdf](2007/Scientometrics71,%20509.pdf)

Abstract: the emergence of patent citations as a tool for patent estimation has been subjected to equally vocal champions and critics. In additional to patent citation, this article aims to contribute other factors, including court decisions, claim language, extension cases, patent family and portfolio, which should be deliberated during patent evaluation. It introduces the subject-matter by discussing the specialties and peculiarities of these proposed factors. Furthermore, comparisons between the patent citations and these factors are presented by illustrating several well-known patents. The results of the comparisons reveal that an adverse conclusion might be drawn if a patent is estimated only based on citations. The conclusion supports Meyer’s study that ‘the general nature of a common framework for both scientific and patent citations would severely limit its usefulness.’ Therefore, those factors discussed in the article would be a great asset in patent evaluation. However, it only illustrates their impact on patent estimation using a couple well-known patents. Future research would be needed to investigate these factors in a more detailed manner.

Keywords: Citations, Competition, Emergence, Estimation, Evaluation, Family, General, Impact, Language, Patent Citations, Patents, Research, Scientific Literature, Supports, Technology, Tell

? Payne, N. and Thelwall, M. (2007), A longitudinal study of academic webs: Growth and stabilisation. *Scientometrics*, **71** (3), 523-539.

Full Text: [2007\Scientometrics71, 523.pdf](2007/Scientometrics71,%20523.pdf)

Abstract: As the web is continuously changing, perhaps growing exponentially since its inception, a major potential problem for webometrics is that web statistics may be obsolete by the time they are published in the academic literature. It is important therefore to know as much as possible about how the web is changing over time. This paper studies the UK, Australian and New Zealand academic webs from 2000 to 2005, finding that the number of static pages and links in each of the three academic webs appears to have stabilised as far back as 2001. This stabilisation may be partly due to increases in dynamic pages which are normally excluded from webometric analyses. Nevertheless, the results are encouraging evidence that webometrics for academic spaces may have a longer-term validity than would have been previously assumed.

Keywords: Academic, Dynamic, Longitudinal, Longitudinal Study, New Zealand, Page, Paper, Site, Stabilisation, Static, Statistics, UK, Validity, Webometrics

? Braun, T., Dióspatonyi, I., Zsindely, S. and Zádor, E. (2007), Gatekeeper index versus impact factor of science journals. *Scientometrics*, **71** (3), 541-543.

Full Text: [2007\Scientometrics71, 541.pdf](2007/Scientometrics71,%20541.pdf)

Keywords: Impact, Impact Factor, Index, Science

? McMillan, G.S. and Hamilton, R.D. (2007), The public science base of US biotechnology: A citation-weighted approach. *Scientometrics*, **72** (1), 3-10.

Full Text: [2007\Scientometrics72, 3.pdf](2007/Scientometrics72,%203.pdf)

Abstract: In previous research we examined the science base of US biotechnology utilizing several unique patent and scientific paper databases (MCMILLAN et al., 2000). Our findings highlighted the importance of public science in this industry. In this current research effort, we extend that analysis to include the subsequent citations those biotechnology patents received. Our conclusions are that the reliance on public science is stable when adjusted for forward citations, but the impact of different funding sources does change when citation weights are added. The science policy implications of these findings and future research opportunities are discussed.

Keywords: Analysis, Base, Biotechnology, Citation, Citations, Current, Databases, Funding, Impact, Importance, Innovation, Paper, Patents, Policy, Policy Implications, Research, Science, Science Policy, Science-Policy, Sources, US, Weights

? Harirchi, G., Melin, G. and Etemad, S. (2007), An exploratory study of the feature of Iranian co-authorships in biology, chemistry and physics. *Scientometrics*, **72** (1), 11-24.

Full Text: [2007\Scientometrics72, 11.pdf](2007/Scientometrics72,%2011.pdf)

Abstract: This paper investigates factors behind co-authorships between scientists in Iran and elsewhere. It also compares the Iranian pattern of collaboration with other countries. A questionnaire was sent out to Iranian scientists in fields of physics, chemistry, and biology who had published an internationally co-authored journal article during 2003. The results show that not all co-authored articles were the result of a collaborative project. Also, the main collaborative motives behind the co-authorships were identified and described. Among these, we could mention sharing laboratory devices, accessing knowledge, and increased efficiency of the study at hand. It is clear that emigrated Iranian scientists play an important role as collaborators and probably also as links to the international scientific community as a whole. Cultural factors mix with scientific and work related ones. Although the proportion of international co-authorships is lower than in most other countries, the collaborative pattern seems rather similar.

Keywords: Biology, Collaboration, Community, Efficiency, Hand, Impact, International Research Collaboration, Iran, Journal, Knowledge, Motives, Paper, Questionnaire, Role, Science, Scientific Output

? Florian, R.V. (2007), Irreproducibility of the results of the Shanghai academic ranking of world universities. *Scientometrics*, **72** (1), 25-32.

Full Text: [2007\Scientometrics72, 25.pdf](2007/Scientometrics72,%2025.pdf); [2007\Scientometrics72, 25-1.pdf](2007/Scientometrics72,%2025-1.pdf)

Abstract: I discuss the difficulties that I encountered in reproducing the results of the Shanghai ranking of world universities. In the Shanghai ranking, the dependence between the score for the SCI indicator and the weighted number of considered articles obeys a power law, instead of the proportional dependence that is suggested by the official methodology of the ranking. Discrepancies from proportionality are also found in some of the scores for the N&S and Size indicators. This shows that the results of the Shanghai ranking cannot be reproduced, given raw data and the public methodology of the ranking.

Keywords: Academic, Dependence, Indicator, Indicators, Law, Methodology, Ranking, SCI, Universities

Alcaide-Marzal, J. and Tortajada-Esparza, E. (2007), Innovation assessment in traditional industries. A proposal of aesthetic innovation indicators. *Scientometrics*, **72** (1), 33-57.

Full Text: [2007\Scientometrics72, 33.pdf](2007/Scientometrics72,%2033.pdf)

Abstract: Innovative activities are fundamental to the competitiveness strategies of the firms in a globalized market. Their assessment, using indicators such as those utilized in the Community Innovation Survey (CIS), shows significant sectoral dispersion. Traditional industries are in a weak position because the innovation they are involved in is mainly aesthetic, which is not really addressed in innovation surveys. In this work, we review the various criticisms levelled at existing indicators and propose some new indicators that would capture the types of innovations that are conducted by the traditional industries. This work is based on a study of the features of traditional industries and the concept of aesthetic novelty. The proposed indicators are tested in the Spanish footwear industry.

Keywords: Assessment, Concept, Dispersion, Fashion, Features, Indicators, Innovation, Position, Review, Strategies, Surveys

? Rey-Rocha, J., Garzon-Garcia, B. and Martin-Sempere, M.J. (2007), Exploring social integration as a determinant of research activity, performance and prestige of scientists. Empirical evidence in the Biology and Biomedicine field. *Scientometrics*, **72** (1), 59-80.

Full Text: [2007\Scientometrics72, 59.pdf](2007/Scientometrics72,%2059.pdf)

Abstract: the aim of this paper is to explore to what extent social integration influences scientists’ research activity and performance. Data were obtained from a survey of researchers ascribed to the Biology and Biomedicine area of the Spanish Council for Scientific Research, as well as from their curricula vitae. The results provide empirical evidence that researchers who were highly integrated within their teams performed better than their less integrated colleagues in aspects of research activity such as collaboration with the private sector, patenting, participation in domestic funded research and development projects, and supervision of doctoral dissertations. Nevertheless, highly integrated researchers did not seem to be more prestigious than less integrated colleagues, nor did the former’s publications have a higher impact.

Keywords: Activity, Cohesion, Collaboration, Communication, Consolidation, Curricula, Demography, Development, Group Cohesiveness, Impact, Integration, Level, Paper, Participation, Performance, Productivity, Publications, Research, Research and Development, Social, Survey, Teams, University

? Vaughan, L., Kipp, M.E.I. and Gao, Y.J. (2007), Why are websites co-linked? the case of Canadian universities. *Scientometrics*, **72** (1), 81-92.

Full Text: [2007\Scientometrics72, 81.pdf](2007/Scientometrics72,%2081.pdf)

Abstract: This study examined why Websites were co-linked using Canadian university Websites as the test set. Pages that co-linked to these university Websites were located using Yahoo!. A random sample of 859 co-linking pages (the page that initiated the co-link) was retrieved and the contents of the page, as well as the context of the link, were manually examined to record the following variables: language, country, type of Website, and the reasons for co-linking. The study found that in over 94% of cases, the two co-linked universities were related academically; many of these cases (38%) showed a relationship specifically in teaching or research. This confirms results, from previous quantitative studies, that Web co-links can be a measure of the similarity or relatedness of sites being co-linked and that Web co-link analysis can thus be used to study relationships among linked Websites.

Keywords: Analysis, Language, Random Sample, Research, Similarity, Sites, Teaching, Test, Universities, Web

? Krauskopf, M., Krauskopf, E. and Mendez, B. (2007), Low awareness of the link between science and innovation affects public policies in developing countries: the Chilean case. *Scientometrics*, **72** (1), 93-103.

Full Text: [2007\Scientometrics72, 93.pdf](2007/Scientometrics72,%2093.pdf)

Abstract: Developing countries share disbelief about the benefits of the endogenous production of science as a tool for economical growth. Hence, public policies to strengthen science and technology and promote the culture of innovation are, in general, weak and sometimes incoherent. Patenting has become not only an icon to protect discoveries which can yield profits and enable socio-economical growth but also a potent informetric tool to assess innovation and certainly, since the seminal work of Narin, to understand the multidimensional interactions between science, technology and innovation. In this article we examine the impact of Chilean research articles on world technology as viewed by the link between articles produced in Chile and US patents. Our results show that from 1987 to 2003, 509 US patents had 562 citations to 273 articles produced at least, by one author working in a Chilean institution. US, not Chilean companies are the holders of patents citing Chilean produced articles. The research articles covered many disciplines but a clear concentration occurred in the biomedical field. Additionally, chemistry was also well cited. Our results confirm that in Chile a non-patenting culture which involves researchers and institutions still prevails. Hence, public policies need to be designed and implemented to foster scientific production and innovation in order to advance progress in the current knowledge-economy-driven society which sustains competitiveness in the globalized world.

Keywords: Awareness, Chile, Citations, Concentration, Culture, Current, Developing Countries, General, Growth, Impact, Innovation, Institutions, Interactions, Order, Patent Citations, Patents, Production, Research, Research Articles, Science, Scientific Production, Technology, US, Yield

Abt, H.A. (2007), The frequencies of multinational papers in various sciences. *Scientometrics*, **72** (1), 105-115.

Full Text: [2007\Scientometrics72, 105.pdf](2007/Scientometrics72,%20105.pdf)

Abstract: Multinational papers are defined here as ones written by authors who reside in different countries during the course of research. for each of 16 fields of science, I scanned the first 200 papers in 2005 in four major journals publishing original research papers. Those journals produced 40% of all the citations among those journals with Impact Factors greater than 1.0. The frequencies of multinational papers ranged from 13% in surgery to 55% in astronomy. Although one can list a dozen factors which might contribute toward multinational papers, I lack the data to test most of those. There are only minor correlations with team sizes and Impact Factors, inadequate to explain the range. There is a larger, but not convincing, dependence upon the fractions of single-author papers and its cause, if real, is unclear. However, the most prominent factor seems to be the nature of the objects studied; if they are usually local (e.g. in one hospital or in one laboratory), The papers tend to be domestic but if most of the objects are available simultaneously to scientists in many countries (e .g. The sky in astronomy or the oceans and the Earth’s atmosphere in geosciences or widespread diseases in the area of infectious diseases or plants and animals widely distributed in biology), The papers are often international. Auxiliary results for 2005 are an average of 5.5±0.3 authors per paper and 6.6±1.0% one-author papers.

Keywords: Atmosphere, Biology, Citations, Correlations, Course, Dependence, Diseases, Fractions, Hospital, Infectious Diseases, International Scientific Collaboration, Local, Multilateral Co-Authorship, Paper, Plants, Publishing, Range, Research, Science, Sciences, Surgery, Team, Test, Trends

? Porter, A.L., Cohen, A.S., Roessner, J.D. and Perreault, M. (2007), Measuring researcher interdisciplinarity. *Scientometrics*, **72** (1), 117-147.

Full Text: [2007\Scientometrics72, 117.pdf](2007/Scientometrics72,%20117.pdf)

Abstract: We offer two metrics that together help gauge how interdisciplinary a body of research is. Both draw upon Web of Knowledge Subject Categories (SCs) as key units of analysis. We have assembled two Substantial Web of Knowledge samples from which to determine how closely individual SCs relate to each other. ‘Integration’ measures the extent to which a research article cites diverse SCs. ‘Specialization’ considers the spread of SCs in which the body of research (e.g., the work of a given author in a specified time period) is published. Pilot results for a sample of researchers show a surprising degree of interdisciplinarity.

Keywords: Analysis, Interdisciplinary, Key, Metrics, Research, Science

? He, Z.L. and Deng, M. (2007), The evidence of systematic noise in non-patent references: A study of New Zealand companies’ patents. *Scientometrics*, **72** (1), 149-166.

Full Text: [2007\Scientometrics72, 149.pdf](2007/Scientometrics72,%20149.pdf)

Abstract: Since the pioneering studies of CARPENTER & NARIN (1983), and NARIN & NOMA (1985), non-patent references (NPRs) in patent documents have been widely used as an indicator of science-technology links. MEYER (2000) reviewed previous work in the patent citation literature and found that citation links between patents and papers are, if not explicitly, at least implicitly viewed as an indication of the contribution of science to technology. Using a sample of 850 patents of New Zealand companies granted by the USPTO between 1976 and 2004, we find evidence of systematic noise in NPR data. We suggest that future research should pay close attention to heterogeneity among countries, and that one should demonstrate more caution in applying and interpreting results based on the NPR methodology.

Keywords: Attention, Citation, Citations, Domains, Heterogeneity, Indicator, Innovation, Knowledge, Linkage, Methodology, New Zealand, Noise, Patents, Patterns, Research, Science, Technology

? Costas, R. and Iribarren-Maestro, I. (2007), Variations in content and format of ISI databases in their different versions: the case of the Science Citation index in CD-ROM and the Web of Science. *Scientometrics*, **72** (2), 167-183.

Full Text: [2007\Scientometrics72, 167.pdf](2007/Scientometrics72,%20167.pdf)

Abstract: the CD-ROM and web versions of the Science Citation Index databases are compared as to their content and format features. Several differences have been detected such as the use of different punctuation marks in both versions and a different organisation of author’s affiliation data. These differences make automatic comparisons of ISI products difficult and they should be considered when matching both databases. Some recommendations to ensure more normalisation and reliability of data are pointed out.

Keywords: CD-ROM, Databases, Features, Impact-Factors, Index, ISI, Matching, Products, Recommendations, Reliability, Science, Science Citation Index

? Zhou, P. and Leydesdorff, L. (2007), The citation impacts and citation environments of Chinese journals in mathematics. *Scientometrics*, **72** (2), 185-200.

Full Text: [2007\Scientometrics72, 185.pdf](2007/Scientometrics72,%20185.pdf)

Abstract: Based on the citation data of journals covered by the China Scientific and Technical Papers and Citations Database (CSTPCD), we obtained aggregated journal-journal citation environments by applying routines developed specifically for this purpose. Local citation impact of journals is defined as the share of the total citations in a local citation environment, which is expressed as a ratio and can be visualized by the size of the nodes. The vertical size of the nodes varies proportionally to a journal’s total citation share, while the horizontal size of the nodes is used to provide citation information after correction for the within-journal (self-) citations. In the ‘citing’ environment, the equivalent of the local citation performance can also be considered as a citation activity index. Using the ‘citing’ patterns as variables one is able to map how the relevant journal environments are perceived by the collective of authors of a journal, while the ‘cited’ environment reflects the impact of journals in a local environment. In this study, we analyze citation impacts of three Chinese journals in mathematics and compare local citation impacts with impact factors. Local citation impacts reflect a journal’s status and function better than (global) impact factors. We also found that authors in Chinese journals prefer international instead of domestic ones as sources for their citations.

Keywords: Activity, Algorithm, China, Chinese, Citation, Citations, Environment, Function, Global, Impact, Impact Factors, Impacts, Index, Information, Journal, Journals, Local, Matrices, Performance, Science, Size, Sources, Technical-Papers

Notes: TTopic

? Chuang, K.Y., Huang, Y.L. and Ho, Y.S. (2007), A bibliometric and citation analysis of stroke-related research in Taiwan. *Scientometrics*, **72** (2), 201-212.

Full Text: [2007\Scientometrics72, 201.pdf](2007/Scientometrics72,%20201.pdf)

Abstract: As the population ages in Taiwan, stroke research has received greater attention in recent years. Strokes have significant impacts on the health and well-being of the elderly. To formulate future research policy, information on stroke publications should be collected. In this research, we studied stroke-related research articles published by Taiwan researchers which were indexed in the Science Citation Index from 1991 to 2005. We found that the quantity of publications has increased at a quicker pace than the worldwide trend. Over the years, there has been an increase in international collaboration, mainly with researchers in the U. S. Article visibility, measured as the frequency of being cited, also increased during the period. It appears that stroke research in Taiwan has become more globally connected and has also improved in quality. The publication output was concentrated in a few institutes, but there was a wide variation among these institutes in the ability to independently conduct research. A wide array of keywords indicated a probable lack of continuity in research. Nevertheless, there was an inverse relationship between stroke mortality and number of published articles in Taiwan. To improve the quality and efficiency of stroke research, continuity in research focuses needs to be maintained, and thus funding should be allocated on a long-term basis to institutes with a proven record of success.

Keywords: Ability, Analysis, Attention, Bibliometric, Citation, Citation Analysis, Collaboration, Efficiency, Elderly, Funding, Health, Impacts, Information, International, Long Term, Long-Term, Mortality, Needs, Policy, Population, Publication, Publications, Quality, Record, Relationship, Research, Research Policy, Science, Science Citation Index, Stroke, Success, Taiwan, the Elderly, Trend, U, Visibility, Well-Being, Wellbeing

? Gordon, A. (2007), Transient and continuant authors in a research field: the case of terrorism. *Scientometrics*, **72** (2), 213-224.

Full Text: [2007\Scientometrics72, 213.pdf](2007/Scientometrics72,%20213.pdf)

Abstract: the issue of research continuance in a scientific discipline was analyzed and applied to the field of terrorism. The growing amount of literature in this field is produced mostly by one- timers who ‘visit’ the field, contribute one or two articles, and then move to another subject area. This research pattern does not contribute to the regularity and constancy of publication by which a scientific discipline is formed and theories and paradigms of the field are created. This study observed the research continuance and transience of scientific publications in terrorism by using obtainable ‘most prolific terrorism authors’ lists at different points in time. These lists designed by several terrorism researchers, presented a few researchers who contributed to the field continuously and many others whose main research interest lay in another discipline. The four lists observed included authors who were continuants, transients, new-comers, and terminators (who left the field). The lack of continuous, full-time research in a research field is typical of many disciplines, but the influence of this research pattern on a field’s growth and stability is different for older, established disciplines than for new and formative fields of study. With in the former, intellectual mobility could contribute to the rise of new topics and probably enrich the particular scientific field; with the latter, by contrast, it could hamper the formation and growth of the field.

Keywords: Formation, Growth, Mobility, Older, Publication, Publications, Research, Science, Scientific Publications, Stability, Terrorism, Time

? Pinto, M. and Doucet, A.V. (2007), An educational resource for information literacy in higher education: Functional and users analyses of the e-COMs academic portal. *Scientometrics*, **72** (2), 225-252.

Full Text: [2007\Scientometrics72, 225.pdf](2007/Scientometrics72,%20225.pdf)

Abstract: As in today’s knowledge society the Internet is playing an important role in the information literacy of university students the goal of this paper is to analyse, after its first year on the Web, the informational impact of an e-learning resource developed by Granada’s University lecturers (the e-COMS educational portal), a pioneer in Spain for training in information literacy. From the objective and subjective data provided by the own portal and by it users, two different and complementary kinds of analysis (functional and users’) are performed. Assessment of various capabilities, among which visibility and USAbility stand out, is provided. The highly positive but improvable results offer a detailed analysis of the functional aspects of the portal itself and of the users’ relations with this information resource. From these analyses strengths and weaknesses are extracted and some proposals for improvement are derived.

Keywords: Academic, Analysis, E-Learning, Education, Functional, Goal, Higher Education, Impact, Information, Internet, Knowledge, Links, Literacy, Paper, Role, Site, Society, Spain, Strengths, Students, Training, Universities, USAbility, Visibility, World-Wide-Web

? Sidiropoulos, A., Katsaros, D. and Manolopoulos, Y. (2007), Generalized Hirsch h-Index for disclosing latent facts in citation networks. *Scientometrics*, **72** (2), 253-280.

Full Text: [2007\Scientometrics72, 253.pdf](2007/Scientometrics72,%20253.pdf)

Abstract: What is the value of a scientist and its impact upon the scientific thinking? How can we measure the prestige of a journal or a conference? the evaluation of the scientific work of a scientist and the estimation of the quality of a journal or conference has long attracted significant interest, due to the benefits by obtaining an unbiased and fair criterion. Although it appears to be simple, defining a quality metric is not an easy task. To overcome the disadvantages of the present metrics used for ranking scientists and journals, J. E. Hirsch proposed a pioneering metric, the now famous h-Index. In this article we demonstrate several inefficiencies of this index and develop a pair of generalizations and effective variants of it to deal with scientist ranking and publication forum ranking. The new citation indices are able to disclose trendsetters in scientific research, as well as researchers that constantly shape their field with their influential work, no matter how old they are. We exhibit the effectiveness and the benefits of the new indices to unfold the full potential of the h-Index, with extensive experimental results obtained from the DBLP, a widely known on-line digital library.

Keywords: Citation, Effectiveness, Evaluation, Experimental, Global Perceptions, h Index, h-Index, Hirsch, Hirsch h-Index, Impact, Journal, Journals, Metrics, Potential, Publication, Quality, Quality of, Ranking, Research, Scholars, Scientific Research, Scientists, Value, Work

? Soler, J.M. (2007), Separating the articles of authors with the same name. *Scientometrics*, **72** (2), 281-290.

Full Text: S[2007\Scientometrics72, 281.pdf](2007/Scientometrics72,%20281.pdf)

Abstract: I describe a method to separate the articles of different authors with the same name. It is based on a distance between any two publications, defined in terms of the probability that they would have as many coincidences if they were drawn at random from all published documents. Articles with a given author name are then clustered according to their distance, so that all articles in a cluster belong very likely to the same author. The method has proven very useful in generating groups of papers that are then selected manually. This simplifies considerably citation analysis when the author publication lists are not available.

Keywords: Analysis, Citation, Citation Analysis, Cluster, Groups, Nonlinear Dimensionality Reduction, Probability, Publication, Publications, Similarity

? Nadarajah, S. and Kotz, S. (2007), Models for citation behavior. *Scientometrics*, **72** (2), 291-305.

Full Text: [2007\Scientometrics72, 291.pdf](2007/Scientometrics72,%20291.pdf)

Abstract: the number of citations of journal papers is an important measure of the impact of research. Thus, the modeling of citation behavior needs attention. Burrell, Egghe, Rousseau and others pioneered this type of modeling. Several models have been proposed for the citation distribution. In this note, we derive the most comprehensive collection of formulas for the citation distribution, covering some 17 flexible families. The corresponding estimation procedures are also derived by the method of moments. We feel that this work could serve as a useful reference for the modeling of citation behavior.

Keywords: Attention, Behavior, Citation, Citations, Distribution, Estimation, Families, Flexible, Impact, Journal, Method of Moments, Modeling, Models, Obsolescence, Paper, Reference, Research

? Ouimet, M., Amara, N., Landry, R. and Lavis, J. (2007), Direct interactions medical school faculty members have with professionals and managers working in public and private sector organizations: A cross-sectional study. *Scientometrics*, **72** (2), 307-323.

Full Text: [2007\Scientometrics72, 307.pdf](2007/Scientometrics72,%20307.pdf)

Abstract: the research questions are as follows: to what extent do Canadian medical school faculty members have person-to-person interactions with individuals working in public and private sector organizations? What are the characteristics of Canadian medical school faculty members who interact with individuals working in these work settings? Are these different network patterns complementary or substitute? the data used for this study are from a cross-sectional survey of Canadian medical school faculty members (n = 907). Structural multivariate ordered probit models were estimated to explore the characteristics of faculty members with different network patterns and to see if these network patterns are complementary or substitute. Study results suggest that the different network patterns considered in the study are not conflicting, but that some patterns correspond to different faculty member profiles.

Keywords: Canada, Care, Characteristics, Evidence Based Policy, Faculty, Foundation, Interactions, Knowledge, Medical, Model, Models, Multivariate, Organizations, Profiles, Research, School, Survey

Adams, J., Gurney, K. and Marshall, S. (2007), Profiling citation impact: A new methodology. *Scientometrics*, **72** (2), 325-344.

Full Text: [2007\Scientometrics72, 325.pdf](2007/Scientometrics72,%20325.pdf)

Abstract: A methodology for creating bibliometric impact profiles is described. The advantages of such profiles as a management tool to supplement the reporting power of traditional average impact metrics are discussed. The impact profile for the UK as a whole reveals the extent to which the median and modal UK impact values differ from and are significantly below average impact. Only one-third of UK output for 1995-2004 is above world average impact although the UK’s average world-normalised impact is 1.24. Time-categorised impact profiles are used to test hypotheses about changing impact and confirm that the increase in average UK impact is due to real improvement rather than a reduction in low impact outputs. The impact profile methodology has been applied across disciplines as well as years and is shown to work well in all subject categories. It reveals substantial variations in performance between disciplines. The value of calculating the profile median and mode as well as the average impact are demonstrated. Finally, the methodology is applied to a specific data-set to compare the impact profile of the elite Laboratory of Molecular Biology (Cambridge) with the relevant UK average. This demonstrates an application of the methodology by identifying where the institute’s exceptional performance is located. The value of impact profiles lies in their role as an interpretive aid for non-specialists, not as a technical transformation of the data for scientometricians.

Keywords: Bibliometric, Citation, Impact, Low, Management, Methodology, Metrics, Nations, Output, Performance, Profile, Profiles, Reduction, Reporting, Role, Science, Test, Transformation, UK

? Pinto, M., Sales, D., Doucet, A.V., Fernandez-Ramos, A. and Guerrero, D. (2007), Metric analysis of the information visibility and diffusion about the European Higher Education Area on Spanish University websites. *Scientometrics*, **72** (2), 345-370.

Full Text: [2007\Scientometrics72, 345.pdf](2007/Scientometrics72,%20345.pdf)

Abstract: the purpose of the study proposed in this paper is to evaluate the Spanish public university websites dedicated to the European Higher Education Area (EHEA). To do so, the quality of these resources has been analysed in the light of data provided by a series of indicators grouped in seven criteria, most of which were used to determine what information is made available and in what way. The criteria used in our analysis are: visibility, authority, updatedness, accesibility, correctness and completeness, quality assessment and navigability. All in all, the results allow us to carry out an overall diagnosis of the situation and also provide us with information about the situation at each university, thus revealing their main strengths, namely authority and navegability, and also their chief shortcomings: updatedness, accessibility and quality assessment. In this way it is possible to detect the best practices in each of the aspects evaluated so that they can serve as an example and guide for universities with greater deficiencies and thus help them to improve their EHEA websites.

Keywords: Accessibility, Analysis, Assessment, Criteria, Diagnosis, Diffusion, Health Information, Indicators, Information, Light, Made, Paper, Quality, Sites, Strengths, Universities, Visibility, World-Wide-Web

? Kim, M.J. (2007), A bibliometric analysis of the effectiveness of Korea’s Biotechnology Stimulation Plans, with a comparison with four other Asian nations. *Scientometrics*, **72** (3), 371-388.

Full Text: [2007\Scientometrics72, 371.pdf](2007/Scientometrics72,%20371.pdf)

Abstract: This study investigates the scientific output and publication patterns of Korean biotechnology before and after the start of the Korean Biotechnology Stimulation Plans (1994-2007), and then compares the results with publication data from the same time periods for Japan, the People’s Republic of China, Taiwan and Singapore. for this study, 14,704 publications, published by at least one researcher from one of the five Asian nations (indexed by SCI Expanded during the years 1990-1993 and the years 2000-2003), were considered. A marked increase of Korean research output in biotechnology was largely influenced by an increasing tendency for researchers to enter the field of biotechnology and by increased expenditures for R&D activity through the Korean Biotechnology Stimulation Plans. In addition, the SCI Expanded coverage of national journals affected the scientific output and publication patterns of Japanese and Korean researchers. Looking at the Korean publications by collaboration type, international collaboration leads to more publications in mainstream journals of high impact factors than local and domestic collaborations for the two periods. However, although the Korean Biotechnology Stimulation Plans were followed by a remarkable increase in South Korea’s research output, this increase has not been accompanied by growth in the quality of those publications in terms of impact factors of journals for Korean publications.

Keywords: Activity, Analysis, Asian, Bibliometric, Bibliometric Analysis, Biotechnology, China, Collaboration, Comparison, Effectiveness, Expenditures, Growth, Impact, Impact Factors, Indicators, International Collaboration, Japan, Journals, Local, Output, Patent Statistics, Publication, Publications, Quality, Research, SCI, Scientific Output, Singapore, Taiwan, Time

? Hu, X.J. (2007), Relative Superiority Coefficient of papers: A new dimension for institutional research performance in different fields. *Scientometrics*, **72** (3), 389-402.

Full Text: [2007\Scientometrics72, 389.pdf](2007/Scientometrics72,%20389.pdf)

Abstract: Cross-field comparison of citation measures of scientific achievement or research quality is severely hindered by the diversity of the stage of development and citation habits of different disciplines or fields. Based on the same principles of RCR (Relative Citation Rate) and RW (Relative Subfield Citedness), a new dimension - the Relative Superiority Coefficient (SC (n)) in research quality was introduced. This can indicate clearly the relative research level for research groups at multiple levels in the respective field by consistent criteria in terms of research quality. Comparison of the SC (n) within or across 22 broad fields among 5 countries were presented as an application model. Hierarchical Cluster and One-Way ANOVA were applied and processed by the statistical program SPSS. All original data were from Essential Science Indicators (ESI) 1996-2006.

Keywords: Achievement, Anova, Citation, Comparison, Development, Diversity, Groups, Indicators, Journal Impact Factor, Levels, Model, Performance, Program, Quality, Research, Research Performance, Research Quality, Science-Citation-Index, UK

? Guan, J.C. and He, Y. (2007), Patent-bibliometric analysis on the Chinese science - technology linkages. *Scientometrics*, **72** (3), 403-425.

Full Text: [2007\Scientometrics72, 403.pdf](2007/Scientometrics72,%20403.pdf)

Abstract: the purpose of this study is to explore the character and pattern of the linkage between science and technology in China, based on the database of United States Patent and Trademark Office (USPTO). The analysis is focused on the period 1995-2004, a rapid increasing period for Chinese US patents. Using the scientific non-patent references (NPRs) within patents, we investigate the science-technology connection in the context of Chinese regions as well as industrial sectors classified by International Patent Classification (IPC). 11 technological domains have been selected to describe the science intensity of the technology. The results suggest that the patents and the corresponding scientific citations are related in different ways. Finally, we match the scientific NPRs to the Science Citation Index (SCI) covered publications to identify the core journals and categories. It reveals that the scientific references covered by SCI show a skewed distribution not only in journals but also in categories.

Keywords: Analysis, Basic Research Literature, Biotechnology Sectors, China, Chinese, Citations, Core, Database, Distribution, Domains, Germany, Indicators, Industrial, Industry, Innovation Systems, Intensity, Journals, Knowledge Flows, Patents, Publications, SCI, Science, Science and Technology, Science Citation Index, Statistics, United States, US

? Fowler, J.H. and Aksnes, D.W. (2007), Does self-citation pay? *Scientometrics*, **72** (3), 427-437.

Full Text: [2007\Scientometrics72, 427.pdf](2007/Scientometrics72,%20427.pdf)

Abstract: Self-citations - those where authors cite their own works - account for a significant portion of all citations. These self-references may result from the cumulative nature of individual research, the need for personal gratification, or the value of self-citation as a rhetorical and tactical tool in the struggle for visibility and scientific authority. In this article we examine the incentives that underlie self-citation by studying how authors’ references to their own works affect the citations they receive from others. We report the results of a macro study of more than half a million citations to articles by Norwegian scientists that appeared in the Science Citation Index. We show that the more one cites oneself the more one is cited by other scholars. Controlling for numerous sources of variation in cumulative citations from others, our models suggest that each additional self-citation increases the number of citations from others by about one after one year, and by about three after five years. Moreover, there is no significant penalty for the most frequent self-citers - the effect of self-citation remains positive even for very high rates of self-citation. These results carry important policy implications for the use of citations to evaluate performance and distribute resources in science and they represent new information on the role and impact of self-citations in scientific communication.

Keywords: Affect, Citations, Communication, Impact, Incentives, Indicators, Information, Models, Performance, Policy, Policy Implications, Research, Role, Science, Science Citation Index, Scientific Communication, Sources, Visibility

? Lewison, G. (2007), The reporting of the risks from genetically modified organisms in the mass media, 2002-2004. *Scientometrics*, **72** (3), 439-458.

Full Text: [2007\Scientometrics72, 439.pdf](2007/Scientometrics72,%20439.pdf)

Abstract: This paper describes an analysis of coverage of the risks from agricultural and food genetically-modified organisms (GMOs) from April 2002 to April 2004 in 14 news media from six countries (Canada, France, Germany, Spain, the UK and the USA) which was conducted as part of a review for the European Commission of the management of risk communication. A total of 597 relevant news articles were found and coded for their presentational tone, the types of risk (environmental, financial, health and political, in that order), The organisms described (mainly maize, rape and beet crops), and the documents, people and organisations cited. UK news media tended to be the most ‘scary’ and Spanish ones the most ‘robust’. Articles quoting public perceptions, non-governmental environmental organisations and politicians tended to emphasize the risks of GMOs; those quoting scientists tended to downplay the risks and describe their potential benefits. Some suggestions for possible action by the European Commission are put forward, such as the facilitation of contact between journalists and scientists, but it is recognized that for some newspapers, their editorial wish to campaign will inevitably over-ride their reporters’ wish to present the truth.

Keywords: Agricultural, Analysis, Biotechnology, Canada, Communication, Corn Pollen, Coverage, Environmental, European Commission, Food, France, Germany, Health, Maize, Management, Mass Media, Media, Modified, Modified Foods, News, Opinion, Order, Organisms, Paper, Perceptions, Reporting, Review, Risk, Risk Communication, Risks, Spain, UK, US, USA

? Buehring, G.C., Buehring, J.E. and Gerardc, P.D. (2007), Lost in citation: Vanishing visibility of senior authors. *Scientometrics*, **72** (3), 459-468.

Full Text: [2007\Scientometrics72, 459.pdf](2007/Scientometrics72,%20459.pdf)

Abstract: the senior author is usually last on the byline of scientific publications, yet generally has made the second most important contribution. The explosion in author number per scientific paper, has necessitated limits on the number of authors allowed in cited references, frequently resulting in senior author truncation. Would potential visibility gained from citations in top-tier journals be offset by senior author omission? We found evidence for this in a sample of 208 journals, showing significant associations between author limits in cited references and various measures of journal quality. These associations, however, differed among biological science, physical science, and interdisciplinary journals.

Keywords: Citation, Citations, Interdisciplinary, Journal, Journals, Made, Order, Paper, Patterns, Physical, Publications, Quality, Science, Scientific Publications, Visibility

? Hellsten, I., Lambiotte, R., Scharnhorst, A. and Ausloos, M. (2007), Self-citations, co-authorships and keywords: A new approach to scientists’ field mobility? *Scientometrics*, **72** (3), 469-486.

Full Text: [2007\Scientometrics72, 469.pdf](2007/Scientometrics72,%20469.pdf)

Abstract: This paper introduces a new approach to detecting scientists’ field mobility by focusing on an author’s self-citation network, and the co-authorships and keywords in self-citing articles. Contrary to much previous literature on self-citations, we will show that author’s self-citation patterns reveal important information on the development and emergence of new research topics over time. More specifically, we will discuss self-citations as a means to detect scientists’ field mobility. We introduce a network based definition of field mobility, using the Optimal Percolation Method (Lambiotte & Ausloos, 2005; 2006). The results of the study can be extended to selfcitation networks of groups of authors and, generally also for other types of networks.

Keywords: Academic Disciplines, Communication, Cumulative Advantages, Development, Emergence, Evolution, Groups, Information, Literatures, Mobility, Networks, Paper, Patterns, Physicists, Research, Science, Specialties, Time

? Prpic, K. (2007), Changes of scientific knowledge production and research productivity in a transitional society. *Scientometrics*, **72** (3), 487-511.

Full Text: [2007\Scientometrics72, 487.pdf](2007/Scientometrics72,%20487.pdf)

Abstract: the main objective of this paper is to provide an empirical insight into the changes in the basic characteristics of the knowledge production mode and of scientific productivity in the Croatian research system in the transitional period. Empirical analysis is based on the results of two comparable questionnaire studies. The first survey was conducted in 1990 and the sample covered 921 respondents, while the second survey was conducted in 2004 with a sample of 915 respondents. The central characteristics of the knowledge production mode and of productivity confirm an expected duality: the features that accompany the introduction of a competitive system of research funding and evaluation on the one hand, and the anachronistic and newly acquired peculiarity of the research system on the other. Thus, the gap between the improved scientific performance of the researchers and the conditions in which they work has deepened. Scientific productivity still lags behind the productivity of the (developed) countries. Though Croatian researchers publish less, they follow basic global trends in the structure of publications, especially the rise in foreign and co-authored works.

Keywords: Academy, Analysis, Characteristics, Croatia, Determinants, Duality, Eastern-Europe, Evaluation, Faculty, Features, Funding, Global, Hand, Knowledge, Paper, Performance, Production, Productivity, Publication Productivity, Publications, Questionnaire, Research, Research Funding, Research Productivity, Research Systems, Russia, Science, Scientific Productivity, Society, Structure, Survey, Transformation, Trends

? Kostoff, R.N. (2007), The difference between highly and poorly cited medical articles in the journal Lancet. *Scientometrics*, **72** (3), 513-520.

Full Text: [2007\Scientometrics72, 513.pdf](2007/Scientometrics72,%20513.pdf)

Abstract: Characteristics of highly and poorly cited research articles (with Abstracts) published in the Lancet over a three-year period were examined. These characteristics included numerical (numbers of authors, references, citations, Abstract words, journal pages), organizational (first author country, institution type, institution name), and medical (medical condition, study approach, study type, sample size, study outcome). Compared to the least cited articles, the most cited have three to five times the median number of authors per article, fifty to six hundred percent greater median number of references per article, 110 to 490 times the median number of citations per article, 2.5 to almost seven times the median number of Abstract words per article, and 2.5 to 3.5 times the median number of pages per article. The most cited articles’ medical themes emphasize breast cancer, diabetes, coronary circulation, and HIV immune system problems, focusing on large-scale clinical trials of drugs. The least cited articles’ themes essentially do not address the above medical issues, especially from a clinical trials perspective, cover a much broader range of topics, and have much more emphasis on social and reproductive health issues. Finally, for sample sizes of clinical trials specifically, those of the most cited articles ranged from a median of about 1500 to 2500, whereas those of the least cited articles ranged from 30 to 40.

Keywords: Breast Cancer, Cancer, Characteristics, Citation, Citations, Clinical, Clinical Trials, Clinical-Research, Condition, Diabetes, Drugs, Health, HIV, Impact, Institution, Journal, Medical, Numerical, Organizational, Outcome, Publication Bias, Quality, Range, Reproductive, Research, Research Articles, Size, Social

Notes: TTopic

? Chiu, W.T. and Ho, Y.S. (2007), Bibliometric analysis of tsunami research. *Scientometrics*, **73** (1), 3-17.

Full Text: [2007\Scientometrics73, 3.pdf](2007/Scientometrics73,%203.pdf); [2007\Scientometrics73, 3-O.pdf](2007/Scientometrics73,%203-O.pdf)

Abstract: the use of the bibilometric analytical technique for examining tsunami research does not exist in the literature. The objective of the study was to perform a bibliometric analysis of all tsunami-related publications in the Science Citation Index (SCI). Analyzed parameters included document type, language of publication, publication output, authorship, publication patterns, distribution of subject category, distribution of author keywords, country of publication, most-frequently cited article, and document distribution after the Indonesia tsunami. The US and Japan produced 53% of the total output where the seven major industrial countries accounted for the majority of the total production. English was the dominant language, comprising 95% of articles. A simulation model was applied to describe the relationship between the number of authors and the number of articles, the number of journals and the number of articles, and the percentage of total articles and the number of times a certain keyword was used. Moreover the tsunami publication patterns in the first 8 months after the Indonesia tsunami occurred on 26 December 2004 indicated a high percentage of non-article publications and more documents being published in journals with higher impact factors.

Keywords: Analysis, Authors, Authorship, Bibliometric, Bibliometric Analysis, Citation, Country, Distribution, Factors, First, Impact, Impact Factors, Indonesia, Japan, Journals, Language, Literature, Majority, Model, Objective, Production, Publication, Publications, Relationship, Research, SCI, Science, Science Citation Index, Simulation, Simulation Model, Technique, US

? Burrell, Q.L. (2007), Hirsch Index or Hirsch rate? Some thoughts arising from Liang’s data. *Scientometrics*, **73** (1), 19-28.

Full Text: [2007\Scientometrics73, 19.pdf](2007/Scientometrics73,%2019.pdf)

Abstract: Hirsch’s h- index gives a single number that in some sense summarizes an author’s research output and its impact. Since an individual author’s h-Index will be time-dependent, we propose instead the h- rate which, according to theory, is (almost) constant. We re-analyse a previously published data set (LIANG, 2006) which, although not of the precise form to properly test our model, reveals that in many cases we do not have a constant h- rate. On the other hand this then suggests ways in which deeper scientometric investigations could be carried out. This work should be viewed as complementary to that of LIANG (2006).

Keywords: Complementary, h Index, h-Index, Hirsch, Hirsch Index, Impact, Investigations, Model, Research, Scientometric, Theory, Time-Dependent, Work

? Daizadeh, I. (2007), Issued US patents, patent-related global academic and media publications, and the US market indices are inter-correlated, with varying growth patterns. *Scientometrics*, **73** (1), 29-36.

Full Text: [2007\Scientometrics73, 29.pdf](2007/Scientometrics73,%2029.pdf)

Abstract: the increase in patents is a main driving force for discussions of international competitiveness, knowledge spillovers, patent office efficiencies, and others. However, to the author’s knowledge, it is interesting that no work has investigated the impact of the growth in the number of patents on patent-related scholarly (peer-reviewed) and media (e.g., press release) literatures, or evidence of inter-relatedness among these three literatures with those of the US market indices (viz., Dow, S&P500, NASDAQ). Here, I report that the growth in the number of US issued patents, the patent-related media and peer-reviewed publications, and these indices are statistically correlated, but with drastically different growth rates. This general result affords data supporting a hypothesis that publicly traded companies, as drivers of innovation, are priming a new research area within the scholarly communities and simultaneously affecting market value through, what-may-be-called, ‘patent journalism.’.

Keywords: Academic, Biotechnology, Communities, Driving, General, Global, Growth, Growth Rates, Impact, Indicators, Innovation, Knowledge, Media, Patents, Publications, Release, Research, Statistics, US, Value

? Pereira, J.C.R., Vasconcellos, J.P., FurUSAwa, L. and Barbati, A.D. (2007), Who’s who and what’s what in Brazilian Public Health Sciences. *Scientometrics*, **73** (1), 37-52.

Full Text: [2007\Scientometrics73, 37.pdf](2007/Scientometrics73,%2037.pdf)

Abstract: Introduction: the present study endeavours to provide information on what are the research interests of Brazilian Public Health and how authors can be ranked. Methods: Post-graduate faculty members ISI data are analysed according to regions. Number of paper and its citations, papers’ type-complexity-cooperation, Bradford’s Law, Shannon’s indexes, time dynamic functions, Lotka’s Law, and ranking functions are examined. Results: Current production was built up in the last 30 years at a rate of 9.6% articles/year and 12.6% citations/year. 66% of potential authors were present in ISI data records, 64% achieved at least one citation. Research fields do not much depart from the traditional PH purview. More than 66% of authors have just one paper and decrease is steep. Subtle differences call attention to the South region. Conclusion: Brazilian PH is mainly committed to classical research fields and ranking among authors is narrow.

Keywords: Attention, Citation, Citations, Communication, Dynamic, Faculty, Information, ISI, Mathematical-Theory, Paper, PH, Potential, Production, Ranking, Rate, Research, Time

? De Moya-Anegon, F., Chinchilla-Rodriguez, Z., Vargas-Quesada, B., Corera-Alvarez, E., Munoz-Fernandez, F.J., Gonzalez-Molina, A. and Herrero-Solana, V. (2007), Coverage analysis of Scopus: A journal metric approach. *Scientometrics*, **73** (1), 53-78.

Full Text: [2007\Scientometrics73, 53.pdf](2007/Scientometrics73,%2053.pdf)

Abstract: Our aim is to compare the coverage of the Scopus database with that of Ulrich, to determine just how homogenous it is in the academic world. The variables taken into account were subject distribution, geographical distribution, distribution by publishers and the language of publication. The analysis of the coverage of a product of this nature should be done in relation to an accepted model, the optimal choice being Ulrich’s Directory, considered the international point of reference for the most comprehensive information on journals published throughout the world. The results described here allow us to draw a profile of Scopus in terms of its coverage by areas - geographic and thematic - and the significance of peer-review in its publications. Both these aspects are highly pragmatic considerations for information retrieval, the evaluation of research, and the design of policies for the use of scientific databases in scientific promotion.

Keywords: Academic, Analysis, Database, Databases, Design, Distribution, Evaluation, Information, Information Retrieval, Journal, Journals, Language, Model, Peer Review, Peer-Review, Profile, Promotion, Publication, Publications, Reference, Research

Notes: FField

? Krauss, J. (2007), Journal self-citation rates in ecological sciences. *Scientometrics*, **73** (1), 79-89.

Full Text: [2007\Scientometrics73, 79.pdf](2007/Scientometrics73,%2079.pdf)

Abstract: Impact factors are a widely accepted means for the assessment of journal quality. However, journal editors have possibilities to influence the impact factor of their journals, for example, by requesting authors to cite additional papers published recently in that journal thus increasing the self-citation rate. I calculated self-citation rates of journals ranked in the Journal Citation Reports of ISI in the subject category ‘Ecology’ (n = 107). On average, self citation was responsible for 16.2±1.3% (mean±SE) of the impact factor in 2004. The self-citation rates decrease with increasing journal impact, but even high impact journals show large variation. Six journals suspected to request for additional citations showed high self-citation rates, which increased over the last seven years. To avoid further deliberate increases in self-citation rates, I suggest to take journal-specific self-citation rates into account for journal rankings.

Keywords: Assessment, Citation, Citations, Editors, Impact, Impact Factor, ISI, Journal, Journal Citation Reports, Journals, Quality, Rankings, Rate, Sciences, Scientific Journals

? Csajbok, E., Berhidi, A., Vasas, L. and Schubert, A. (2007), Hirsch-Index for countries based on Essential Science Indicators data. *Scientometrics*, **73** (1), 91-117.

Full Text: [2007\Scientometrics73, 91.pdf](2007/Scientometrics73,%2091.pdf)

Abstract: the authors present ranked lists of world’s countries - with main focus on EU countries (together with newly acceeded and candidate countries) - by their h-Index on various science fields. As main source of data Thomson Scientific’s Essential Science Indicators (ESI) database was used. EU countries have strong positions in each field but none of them can successfully compete with the USA. The modest position of the newly accessed and candidate countries illustrate the importance of supportive economic and political background in order to achieve scientific success. An attempt is made to fit a recent theoretical model relating the h-Index with two traditional scientometric indicators: the number of publications and the mean citation rate.

Keywords: Citation, Database, EU, h Index, h-Index, Hirsch Index, Indicators, Model, Publications, Science, Science Indicators, Scientometric, USA

? Jacob, J.H., Lehrl, S. and Henkel, A.W. (2007), Early recognition of high quality researchers of the German psychiatry by worldwide accessible bibliometric indicators. *Scientometrics*, **73** (2), 117-130.

Full Text: [2007\Scientometrics73, 117.pdf](2007/Scientometrics73,%20117.pdf)

Abstract: Background: Publication and citation rates mark the research activity and research quality of scientists. Question: Are bibliometric indicators valid instruments for early recognition of high quality researchers? Subjects and methods: the number of publications and citations of 26 assistant, associate and full professors of German psychiatry born after 1947 was analysed in their 30(th) and 31(st) year of age and between 1996 and 2000. Results: 58% of the selected 30 or 31 year old scientists had at least one publication in a journal with an impact factor, 93% of these as first or single author. 42% in this age group were at least cited once. Publication and citation rates in the early stage of a career provide hints on the later bibliometric data and the academic degree of scientists. Conclusion: High quality researchers can be recognised early in their careers by means of worldwide accessible bibliometric indicators.

Keywords: Academic, Activity, Age, Bibliometric, Bibliometric Indicators, Citation, Citation Indexes, Citations, Group, Impact, Impact Factor, Indicators, Journal, Methods, Psychiatry, Publication, Publications, Quality, Recognition, Research, Research Quality, Scientific Performance

? Diamond, Jr., A.M. and Toth, R.J. (2007), The determinants of election to the Presidency of the American Economic Association: Evidence from a cohort of distinguished 1950’s economists. *Scientometrics*, **73** (2), 131-137.

Full Text: [2007\Scientometrics73, 131.pdf](2007/Scientometrics73,%20131.pdf)

Abstract: Data have been collected on 55 members of the AEA Executive Committees for the years 1950-1960 (inclusive) on a variety of variables that measure the merit and non-merit characteristics of the economists. A logit is estimated in which the dependent variable is a dummy variable for whether an Executive Committee member was ever elected President of the American Economic Association (AEA). The number of publications and citations are important determinants of election. Receiving a PhD from one of the top three schools does not help and living in the South does not hurt. Economists who were older in 1956 were more likely to have eventually been elected to the AEA Presidency.

Keywords: Characteristics, Citations, Cohort, Older, Publications, Schools, Science

? Bornmann, L., Mutz, R. and Daniel, H.D. (2007), Row-column (RC) association model applied to grant peer review. *Scientometrics*, **73** (2), 139-147.

Full Text: [2007\Scientometrics73, 139.pdf](2007/Scientometrics73,%20139.pdf)

Abstract: In a recently published article, HARGENS & FIERTING (2006) apply the row-column (RC) association model to peer review to analyze the association between two referees’ recommendations and an editor’s decision at two scholarly journals. In the present study we analyze 1,954 applications to the Boehringer Ingelheim Fonds (B.I.F.) for doctoral and post-doctoral fellowships, which the B.I.F. evaluates in three stages (first stage: evaluation by an external reviewer; second stage: evaluation by an internal reviewer (staff member); third stage: final decision by the B.I.F. Board of Trustees). Using the RC association model, we show - in accordance with the results of HARGENS & HERTING (2006) - that a single latent dimension is sufficient to account for the association between (internal and external) reviewers’ recommendations and the fellowship award decision by the Board. This result indicates that the latent dimension underlying reviewers’ recommendations and the Board’s decisions reflects the merit of an application being evaluated. While the statistical analyses establish that overall, favorable evaluations by the reviewers correspond with favorable decisions by the Board (and vice versa), The ordering of the scale values yielded by the estimation of the RC association model also shows that internal reviewers’ recommendations have a greater influence on the Board’s decisions than recommendations by external reviewers.

Keywords: Application, Applications, Assessments, Committee, Decisions, Estimation, Evaluation, Fellowship, Internal, Journals, Model, Peer Review, Peer-Review, Recommendations, Reliability, Review, Scale, Selection, Vice

? Senthilkumaran, P. and Amudhavalli, A. (2007), Mapping of spices research in Asian countries. *Scientometrics*, **73** (2), 149-159.

Full Text: [2007\Scientometrics73, 149.pdf](2007/Scientometrics73,%20149.pdf)

Abstract: This paper intends to observe the Asian R&D output on ‘Spices’ for the co-relation between the Asian Countries and that of the sub-fields of Spices Research and the dynamic changes, if any, in their research priorities. The chosen study period is two decades: 1983-2002. Hort CD is the source database for this research. On these premises, the frequency of keywords found in the Descriptor Field of each record in the chosen database. Mapping technique is adopted for analysis using Data and Text Mining (DTM) software. This enabled to correlate the countries versus the subject priority amongst the Asian Countries during the study period. The inferences drawn are reported along with the interpretations.

Keywords: Analysis, Areas, Asian, CD, Database, Dynamic, Indicators, Output, Paper, Research, Science, Software, Source

? Burrell, Q.L. (2007), Time-dependent aspects of co-concentration in informetrics. *Scientometrics*, **73** (2), 161-174.

Full Text: [2007\Scientometrics73, 161.pdf](2007/Scientometrics73,%20161.pdf)

Abstract: It is a well-known empirical fact that when informetric processes are observed over an extending period of time, the entire shape of the distribution changes. In particular, it has been shown that concentration aspects change. In this paper the recently introduced co-concentration coefficient (C-CC) is investigated via simple stochastic models of informetric processes to investigate its time-dependence. It is shown that it is important to distinguish between situations where the zero-producers can be counted and those where they cannot. A previously published data set is used to illustrate how the empirical C-CC develops in time and the general features are compared with those derived from the theoretical model.

Keywords: Behavior, Citation Distribution, Concentration, Distribution, Distributions, Empirical, Features, General, Gini Index, Informetrics, Model, Models, Paper, Shape, Stochastic, Stochastic-Model, Theoretical Model, Time

? Gauffriau, M., Larsen, P.O., Maye, I., Roulin-Perriard, A. and von Ins, M. (2007), Publication, cooperation and productivity measures in scientific research. *Scientometrics*, **73** (2), 175-214.

Full Text: [2007\Scientometrics73, 175.pdf](2007/Scientometrics73,%20175.pdf)

Abstract: the literature on publication counting demonstrates the use of various terminologies and methods. In many scientific publications, no information at all is given about the counting methods used. There is a lack of knowledge and agreement about the sort of information provided by the various methods, about the theoretical and technical limitations for the different methods and about the size of the differences obtained by using various methods. The need for precise definitions and terminology has been expressed repeatedly but with no success. Counting methods for publications are defined and analysed with the use of set and measure theory. The analysis depends on definitions of basic units for analysis (three chosen for examination), objects of study (three chosen for examination) and score functions (five chosen for examination). The score functions define five classes of counting methods. However, in a number of cases different combinations of basic units of analysis, objects of study and score functions give identical results. Therefore, the result is the characterization of 19 counting methods, five complete counting methods, five complete-normalized counting methods, two whole counting methods, two whole-normalized counting methods, and five straight counting methods. When scores for objects of study are added, the value obtained can be identical with or higher than the score for the union of the objects of study. Therefore, some classes of counting methods, including the classes of complete, complete-normalized and straight counting methods, are additive, others, including the classes of whole and whole-normalized counting methods, are non-additive. An analysis of the differences between scores obtained by different score functions and therefore the differences obtained by different counting methods is presented. In this analysis we introduce a new kind of objects of study, the class of cumulative-turnout networks for objects of study, containing full information on cooperation. Cumulative-turnout networks are all authors, institutions or countries contributing to the publications of an author, an institute or a country. The analysis leads to an interpretation of the results of score functions and to the definition of new indicators for scientific cooperation. We also define a number of other networks, internal cumulative-turnout networks, external cumulative-turnout networks, underlying networks, internal underlying networks and external underlying networks. The networks open new opportunities for quantitative studies of scientific cooperation.

Keywords: Additive, Analysis, Authored Papers, Characterization, Citation, Co-Authorship, Countries, Examination, Formula, Indicators, Information, Institutions, Internal, Knowledge, Limitations, Methods, Networks, Productivity, Publication, Publications, Research, Science, Scientific Publications, Size, Standards, Terminology, Theory, Value

Notes: FField

? Munteanu, R. and Apetroae, M. (2007), Journal relatedness: An actor-actor and actor-objectives case study. *Scientometrics*, **73** (2), 215-230.

Full Text: [2007\Scientometrics73, 215.pdf](2007/Scientometrics73,%20215.pdf)

Abstract: Using the MACTOR (Matrix of Alliances and Conflicts: Tactics, Objectives and Recommendations) method, a set of 13 related journals covering the subject category ‘Chemistry, Multi disciplinary’ was analyzed in terms of direct and indirect reciprocal influences (measured by relatedness indexes Rji), Their positions towards a generic set of common objectives (total cites; impact factor; immediacy index; number of published articles; cited half life) and the convergences (Actors x Actors and Actors x Objectives) existing in the above-mentioned relatedness network. The study identified 4 types of actors: dominant (3), independent (8), relay (1) and dominated (1)- Maps of: influences and dependences between actors; convergence between actors; net distances between actors and actors-objectives relationships are presented, together with short interpretations. Defining scientific journals as actors on a specific ‘knowledge market’, identifying influences and dependences between them and positioning these journals towards a set of measurable objectives creates an interesting possibility to define ‘relationships of power’ of a strategic nature and enables the introduction of more complex future-oriented scientometric analyses than those based solely on standard bibliometric indicators such as the impact factor.

Keywords: Bibliometric, Bibliometric Indicators, Case Study, Complex, Direct, Half-Life, Immediacy Index, Impact, Impact Factor, Index, Indicators, Journals, Life, Method, Network, Scientific Journals, Standard

? Robert, C., Wilson, C.S., Gaudy, J.F. and Arreto, C.D. (2007), The evolution of the sleep science literature over 30 years: A bibliometric analysis. *Scientometrics*, **73** (2), 231-256.

Full Text: [2007\Scientometrics73, 231.pdf](2007/Scientometrics73,%20231.pdf)

Abstract: During the 1974-2004 period, the sleep literature had quadrupled (2384 publications in 1974, and 9721 in 2004) while overall scientific productivity had only doubled. The set of the seven most productive countries (USA, Japan, United Kingdom, Germany, France, Canada and Italy) in sleep research, and the geographical region distribution remained stable over the three decades. On the other hand several indicators appeared in the sleep research literature during the 1990s: the increasing productivity of sleep researchers; the growing number of countries publishing on sleep; the continuous creation of sleep-focused journals; the scattering of sleep publication among increasingly more scientific journals; the turnover among the leading journals; and the emergence of new entities such as China, Turkey, and the European Union.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Canada, China, Creation, Distribution, Emergence, European Union, Evolution, France, Germany, Hand, History, Indicators, Italy, Japan, Journals, Output, Productivity, Publication, Publications, Publishing, Research, Scattering, Science, Scientific Journals, Scientific Productivity, Sleep, Trends, Turkey, Turnover, United Kingdom, USA

? Minasny, B., Hartemink, A.E. and McBratney, A. (2007), Soil science and the h Index. *Scientometrics*, **73** (3), 257-264.

Full Text: [2007\Scientometrics73, 257.pdf](2007/Scientometrics73,%20257.pdf)

Abstract: Soil science is a relatively young and specialised field of science. This note discusses the use of the h Index as a scientific output measure in soil science. We explore the governing factors of h Index in soil science: the number of soil scientists, the number of papers published, the average number of citations, and the age of the scientist. We found the average relationship between h Index and scientific age for soil science: h = 0.7 t. The h Index for soil science is smaller than other major science disciplines but norms for h need to be established.

Notes: TTopic

? Zhou, F., Guo, H.C., Ho, Y.S. and Wu, C.Z. (2007), Scientometric analysis of geostatistics using multivariate methods. *Scientometrics*, **73** (3), 265-279.

Full Text: [2007\Scientometrics73, 265.pdf](2007/Scientometrics73,%20265.pdf)

Abstract: Multivariate methods were successfully employed in a comprehensive scientometric analysis of geostatistics research, and the publications data for this research came from the Science Citation Index and spanned the period from 1967 to 2005. Hierarchical cluster analysis (CA) was used in publication patterns based on different types of variables. A backward discriminant analysis (DA) with appropriate statistical tests was then conducted to confirm CA results and evaluate the variations of various patterns. for authorship pattern, the 50 most productive authors were classified by CA into 4 groups representing different levels, and DA produced 92.0% correct assignment with high reliability. The discriminant parameters were mean impact factor (MIF), annual citations per publication (ACPP), and the number of publications by the first author; for country/region pattern, CA divided the top 50 most productive countries/regions into 4 groups with 95.9% correct assignments, and the discriminant parameters were MIF, ACCP, and independent publication (IP); for institute pattern, 3 groups were identified from the top 50 most productive institutes with nearly 88.0% correct assignment, and the discriminant parameters were MIF, ACCP, IP, and international collaborative publication; last, for journal pattern, the top 50 most productive journals were classified into 3 groups with nearly 98.0% correct assignment, and its discriminant parameters were total citations, impact factor and ACCP. Moreover, we also analyzed general patterns for publication document type, language, subject category, and publication growth.

Keywords: Bibliometric Analysis, Parameters, Patterns, Uncertainty

Abt, H.A. (2007), The publication rate of scientific papers depends only on the number of scientists. *Scientometrics*, **73** (3), 281-288.

Full Text: [2007\Scientometrics73, 281.pdf](2007/Scientometrics73,%20281.pdf)

Abstract: In the fields of physics, astronomy, geophysics, mathematics, and chemistry, the numbers of American papers published depend only on the membership numbers of their scientific societies and not upon improved facilities or instrumental breakthroughs, although those improvements have caused the scientific contents of those papers to be far better in recent decades. In the past 30-35 years there have been no increases in the average annual number of published papers per scientist in those fields.

Notes: TTopic

Andrés, A., Gómez, J. and Saldaña, C. (2007), The transtheoretical model and obesity: A bibliometric study. *Scientometrics*, **73** (3), 289-301.

Full Text: [2007\Scientometrics73, 289.pdf](2007/Scientometrics73,%20289.pdf)

Abstract: the Transtheoretical Model of behaviour change is currently one of the most promising models in terms of understanding and promoting behaviour change related to the acquisition of healthy living habits. By means of a bibliographic search of papers adopting a TTM approach to obesity, the present bibliometric study enables the scientific output in this field to be evaluated. The results obtained reveal a growing interest in applying this model to both the treatment of obesity and its prevention. Otherwise, author and journal outputs fit the models proposed by Lotka and Bradford, respectively.

Keywords: Behavior, Cessation, Decisional Balance, Exercise, Health, Physical-Activity, Predictors, Primary-Care, Self-Change, Smoking

? Iglesias, J.E. and Pecharroman, C. (2007), Scaling the h-Index for different scientific ISI fields. *Scientometrics*, **73** (3), 303-320.

Full Text: [2007\Scientometrics73, 303.pdf](2007/Scientometrics73,%20303.pdf)

Abstract: We propose a simple way to put in a common scale the h values of researchers working in different scientific ISI fields, so that the foreseeable misuse of this index for inter-areas F comparison might be prevented, or at least, alleviated.

Keywords: Comparison, h Index, h-Index, Hirsch-Index, Impact, ISI, Ranking

? Yu, G. and Wang, L. (2007), The self-cited rate of scientific journals and the manipulation of their impact factors. *Scientometrics*, **73** (3), 321-330.

Full Text: [2007\Scientometrics73, 321.pdf](2007/Scientometrics73,%20321.pdf)

Abstract: Owing to some discussions about manipulating impact factor by requesting authors to increase their citations to the publication journal, we theoretically establish a mathematical expression of a relation between the journal self-citation rate and its impact factor by the single-factor method in this paper. Based on self-citation data of some journals in JCR and the observed relation between journal impact factor and the self-cited rate, we analyze the possibility that journal editors manipulate impact factors of their journals by raising the self-cited rate. Finally, we make some suggestions for supervising this crude way of active manipulating the impact factor.

Keywords: Citations, Editors, Publication Delays

? Wang, S.H., Wang, H.J. and Weldon, P.R. (2007), Bibliometric analysis of English-language academic journals of China and their internationalization. *Scientometrics*, **73** (3), 331-343.

Full Text: [2007\Scientometrics73, 331.pdf](2007/Scientometrics73,%20331.pdf)

Abstract: the internationalization of ten of China’s English-language scientific journals is analyzed based on their Impact Factor, Total Citation, JCR list rank, international paper proportion and international citation proportion. Six of these journals were financed three times by the National Natural Science Foundation of China (NNSF) between 2001-2006 and four journals maintained a higher impact factor (> 1.0) in 2003-2005. The data show that though the total trend of Impact Factor and Total Citation keeps rising, their subject rank has shown a slight decrease. Moreover, the proportion of international papers and international citations do not match their JCR rank and IF: high rank journals have a low proportion of international papers (Chinese Phys Lett, Chinese Phys) and low rank journals have a high Impact Factor (Cell Res, Asian J Androl). This inconsistency may result from their insufficient internationalization either in international paper proportion (less than 20%) or in the amount of high-quality manuscripts, probably caused by their local journal title, circulation and low IF. Suggested means of improving internationalization include encouraging Chinese scientists to cite more home journals when they publish their papers in foreign journals; soliciting the submission of international co-authorships based on the unavailability of pure foreign authorship; cooperating with internationally recognized publishers to utilize their globalization platform; employing overseas scientists to recruit international papers; improving writing style and content, to enable greater accessibility to worldwide readers.

Keywords: Impact, Scientific Journals

? Braun, T. and Schubert, A. (2007), The growth of research on inter- and multidisciplinarity in science and social science papers, 1975-2006. *Scientometrics*, **73** (3), 345-351.

Full Text: [2007\Scientometrics73, 345.pdf](2007/Scientometrics73,%20345.pdf)

Abstract: In a follow-up study of a previous analysis concerning the period 1980-1999, we found that inter-/multidisciplinary remained a highlighted title term both in science and social science papers. It is suggested that science policy should give proper priority to inter- and multidisciplinary research.

Abt, H.A. (2007), The future of single-authored papers. *Scientometrics*, **73** (3), 353-358.

Full Text: [2007\Scientometrics73, 353.pdf](2007/Scientometrics73,%20353.pdf)

Abstract: the fractions of single-authored papers in four science fields (astronomy, physics, chemistry, and biology) were determined at five-year intervals during 1975-2005. In each case the distribution is best fitted with an exponential function that never reaches zero, implying that single-authored papers will continue to be published in the foreseeable future. This is contrary to the prediction that they would become extinct.

? White, H.D. (2008), Katherine W. McCain wins the 2007 Derek John de Solla Price medal. *Scientometrics*, **74** (1), 5-6.

Full Text: [2008\Scientometrics74, 5.pdf](2008/Scientometrics74,%205.pdf)

? White, H.D. (2008), Katherine McCain: Recipient of the 2007 Derek de Solla Price Award of the journal Scientometrics. Scientometrics, **74** (1), 7-10.

Full Text: [2008\Scientometrics74, 7.pdf](2008/Scientometrics74,%207.pdf)

? Glänzel, W. (2008), Preface. *Scientometrics*, **74** (1), 13-14.

Full Text: [2008\Scientometrics74, 13.pdf](2008/Scientometrics74,%2013.pdf)

? Bonaccorsi, A. and Daraio, C. (2008), The differentiation of the strategic profile of higher education institutions. New positioning indicators based on microdata. *Scientometrics*, **74** (1), 15-37.

Full Text: [2008\Scientometrics74, 15.pdf](2008/Scientometrics74,%2015.pdf)

Abstract: We address the issue of differentiation of the profile of universities and offer a set of new indicators based on microdata at the individual level and the application of robust nonparametric efficiency measures. In particular, we use efficiency measures in order to characterize the way in which universities use their inputs (academic and non academic staff, funding) in the effort to position themselves in the space of output (undergraduate teaching, postgraduate education, fundamental research, contract research, third mission), while keeping efficiency under control. The strategic problem of universities is defined as making best use of existing resources in the short run, while enlarging the scope of autonomy in procuring additional resources in the long run. In order to make best use of resources universities are led to increase their specialization and differentiate their offering profile. This happens even if the European institutional landscape does not encourage universities to differentiate.

Keywords: Education, Higher Education, Indicators, Productivity, Research, Universities

? Butler, L. (2008), ICT assessment: Moving beyond journal outputs. *Scientometrics*, **74** (1), 39-55.

Full Text: [2008\Scientometrics74, 39.pdf](2008/Scientometrics74,%2039.pdf)

Abstract: There are increasing moves to deploy quantitative indicators in the assessment of research, particularly in the university sector. In Australia, discussions surrounding their use have long acknowledged the unsuitability of many standard quantitative measures for most humanities, arts, social science, and applied science disciplines. To fill this void, several projects are running concurrently. This paper details the methodology and initial results for one of the projects that aims to rank conferences into prestige tiers, and which is fast gaining a reputation for best practice in such exercises. The study involves a five-stage process: identifying conferences; constructing a preliminary ranking of these; engaging in extensive consultation; testing performance measures based on the rankings on ‘live’ data; and assessing the measures. In the past, many similar attempts to develop a ranking classification for publication outlets have faltered due to the inability of researchers to agree on a hierarchy. However the Australian experience suggests that when researchers are faced with the imposition of alternative metrics that are far less palatable, consensus is more readily achieved.

Keywords: Assessment, Australia, Humanities, Indicators, Journal, Publication, Ranking, Rankings, Research, Science, Testing

? Chen, L. and Rousseau, R. (2008), Q-measures for binary divided networks: Bridges between German and English institutes in publications of the Journal of Fluid Mechanics. *Scientometrics*, **74** (1), 57-69.

Full Text: [2008\Scientometrics74, 57.pdf](2008/Scientometrics74,%2057.pdf)

Abstract: Q-measures for binary divided networks were introduced in 2004. These measures can value the status of notes as linkage (or bridges) between two groups in a connected undirected network. We collected data from the Web of Science and used a computer programme in order to study Qmeasures for an England-Germany collaboration network in fluid mechanics. The result indicates that Cambridge University, Manchester University, Technische Universitat Berlin, the Max Planck Institute, Stuttgart University and Forschungszentrum Karlsruhe play the most important roles as bridges between England and Germany. It is shown that having a high degree centrality and being a key node are important factors explaining the ranking of nodes in a network according to Q-value. It is observed that institutes with a high Q-value have, on average, a higher production than those with a lower Q-value.

Keywords: Collaboration, Germany, Network, Publications, Ranking, Web of Science

? Glänzel, W., Debackere, K. and Meyer, M. (2008), ‘Triad’ or ‘tetrad’? On global changes in a dynamic world. *Scientometrics*, **74** (1), 71-88.

Full Text: [2008\Scientometrics74, 71.pdf](2008/Scientometrics74,%2071.pdf)

Abstract: the US-EU race for world leadership in science and technology has become the favourite subject of recent studies. Studies issued by the European Commission reported the increase of the European share in the world’s scientific production and announced world leadership of the EU in scientific output at the end of the last century. In order to be able to monitor those types of global changes, the present study is based on the 15-year period 1991-2005. A set of bibliometric and technometric indicators is used to analyse activity and impact patterns in science and technology output. This set comprises publication output indicators such as (1) the share in the world total, (2) subject-based publication profiles, (3) citation-based indicators like journal-and subject-normalised mean citation rates, (4) international co-publications and their impact as well as (5) patent indicators and publication-patent citation links (both directions). The evolution of national bibliometric profiles, ‘scientific weight’ and science-technology linkage patterns are discussed as well. The authors show, using the mirror of science and technology indicators, that the triad model does no longer hold in the 21(st) century. China is challenging the leading sciento-economic powers and the time is approaching when this country will represent the world’s second largest potential in science and technology. China and other emerging scientific nations like South Korea, Taiwan, Brazil and Turkey are already changing the balance of power as measured by scientific production, as they are at least in part responsible for the relative decline of the former triad.

Keywords: America, Bibliometric, Brazil, China, Citation, EU, Indicators, Leadership, Nations, Publication, Science, Science and Technology, Science-Technology Linkage, Scientific Output, Scientific Production

? Gamber, T., Friedrich-Nishio, M. and Grupp, H. (2008), Science and technology in standardization: A statistical analysis of merging knowledge structures. *Scientometrics*, **74** (1), 89-108.

Full Text: [2008\Scientometrics74, 89.pdf](2008/Scientometrics74,%2089.pdf)

Abstract: the objective of this paper is to depict the knowledge array of standards. This is done by identifying and analyzing external effects, specifically spillover effects. The database used is Perinorm. We use a cluster analysis in order to create groups of technology fields for German standards according to the fields of the International Classification of Standards. Methodologically, the distances between these objects or clusters are defined by the chosen distance measure, which in turn is determined by the sum of their cross references. The applied joining clustering method uses these distances between the objects and allows the data to be mapped within a two dimensional space. The results of this mapping show the existence of structures within the standards data fitting to the well-known structure of patent spillovers.

Keywords: Analysis, Innovations, Statistical Analysis

? Larivière, V., Zuccala, A. and Archambault, E. (2008), The declining scientific impact of theses: Implications for electronic thesis and dissertation repositories and graduate studies. *Scientometrics*, **74** (1), 109-121.

Full Text: [2008\Scientometrics74, 109.pdf](2008/Scientometrics74,%20109.pdf)

Abstract: Although the writing of a thesis is a very important step for scientists undertaking a career in research, little information exists on the impact of theses as a source of scientific information. Knowing the impact of theses is relevant not only for students undertaking graduate studies, but also for the building of repositories of electronic theses and dissertations (ETD) and the substantial investment this involves. This paper shows that the impact of theses as information sources has been generally declining over the last century, apart from during the period of the ‘golden years’ of research, 1945 to 1975. There is no evidence of ETDs having a positive impact; on the contrary, since their introduction the impact of theses has actually declined more rapidly. This raises questions about the justification for ETDs and the appropriateness of writing monograph style theses as opposed to publication of a series of peer-reviewed papers as the requirement for fulfilment of graduate studies.

Keywords: Citations, Collections, Doctoral Dissertation, Library, Peer-Reviewed, PhD, Publication, Research, Sciences, Scientific Information, Students, Trends

? Larsen, K. (2008), Knowledge network hubs and measures of research impact, science structure, and publication output in nanostructured solar cell research. *Scientometrics*, **74** (1), 123-142.

Full Text: [2008\Scientometrics74, 123.pdf](2008/Scientometrics74,%20123.pdf)

Abstract: This study on co-authorship networks in the area of nanostructured solar cells aims to contribute to a further understanding of the use of research evaluation measures of science output, impact and structure in an emerging research field. The study incorporates quantitative bibliometric methods of analysis and social network analysis in combination with a qualitative case study research approach. Conclusions drawn from the results emphasise, firstly, the importance of distinguishing between early and later phases of the evolution of a novel research field, and secondly, the application of a systemic view on learning processes and knowledge diffusion in a science-based technology field.

Keywords: Analysis, Bibliometric, Bibliometric Methods, Citations, Co-Authorship, Co-Authorship Networks, Coauthorship, Diffusion, Dynamics, Evaluation, Field, Interdisciplinarity, Nanoscience, Nanotechnology, Network, Network Analysis, Patterns, Publication, Research, Research Collaboration, Research Evaluation, Science, Scientific Literature, Social Network Analysis, Technology

? Lo, S.C. (2008), Patent coupling analysis of primary organizations in genetic engineering research. *Scientometrics*, **74** (1), 143-151.

Full Text: [2008\Scientometrics74, 143.pdf](2008/Scientometrics74,%20143.pdf)

Abstract: the aim of this study is to reveal the possible linkage among the 40 primary organizations in Genetic Engineering Research by taking the Patent Coupling approach. The primary organizations were defined by the productivity and identified by the patent count and Bradford Law. The author analyzed the cited patents of the patents granted by United States Patent and Trademark Office (USPTO) from 1991 to 2002 to the 40 primary organizations (assignees) in Genetics Engineering Research to establish the correlation. 780 coupling pairs formed by the 40 primary organizations and Coupling Index and Coupling Strength were calculated for each pair and primary organization. Correlation Analysis and Multiple-Dimension Scaling were applied further based on Coupling Index. Technological clusters were found in the results of the analyses.

Keywords: Analysis, Basic Research Literature, Biotechnology, Indicators, Patents, Primary, Research, Science

? Moed, H.F. (2008), UK research assessment exercises: Informed judgments on research quality or quantity? *Scientometrics*, **74** (1), 153-161.

Full Text: [2008\Scientometrics74, 153.pdf](2008/Scientometrics74,%20153.pdf)

Abstract: A longitudinal analysis of UK science covering almost 20 years revealed in the years prior to a Research Assessment Exercise (RAE 1992, 1996 and 2001) three distinct bibliometric patterns, that can be interpreted in terms of scientists’ responses to the principal evaluation criteria applied in a RAE. When in the RAE 1992 total publications counts were requested, UK scientists substantially increased their article production. When a shift in evaluation criteria in the RAE 1996 was announced from ‘quantity’ to ‘quality’, UK authors gradually increased their number of papers in journals with a relatively high citation impact. and during 1997-2000, institutions raised their number of active research staff by stimulating their staff members to collaborate more intensively, or at least to co-author more intensively, although their joint paper productivity did not. This finding suggests that, along the way towards the RAE 2001, evaluated units in a sense shifted back from ‘quality’ to ‘quantity’. The analysis also observed a slight upward trend in overall UK citation impact, corroborating conclusions from an earlier study. The implications of the findings for the use of citation analysis in the RAE are briefly discussed.

Keywords: Analysis, Assessment, Bibliometric, Citation, Citation Analysis, Evaluation, Impact, Journals, Publications, Quality, Research, Research Assessment, Research Quality, Science

? Nederhof, A.J. (2008), Policy impact of bibliometric rankings of research performance of departments and individuals in economics. *Scientometrics*, **74** (1), 163-174.

Full Text: [2008\Scientometrics74, 163.pdf](2008/Scientometrics74,%20163.pdf)

Abstract: This paper examines policy-relevant effects of a yearly public ranking of individual researchers and their institutes in economics by means of their publication output in international top journals. In 1980, a grassroots ranking (‘Top 40’) of researchers in the Netherlands by means of their publications in international top journals started a competition among economists. The objective was to improve economics research in the Netherlands to an internationally competitive level. The ranking lists did stimulate output in prestigious international journals. Netherlands universities tended to perform well compared to universities elsewhere in the EU concerning volume of output in ISI source journals, but their citation impact was average. Limitations of ranking studies and of bibliometric monitoring in the field of economics are discussed.

Keywords: Growth, Growth Rate, h Index, h-Index, Hirsch, Impact, Institutions, Journals, Methodology, Papers, Population, Rank, Ranking, Scientific Institutions, Scientific Production, Size, Universities, Visibility, Work

? Sandström, U. and Hällsten, M. (2008), Persistent nepotism in peer-review. *Scientometrics*, **74** (2), 175-189.

Full Text: [2008\Scientometrics74, 175.pdf](2008/Scientometrics74,%20175.pdf)

Abstract: In a replication of the high-profile contribution by Wenneras and Wold on grant peer-review, we investigate new applications processed by the medical research council in Sweden. Introducing a normalisation method for ranking applications that takes into account the differences between committees, we also use a normalisation of bibliometric measures by field. Finally, we perform a regression analysis with interaction effects. Our results indicate that female principal investigators (PIs) receive a bonus of 10% on scores, in relation to their male colleagues. However, male and female PIs having a reviewer affiliation collect an even higher bonus, approximately 15%. Nepotism seems to be a persistent problem in the Swedish grant peer review system.

Keywords: Affiliation, Analysis, Bibliometric, Gender-Differences, Interaction, Medical, Peer Review, Peer-Review, Ranking, Research, Science, Scientific Productivity, Sex-Differences

? Shelton, R.D. (2008), Relations between national research investment and publication output: Application to an American Paradox. *Scientometrics*, **74** (2), 191-205.

Full Text: [2008\Scientometrics74, 191.pdf](2008/Scientometrics74,%20191.pdf)

Abstract: the term ‘European Paradox’ describes the perceived failure of the EU to capture full benefits of its leadership of science as measured by publications and some other indicators. This paper investigates what might be called the ‘American Paradox,’ the decline in scientific publication share of the U.S. despite world-leading investments in research and development (R&D) - particularly as that decline has accelerated in recent years. A multiple linear regression analysis was made of which inputs to the scientific enterprise are most strongly correlated with the number of scientific papers produced. Research investment was found to be much more significant than labor input, government investment in R&D was much more significant than that by industry, and government non-defense investment was somewhat more significant than its defense investment. Since the EU actually leads the U.S. in this key component, this could account for gradual loss of U.S. paper share and EU assumption of leadership of scientific publication in the mid-1990s. More recently the loss of U.S. share has accelerated, and three approaches analyzed this phenomenon: (1) A companion paper shows that the SCI database has not significantly changed to be less favorable to the U.S.; thus the decline is real and is not an artifact of the measurement methods. (2) Budgets of individual U.S. research agencies were correlated with overall paper production and with papers in their disciplines. Funding for the U.S. government civilian, non-healthcare sector was flat in the last ten years, resulting in declining share of papers. Funding for its healthcare sector sharply increased, but there were few additional U.S. healthcare papers. While this inefficiency contributes to loss of U.S. share, it is merely a specific example of the general syndrome that increased American investments have not produced increased publication output. (3) In fact the decline in publication share appears to be due to rapidly increasing R&D investments by China, Taiwan, S. Korea, and Singapore. A model shows that in recent years it is a country’s share of world investment that is most predictive of its publication share. While the U.S. has increased its huge R&D investment, its investment share still declined because of even more rapidly increasing investments by these Asian countries. This has likely led to their sharply increased share of scientific publication, which must result in declines of shars of others - the U.S. and more recently, the EU.

Keywords: Analysis, China, Development, EU, Indicators, Leadership, Measurement, Publication, Publications, Research, Research and Development, SCI, Science

? Small, H., Kushmerick, A. and Benson, D. (2008), Scientists’ perceptions of the social and political implications of their research. *Scientometrics*, **74** (2), 207-221.

Full Text: [2008\Scientometrics74, 207.pdf](2008/Scientometrics74,%20207.pdf)

Abstract: We explore an empirical approach to studying the social and political implications of science by gathering scientists’ perceptions of the social impacts of their research. It was found that 78 percent of surveyed scientists from a variety of fields responding to a survey indicated that the research performed in connection with a recent highly cited paper had such implications. Health related implications were the most common, but other types of implications encountered were technological spin-offs, public understanding, economic and policy benefits. Surprisingly many scientists considered the advancement of science itself to be a social implication of their research. The relations of these implications to the field and topics of research are examined, and a mapping of implications gives an overview of the major dimensions of the social impacts of science.

Keywords: Research, Science

? Thijs, B. and Glänzel, W. (2008), A structural analysis of publication profiles for the classification of European research institutes. *Scientometrics*, **74** (2), 223-236.

Full Text: [2008\Scientometrics74, 223.pdf](2008/Scientometrics74,%20223.pdf)

Abstract: In the present study we propose a solution for a common problem in benchmarking tasks at institutional level. The Usage of bibliometric indicators, even after standardisation, cannot disguise that comparing institutes remains often like comparing apples with pears. We developed a model to assign institutes to one of 8 different groups based on their research profile. Each group has a different focus: 1. Biology, 2. Agricultural Sciences, 3. Multidisciplinary, 4. Geo & Space Sciences, 5. Technical and natural Sciences, 6. Chemistry, 7. General and Research Medicine, 8. Specialised Medicine. Two applications of this methodology are described. In the first application we compare the composition of clusters at national level with the national research profiles. This gives a deeper insight in the national research landscape. In a second application we look at the dynamics of institutes by comparing their subject clustering at two different points in time.

Keywords: Analysis, Bibliometric, Bibliometric Indicators, Indicators, Publication, Research, Science, Solution

? Vinkler, P. (2008), Correlation between the structure of scientific research, scientometric indicators and GDP in EU and non-EU countries. *Scientometrics*, **74** (2), 237-254.

Full Text: [2008\Scientometrics74, 237.pdf](2008/Scientometrics74,%20237.pdf)

Abstract: Significant discrepancies were found in the ratio and relative impact of the journal papers of several scientific fields of some Central and Eastern European (CEE) countries compared to the European Community member states, the US and Japan (EUJ countries). A new indicator, characterizing the Mean Structural Difference of scientific fields between countries has been introduced and calculated for CEE countries. for EUJ countries correlation between the GDP and number of publications of a given year proved to be non-significant. Longitudinal studies showed, however, significant correlations between the yearly values of GDP and number of papers published. Studying data referring to consecutive time periods revealed that there is no direct relationship between the GDP and information production of countries. It may be assumed that grants for R&D do not actually depend on real needs, but the fact is that rich countries can afford to spend more whilst poor countries only less money on scientific research.

Keywords: EU, Impact, Indicators, Information, Journal, Nations, Publications, Research, Science, Scientific Research, Scientometric, US

? Bar-Ilan, J. (2008), Which h-Index? - A comparison of WoS, Scopus and Google Scholar. *Scientometrics*, **74** (2), 257-271.

Full Text: [2008\Scientometrics74, 257.pdf](2008/Scientometrics74,%20257.pdf)

Abstract: This paper compares the h-indices of a list of highly-cited Israeli researchers based on citations counts retrieved from the Web of Science, Scopus and Google Scholar respectively. In several case the results obtained through Google Scholar are considerably different from the results based on the Web of Science and Scopus. Data cleansing is discussed extensively.

Keywords: Citation Analysis, Citations, Comparison, h Index, h-Index, Journals, Numbers, Scientists, Scopus, Search, Web of Science

? Kousha, K. and Thelwall, M. (2008), Sources of Google Scholar citations outside the Science Citation Index: A comparison between four science disciplines. *Scientometrics*, **74** (2), 273-294.

Full Text: [2008\Scientometrics74, 273.pdf](2008/Scientometrics74,%20273.pdf)

Abstract: for practical reasons, bibliographic databases can only contain a subset of the scientific literature. The ISI citation databases are designed to cover the highest impact scientific research journals as well as a few other sources chosen by the Institute for Scientific Information (ISI). Google Scholar also contains citation information, but includes a less quality controlled collection of publications from different types of web documents. We define Google Scholar unique citations as those retrieved by Google Scholar which are not in the ISI database. We took a sample of 882 articles from 39 open access ISI-indexed journals in 2001 from biology, chemistry, physics and computing and classified the type, language, publication year and accessibility of the Google Scholar unique citing sources. The majority of Google Scholar unique citations (70%) were from full-text sources and there were large disciplinary differences between types of citing documents, suggesting that a wide range of non-ISI citing sources, especially from non-journal documents, are accessible by Google Scholar. This might be considered to be an advantage of Google Scholar, since it could be useful for citation tracking in a wider range of open access scholarly documents and to give a broader type of citation impact. An important corollary from our study is that Google Scholar’s wider coverage of Open Access (OA) web documents is likely to give a boost to the impact of OA research and the OA movement.

Keywords: Articles, Biology, Chemistry, Citation, Citations, Communication, Comparison, Impact Factors, Information, Institute for Scientific Information, ISI, Journal Web Sites, Journals, Library, Links, Literature, Motivations, Open Access, Publication, Publications, Quality, Research, Research Journals, Science, Science Citation Index, Scientific Research, Web

? Ortega, J.L., Aguillo, I., Cothey, V. and Scharnhorst, A. (2008), Maps of the academic web in the European Higher Education Area - an exploration of visual web indicators. *Scientometrics*, **74** (2), 295-308.

Full Text: [2008\Scientometrics74, 295.pdf](2008/Scientometrics74,%20295.pdf)

Abstract: This paper shows maps of the web presence of the European Higher Education Area (EHEA) on the level of universities using hyperlinks and analyses the topology of the European academic network. Its purpose is to combine methods from Social Network Analysis (SNA) and cybermetric techniques in order to ask for tendencies of integration of the European universities visible in their web presence and the role of different universities in the process of the emergence of an European Research Area. We find as a main result that the European network is set up by the aggregation of well-defined national networks, whereby the German and British networks are dominant. The national networks are connected to each other through outstanding national universities in each country.

Keywords: Collaboration, Graph Structure, Indicators, Network, Network Structure, Science, Space, Universities, Web, World-Wide-Web

? Smith, A.G. (2008), Benchmarking Google Scholar with the New Zealand PBRF research assessment exercise. *Scientometrics*, **74** (2), 309-316.

Full Text: [2008\Scientometrics74, 309.pdf](2008/Scientometrics74,%20309.pdf)

Abstract: Google Scholar was used to generate citation counts to the web-based research output of New Zealand Universities. Total citations and hits from Google Scholar correlated with the research output as measured by the official New Zealand Performance-Based Research Fund (PBRF) exercise. The article discusses the use of Google Scholar as a cybermetric tool and methodology issues in obtaining citation counts for institutions. Google Scholar is compared with other tools that provide web citation data: Web of Science, SCOPUS, and the Wolverhampton Cybermetric Crawler.

Keywords: Assessment, Citation, Citation Counts, Citations, Research, Research Assessment, Web, Web of Science

? Vaughan, L. and Shaw, D. (2008), A new look at evidence of scholarly citation in citation indexes and from web sources. *Scientometrics*, **74** (2), 317-330.

Full Text: [2008\Scientometrics74, 317.pdf](2008/Scientometrics74,%20317.pdf)

Abstract: A sample of 1,483 publications, representative of the scholarly production of LIS faculty, was searched in Web of Science (WoS), Google, and Google Scholar. The median number of citations found through WoS was zero for all types of publications except book chapters; the median for Google Scholar ranged from 1 for print, subscription journal articles to 3 for books and book chapters. for Google the median number of citations ranged from 9 for conference papers to 41 for books. A sample of the web citations was examined and classified as representing intellectual or non-intellectual impact. Almost 92% of the citations identified through Google Scholar represented intellectual impact - primarily citations from journal articles. Bibliographic services (non-intellectual impact) were the largest single contributor of citations identified through Google. Open access journal articles attracted more web citations but the citations to print, subscription journal articles more often represented intellectual impact. In spite of problems with Google Scholar, it has the potential to provide useful data for research evaluation, especially in a field where rapid and fine-grained analysis is desirable.

Keywords: Analysis, Citation, Citation Indexes, Citations, Evaluation, Faculty, Google-Scholar, Greater Research Impact, Journal, Journal Articles, Library, LIS, Of-Science, Open-Access Articles, Publications, Research, Research Evaluation, Scopus, Web, Web of Science

? Miguel, S., Moya-Anegón, F. and Herrero-Solana, V. (2008), New approach to institutional domain analysis: Multilevel research fronts structure. *Scientometrics*, **74** (3), 331-344.

Full Text: [2008\Scientometrics74, 331.pdf](2008/Scientometrics74,%20331.pdf)

Abstract: the intellectual structure and main research fronts of the Faculty of Natural Sciences and Museum of the National University of La Plata, Argentina is studied, based on the cocitation analysis of subject categories, journals and authors of their scientific publications collected in the Science Citation index, CD-ROM version, for the period 1991-2000. The objective of this study is to test the utility of those techniques to explore and to visualize the intellectual structure and research fronts of multidisciplinary institutional domains. Special emphasis is laid on the identification of multilevel structures, by means of arrangements of subject categories cocitation analysis and journal cocitation analysis.

Keywords: Analysis, Argentina, Author Cocitation Analysis, Cocitation, Decision-Support Systems, Domain Analysis, Identification, Intellectual Structure, Journal, Journals, Multidisciplinary, Publications, Research, Research Fronts, Science, Scientific Publications, Semiconductor Literature, Structure, Techniques, Utility

? Yoon, Y.H. and Young, K.S. (2008), Correlation analysis between university research competitiveness and library’s scholarly information in OECD nations and Korea. *Scientometrics*, **74** (3), 345-360.

Full Text: [2008\Scientometrics74, 345.pdf](2008/Scientometrics74,%20345.pdf)

Abstract: Beginning from the premise that research competitiveness at the university level is the starting point for national competitiveness as a whole, this paper analyzes the correlation between university research-related performance and the scholarly or academic resources available through a country’s library system. An analysis of this correlation from two different angles - a macroscopic approach considering universities in OECD nations and a microscopic approach focusing only upon universities in Korea - found that there is indeed a significant correlation between university research performance and the scholarly information available at libraries. A regression analysis of the two approaches also found that the more journal titles subscribed to by university libraries and the higher their budget for materials, the greater the contribution university libraries make to university research competitiveness in Korea as well as other OECD countries. In this light, in order for Korea to reach a level of research competitiveness comparable to other OECD members, policies need to be created that will effectively increase the number of journals subscribed to by university libraries.

Keywords: Analysis, Budget, Higher-Education, Information, Journal, Journals, Korea, Nations, Productivity, Regression Analysis, Research, Research Performance, Universities, University

? Schmoch, U. and Schubert, T. (2008), Are international co-publications an indicator for quality of scientific research? *Scientometrics*, **74** (3), 361-377.

Full Text: [2008\Scientometrics74, 361.pdf](2008/Scientometrics74,%20361.pdf)

Abstract: This article deals with the role of internationally co-authored papers (co-publications). Specifically, we compare, within a data-set of German research units, citation and co-publication indicators as a proxy for the unobserved quality dimension of scientific research. In that course we will also deal with the question whether both citations and co-publications are considerably related. Our results suggest that, although there is a strong partial correlation between citations and co-publications within a multivariate setting, we cannot use reasonably normalised co-publication indicators as an alternative proxy for quality. Thus, concerning quality assessment, there remains a primer on citation analysis.

Keywords: Alternative, Analysis, Assessment, Authorship, Bibliometric Indicators, Citation, Citation Analysis, Citations, Collaboration, Correlation, Course, Impact, Indicator, Indicators, International, MAR, Multivariate, Papers, Quality, Quality of, Research, Role, Scientific Research, System, Teams

Amat, C.B. (2008), Editorial and publication delay of papers submitted to 14 selected Food Research journals. Influence of online posting. *Scientometrics*, **74** (3), 379-389.

Full Text: [2008\Scientometrics74, 379.pdf](2008/Scientometrics74,%20379.pdf)

Abstract: Introduction: Publication delay, chronological distance between completion of a scientific work and distribution of its achievements as a peer reviewed paper, is a negative phenomenon in scientific information dissemination. It can be further subdivided in successive stages corresponding to the peer review process and the technical preparation of accepted manuscripts. Formal online posting in electronic versions of journals has been considered as a shortening of the process. Objectives: To determine publication delay in a group of leading Food Research journals, as well as factors affecting this lag and also to compute the effect of formal online posting on the distribution of papers in electronic form. Secondary objective is also to study the possible effect of informal posting of papers through some repositories on the publication delay in the field. Methods: 14 Food Research journals were selected and 4836 papers published in 2004 were examined. Dates of first submission, submission of revised manuscripts, acceptation, online posting and final publication were recorded for each paper. Analysis: Data collected were analyzed using SPSS and SigmaPlot. Parametric correlation between some variables was determined and ANOVA was performed with BMDP package for significance analysis of differences among journals. Results: average publication delay of papers submitted to the set of selected journals is 348 :h 104 days, with European Food Research and Technology and Journal of Agricultural and Food Chemistry showing the shortest delays. Total delay strongly depends on the peer review process. On average, 85.75% of manuscripts are corrected prior to their acceptance by journals. Online posting of papers prior to their print publication reduces total delay in about 29%. On average, a paper is posted online 260 days after its submission to the set of journals. Conclusions: Publication delay of papers is strongly dependent on the peer review process, which affects most of the manuscripts in the Food Research field. Advanced online publication through formal posting at the editor’s sites only slightly reduces the time between reception and final publication of papers.

Keywords: Acceptance, Analysis, Analytical-Chemistry, Authors, Dissemination, First, Information, Journals, Lapse, Papers, Peer Review, Peer-Review, Peer-Reviewed, Preparation, Publication, Publication Delay, Review, Review Process, Science, Scientific Information, Scientific Literature, Speed, Work

Notes: UUniversity

? Kivinen, O. and Hedman, J. (2008), World-wide university rankings: A Scandinavian approach. *Scientometrics*, **74** (3), 391-408.

Full Text: [2008\Scientometrics74, 391.pdf](2008/Scientometrics74,%20391.pdf)

Abstract: Although universities’ world rankings are popular, their design and methods still request considerable elaborations. The paper demonstrates some shortcomings in the Academic World Ranking of Universities (ARWU, Shanghai Jiao Tong University) ranking methods. One deficiency is that universities’ scale differences are neglected due to omitting the whole input side. By resampling and reanalyzing the ARWU data, the paper proposes an input-output analysis for measuring universities’ scientific productivity with special emphasis on those universities which meet the productivity threshold (i.e. share of output exceeds share of input) in a certain group of universities. The productivity analysis on Scandinavian universities evaluates Multidisciplinary and specialized universities on their own terms; consequently the ranking based on scientific productivity deviates significantly from the ARWU.

Keywords: Analysis, Fatal Attraction, Methods, Ranking, Rankings, Universities, University

Notes: TTopic

? Gokceoglu, C., Okay, A.I. and Sezer, E. (2008), International earth science literature from Turkey - 1970-2005: Trends and possible causes. *Scientometrics*, **74** (3), 409-423.

Full Text: [2008\Scientometrics74, 409.pdf](2008/Scientometrics74,%20409.pdf)

Abstract: We investigated the publication trends in the international earth science literature coming out of Turkey in the period of 1970-2005 using the Science Citation Index Expanded database. A database of 23 10 earth science publications with at least one of the authors with an address in Turkey was compiled. The number of earth science publications from Turkey shows a very rapid increase starting in the 1990’s in parallel with the increase in the total scientific output of Turkey. In the last decade the annual growth rate has been 16%. There was also a concomitant increase in the number of citations. The causes of the sharp increase in the publication numbers are, in order of importance, changes in the rules of academic promotion and appointment, changes in academic attitudes towards publishing, increasing support for research, financial incentives for publishing, and expansion of higher education. However, the sharp increase in the publication numbers was not accompanied by a similar increase in the impact of the publications as measured by the citations. Although publications with first authors from outside Turkey make up only 20% of the Turkish earth science publications in the period 1970-2005, these account for 38% of the total citations, and constitute 48 out of 100 most cited papers.

Keywords: Academic Promotion, Attitudes, Changes, China, Citations, Coesite, Dabie-Shan, Database, Diamond, Education, Eurasia, Evolution, Financial Incentives, First, Growth, Growth Rate, Higher Education, International, Landslide Susceptibility, Literature, North Anatolian Fault, Papers, Patterns, Promotion, Publication, Publications, Publishing, Research, Science, Science Citation Index, Scientific Output, Trends, Turkey, Zone

? de Araújo, A.F.P. (2008), Increasing discrepancy between absolute and effective indexes of research output in a Brazilian academic department. *Scientometrics*, **74** (3), 425-437.

Full Text: [2008\Scientometrics74, 425.pdf](2008/Scientometrics74,%20425.pdf)

Abstract: We investigate possible effects from a strong encouragement for a large number of publications on the scientific production of a Brazilian cell biology department. An average increase in individual absolute production and a concomitant decrease in individual participation in each paper were detected by traditional bibliometric parameters, such as number of publications, citations, impact factors and h Index, combined to their ‘effective’ versions, in which co-authorship is taken into consideration. The observed situation, which might well represent a national trend, should be considered as a strong wanting against current criteria of scientific evaluation heavily based on uncritical counting of publications.

Keywords: Bibliometric, Biology, Citations, Co-Authorship, Coauthorship, Collaboration, Criteria, Evaluation, h Index, h-Index, Impact, Impact Factors, Index, Latin-America, MAR, Participation, Publications, Recognition, Research, Science, Scientific Cooperation, Scientific Production, Trend

Notes: JJournal

? Frandsen, T.F. (2008), On the ratio of citable versus non-citable items in economics journals. *Scientometrics*, **74** (3), 439-451.

Full Text: [2008\Scientometrics74, 439.pdf](2008/Scientometrics74,%20439.pdf)

Abstract: This paper presents a study of possible changes in patterns of document types in economics journals since the mid-1980s. Furthermore, the study includes an analysis of a possible relation between the profile of a journal concerning composition of document types and factors such as place of publication and JIF. The results provide little evidence that the journal editors have succeeded in manipulating the distribution of document types. Furthermore, there is little support for the hypothesis that journal editors decrease the number of publications included in the calculation of JIF or for that matter for the hypothesis that journal editors increase the number of publications not included in the calculation of JIF. The results of the analyses show that there is a clear distinction of journals based on place of publication and JLF.

Keywords: Analysis, Changes, Economics, Evidence, Impact Factors, Institute, Journal, Journal Editors, Journals, Publication, Publications

? Biglu, M.H. (2008), The influence of references per paper in the SCI to Impact Factors and the Matthew Effect. *Scientometrics*, **74** (3), 453-470.

Full Text: [2008\Scientometrics74, 453.pdf](2008/Scientometrics74,%20453.pdf)

Abstract: All references data was extracted from the annual volumes of the CD-Edition of Science Citation Index (SCI) and the Web of Science of the Institute for Scientific Information (ISI), The journal citation and self-citation data extracted from the Journal Citation Report (JCR), The self-citing rate and self-cited rate calculated based on the JCR method. To determine the trend of mean value of references per paper throughout 1970-2005, a total number of 10,000 records were randomly chosen for each year of under study, and the mean value of references per paper was calculated. To determine the growth of journals IF a total number of 5,499 journals were chosen in the JCR in 2002 and the same set of journals in the year 2004. To show the trend of journals IF, all journals indexed in the JCR throughout 1999-2005 were extracted and the mean values of their IFs was calculated annually. The study showed that the number of references per paper from 1970 to 2005 has steady increased. It reached from 8.40 in 1970 to 34.63 in 2005, an increase of more than 4 times. The majority of publications (76.17%) were in the form of Journals Article. After articles, Meeting Abstracts (9.46%), Notes (3.90%) and Editorial Material (3.78%) are the most frequented publication forms, respectively. 94.57% of all publications were in English. After English, German (1.50%), Russian (1.48%) and French (1.37%) were the most frequented languages, respectively. The study furthermore showed that there is a significant correlation between the IF and total citation of journals in the JCR, and there is an important hidden correlation between IF and the self-citation of journals. This phenomena causes the elevation of journals IF. The more often a journal is citing other journals, the more often it is also cited (by a factor of 1.5) by others. In consequence the growing percentage of journal self-citation is followed by journal self-citedness, which can be considered as the Matthew Effect. There is a linear correlation between journal self-citing and journal self-cited value, the mean value of self-cited rate always stays higher than the self-citing rate. The mean value of self-cited rate in 2000 was 1.4% and the mean value of self-citing rate is 6.61%, whereas the mean value of self-cited rate in 2005 was 12% and the mean value of self-citing rate was 7.81%.

Keywords: Citation, Growth, Institute for Scientific Information, ISI, Journal, Journal Self-Cited, Journal Self-Citing, Journals, Languages, Publication, Publications, Records, SCI, Science, Science Citation Index, Self-Citation, Web of Science

? Jang, Y.C. (2008), Locating active actors in the scientific collaboration communities based on interaction topology analyses. *Scientometrics*, **74** (3), 471-482.

Full Text: [2008\Scientometrics74, 471.pdf](2008/Scientometrics74,%20471.pdf)

Abstract: while implementing a large-scale research project, it is necessary to appoint some principle scientists, and let each principle scientist lead a research group. In a scientific collaboration community, different scientists perform different roles while they implement the project, and some scientists may be more active than others; these active scientists often undertake the role of leadership or key coordinator in the project. Obviously, we should assign the role of principle scientists onto those active actors in the communities. In this paper, we present the model and algorithms for locating active actors in the community based on the analyses of scientists’ interaction topology, the actors with high connection degrees in the interaction topology can be considered as active ones. Finally, we make some case studies for our model and algorithms.

Keywords: Case Studies, Collaboration, Community, Cooperation, Coordinator, Interaction, Lead, Leadership, Model, Networks, Research, Scientific Collaboration

? Seol, S.S. and Park, J.M. (2008), Knowledge sources of innovation studies in Korea: A citation analysis. *Scientometrics*, **75** (1), 3-20.

Full Text: [2008\Scientometrics75, 3.pdf](2008/Scientometrics75,%203.pdf)

Abstract: This paper is an investigation of the knowledge sources of Korean innovation studies using citation analysis, based on a Korean database during 1993-2004. About two thirds of knowledge has come from foreign sources and 94% of them are from English materials. Research Policy is the most frequently cited journal followed by Harvard Business Review, R&D Management and American Economic Review. An analysis of who cites the most highly cited journal is also included. Neo-Schumpeterians in Korea cite more papers from Research Policy than general researchers, and there is no difference between groups in the year of citation.

Keywords: Analysis, Author Self-Citations, Citation, Citation Analysis, Counts, Database, Flows, Indicators, Innovation, Investigation, Journal, Knowledge, Korea, Macro, Management Journals, Papers, Patterns, Perspective, Science, System

? Lewison, G. and Kundra, R. (2008), The internal migration of Indian scientists, 1981-2003, from an analysis of surnames. *Scientometrics*, **75** (1), 21-35.

Full Text: [2008\Scientometrics75, 21.pdf](2008/Scientometrics75,%2021.pdf)

Abstract: Although many Indian surnames are common across the whole country, some are specifically associated with just one or a few of the 35 states and union territories that comprise India today. for example, Reddy comes from Andhra Pradesh and Das, Ghosh and Roy from West Bengal. We investigated the extent to which researchers with names associated with some of the larger states were writing scientific papers in those states, and in other ones, and to see how these concentrations (relative to the whole of India) had changed since the early 1980s. We found that West Bengalis, for example, were now significantly less concentrated in their home state than formerly, and that their concentrations elsewhere were strongly influenced by the state’s geographical distance from West Bengal and, to a lesser extent, by the correlation between the scientific profile of their host state and their own preferences (which favoured physics and engineering over biology and mathematics). Thus they were strongly represented in nearby Bihar, Assam and Orissa, and much less so in Tamil Nadu and Kerala.

Keywords: Analysis, Biology, Campobasso Province, Define Chinese Ethnicity, Identification, Inbreeding Coefficients, India, Information, Mortality, Pakistan, Papers, Populations, Science, Validity

? Chavalarias, D. and Cointet, J.P. (2008), Bottom-up scientific field detection for dynamical and hierarchical science mapping, methodology and case study. *Scientometrics*, **75** (1), 37-50.

Full Text: [2008\Scientometrics75, 37.pdf](2008/Scientometrics75,%2037.pdf)

Abstract: We propose new methods to detect paradigmatic fields through simple statistics over a scientific content database. We propose an asymmetric paradigmatic proximity metric between terms which provide insight into hierarchical structure of scientific activity and test our methods on a case study with a database made of several millions of resources. We also propose overlapping categorization to describe paradigmatic fields as sets of terms that may have several different Usages. Terms can also be dynamically clustered providing a high-level description of the evolution of the paradigmatic fields.

Keywords: Case Study, Co-Word Analysis, Cocitation, Database, Evolution, Hierarchical Structure, Information, Methodology, Methods, Networks, Science, Science Mapping, Statistics, Structure

? Liu, C.Y. and Luo, S.Y. (2008), Analysis of developing a specific technological field using the theme code of Japanese patent information. *Scientometrics*, **75** (1), 51-65.

Full Text: [2008\Scientometrics75, 51.pdf](2008/Scientometrics75,%2051.pdf)

Abstract: the paper was to establish an easy and effective method to investigate and develop a specific technological field from Japanese patent information. The walking technique of the biped humanoid robot was used as an example to study the relative research capabilities and patent citation conditions for patent owners and patent map by the searching method of the theme code for FI (File Index) and F-term classification system of the Japanese Patent Office (JPO). A formulated technical matrix of patent map was established to indicate that the ZMP (Zero Moment Point) control means was the main technology to achieve stabilized walking control of the humanoid biped robot. This method can aid to establish a specific technological matrix from the specific selected term codes (single viewpoint or multiple viewpoints) of the F-term list in the theme code of the JPO system through Boolean logical operations. The resulting particular technical fields were developed to improve the technological capability or seek the merging technology opportunities.

Keywords: Citation, Classification, Indicators, Information, Output, Patent, Research, Technology

Notes: TTopic

? Yi, H., Ao, X.L. and Ho, Y.S. (2008), Use of citation per publication as an indicator to evaluate pentachlorophenol research. *Scientometrics*, **75** (1), 67-80.

Full Text: [2008\Scientometrics75, 67.pdf](2008/Scientometrics75,%2067.pdf)

Abstract: the objective of the study was to perform a bibliometric analysis of all pentachlorophenolrelated publications in the Science Citation Index (SCI). Analyzed parameters included document type, language of publication, page count, publication output, authorship, keywords plus, publication pattern, citation and country of publication. The US produced 29% of the total single country publications where the seven major industrial countries accounted for the majority of the total production (66%). An indicator citation per publication was successfully applied in this study to evaluate the impact of umber of authors, countries, and journals. The mean value of citation per publication of collaborative papers was higher than that of single country publications. In addition analysis of keywords plus in different period was applied to indicate a research trend.

Keywords: Analysis, Authorship, Bibliometric, Bibliometric Analysis, Citation, Country, Degradation, Impact, Indicator, Journals, Papers, Pattern, Publication, Publications, Research, Research Trend, SCI, Science Citation Index, Trend, US, Value, Water, Wood Preservatives

Adams, J., Gurney, K. and Jackson, L. (2008), Calibrating the zoom - a test of Zitt’s hypothesis. *Scientometrics*, **75** (1), 81-95.

Full Text: [2008\Scientometrics75, 81.pdf](2008/Scientometrics75,%2081.pdf)

Abstract: Bibliometric indicators are widely used to compare performance between units operating in different fields of science. for cross-field comparisons, article citation rates have to be normalised to baseline values because citation practices vary between fields, in respect of timing and volume. Baseline citation values vary according to the level at which articles are aggregated (journal, sub-field, field). Consequently, the normalised citation performance of each research unit will depend on the level of aggregation, or ‘zoom’, that was used when the baselines were calculated. Here, we calculate the citation performance of UK research units for each of three levels of article-aggregation. We then compare this with the grade awarded to that unit by external peer review. We find that the correlation between average normalised citation impact and peerreviewed grade does indeed vary according to the selected level of zoom. The possibility that the level of ‘zoom’ will affect our assessment of relative impact is an important insight. The fact that more than one view and hence more than one interpretation of performance might exist would need to be taken into account in any evaluation methodology. This is likely to be a serious challenge unless a reference indicator is available and will generally require any evaluation to be carried out at multiple levels for a reflective review.

Keywords: Aggregation, Assessment, Challenge, Citation, Correlation, Cross-Field, Evaluation, Field, Field-Normalization, Impact, Indicator, Indicators, Journal, Methodology, Peer Judgment, Peer Review, Peer-Review, Performance, Practices, Rates, Research, Review, Science, Timing, UK, Volume

Notes: TTopic

? Li, Z. and Ho, Y.S. (2008), Use of citation per publication as an indicator to evaluate contingent valuation research. *Scientometrics*, **75** (1), 97-110.

Full Text: [2008\Scientometrics75, 97.pdf](2008/Scientometrics75,%2097.pdf)

Abstract: This is the first article using bibliometrics to study the field of contingent valuation research. The purpose of this study was to evaluate the contingent valuation research performance based on all the related articles in SCI and SSCI databases from 1991 to 2005. An indicator named citation per publication (CPP) was presented in this study to assess the impact of article output per year, different countries, institutes, and authors from the worldwide. Publication per institute (PPI) in a country was used to be an indicator to compare institute’s research performance by country. Citation analysis was made to select the most frequently cited articles since publication to 2005 of each year. A citation model was applied to describe the relationship between the cumulative number of citations and article life. The results indicate that with the increase article output per year, the CPP decreased slightly since 1997. The USA produced 55% of all pertinent articles. Institutes from the UK had a higher PPI. The most prolific institutes and authors, and the most frequently cited articles per year were all listed. In addition, a citation model was successfully applied to evaluate performance of each year, and the most frequently cited articles of each year were also compared by the model.

Keywords: Analysis, Bibliometrics, Citation, Citations, First, Impact, Indicator, Life, Model, Publication, Research, Research Performance, SCI, SSCI, UK, USA

? Huang, Y. and Zhao, X. (2008), Trends of DDT research during the period of 1991 to 2005. *Scientometrics*, **75** (1), 111-122.

Full Text: [2008\Scientometrics75, 111.pdf](2008/Scientometrics75,%20111.pdf)

Abstract: A keyword analysis was applied in this work to evaluate research trends of DDT (1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane) papers published between 1991 and 2005 in any journal of all the subject categories of the Science Citation Index compiled by ISI (Institute for Scientific Information, Philadelphia, USA). DDT was used as a keyword to search parts of titles, abstracts, or keywords. The published output analysis showed that DDT research steadily increased over the past 15 years and the annual publication output in 2005 was about twice that of 1991. The two peaks in 1997 and 2000 were closely related to two new research fields on DDT, namely the endocrine disruption and the persistent organic pollutants (POPs). A paper entitled ‘Persistent DDT metabolite p,p’-DDE is a potent androgen receptor antagonist’ published in 1995 in Nature by Kelce et al. firstly discovered DDT’s toxicity for humans. As a result, public concerns regarding DDT ballooned and now play a key role in DDT research. Keyword analysis indicated that the research interest changed remarkably from 1991 to 2005. ‘Endocrine disruption’ was one of the most frequently used author keywords in the period between 2002 and 2005 whilst it did not appear before 1997. The new conception of POPs showed the same trend. The whole paper published by India and Mexico ranked at 6(th) and 13(th). That showed that DDT research is often related with DDT’s risk and benifits to humans.

Keywords: Analysis, Humans, India, Institute for Scientific Information, ISI, Journal, Mexico, Papers, Publication, Research, Risk, Risks, Science Citation Index, Toxicity, Trends, USA, Work

? Gupta, B.M. and Dhawan, S.M. (2008), Condensed matter physics: An analysis of India’s research output, 1993-2001. *Scientometrics*, **75** (1), 123-144.

Full Text: [2008\Scientometrics75, 123.pdf](2008/Scientometrics75,%20123.pdf)

Abstract: the study analyses 27018 research papers published by India in condensed matter physics as seen from Science Citation Index-Extended Version (SCIE) (Web of Science) database for the period 1993-1995, 1996-1998 and 1999-2001. The study reports that condensed matter physics is the most sought after branch in physics research in India, accounting for 20% share of the country output in physics. The University & College sector as well as R&D sector are the major contributors to condensed matter physics. However, the country growth in this field, computed on six yearly basis, has still been negative (-1%) compared to 17.4% country growth in overall physics during the same period, 1993-1995 to 1999-2001. The study also maps condensed matter physics research on other dimensions such as institutional productivity, nature of collaboration in research, and institutional specialization. It examines highly cited papers, and lists prominent and productive scientists in this field. It also provides suggestions for accelerating condensed matter research in India.

Keywords: Analysis, Collaboration, Database, Growth, India, Papers, Research, Sector, Web of Science

? Collazo-Reyes, F., Luna-Morales, M.E., Russell, J.M. and Perez-Angon, M.A. (2008), Publication and citation patterns of Latin American & Caribbean journals in the SCI and SSCI from 1995 to 2004. *Scientometrics*, **75** (1), 145-161.

Full Text: [2008\Scientometrics75, 145.pdf](2008/Scientometrics75,%20145.pdf)

Abstract: Impact factors, publication-citation patterns and growth dynamics were analyzed for the Latin America and the Caribbean journals covered by the Science Citation Index (SCI) and Social Science Citation Index from 1995-2003. Two main journal groups were identified: those publishing mainly in English with substantial contributions from outside the region, and those publishing in local languages, principally by the local community and on subjects of local interest. We found little inter-citation among the local papers while the highest number of citations by extra-regional authors was to papers published in English. Quantitative indicators show that LA-C journals are better positioned in the mainstream literature than ever before.

Keywords: Brazil, Citation, Citation Patterns, Citations, Community, Countries, Dynamics, Elementary Particle Physics, Growth, Impact, Indicators, Journal, Journals, Languages, Latin America, Literature, Papers, Performance, Publishing, SCI, Science, Science Citation Index, Scientific Cooperation, Social Science Citation Index, SSCI, Universities

? Molinari, J.F. and Molinari, A. (2008), A new methodology for ranking scientific institutions. *Scientometrics*, **75** (1), 163-174.

Full Text: [2008\Scientometrics75, 163.pdf](2008/Scientometrics75,%20163.pdf)

Abstract: We extend the pioneering work of J. E. Hirsch, the inventor of the h-Index, by proposing a simple and seemingly robust approach for comparing the scientific productivity and visibility of institutions. Our main findings are that i) while the h-Index is a sensible criterion for comparing scientists within a given field, it does not directly extend to rank institutions of disparate sizes and journals, ii) however, the h-Index, which always increases with paper population, has an universal growth rate for large numbers of papers; iii) thus the h-Index of a large population of papers can be decomposed into the product of an impact index and a factor depending on the population size, iv) as a complement to the h-Index, this new impact index provides an interesting way to compare the scientific production of institutions (universities, laboratories or journals).

Keywords: Growth, Growth Rate, h Index, h-Index, Institutions, Journals, Methodology, Papers, Population, Ranking, Scientific Institutions, Scientific Production, Size, Universities, Work

? Petek, M. (2008), Personal name headings in COBIB: Testing Lotka’s Law. *Scientometrics*, **75** (1), 175-188.

Full Text: [2008\Scientometrics75, 175.pdf](2008/Scientometrics75,%20175.pdf)

Abstract: the purpose of this article is to provide information about author productivity as reflected through the number of occurrences of personal name headings in the Slovenian online catalogue COBIB. Only authors associated with monographs are treated. So, author productivity of monographs that has not been widely researched is empirically examined to determine conformity or nonconformity to Lotka’s law. A random sample of 1.600 Slovenian authors is drawn from the authority file CONOR. Next, the authors are searched in COBIB and each attributed the number of monographs. Using the formula: x(n) y = c, the values of the exponent n and the constant c are computed and the Kolmogorov-Smirnov test is applied. The paper shows that the author productivity distribution predicted by Lotka also holds for the occurrences of personal name headings in COBIB.

Keywords: Author Productivity, Information, Law, Lotka, Random Sample

? Hou, H., Kretschmer, H. and Liu, Z. (2008), The structure of scientific collaboration networks in Scientometrics. *Scientometrics*, **75** (2), 189-202.

Full Text: [2008\Scientometrics75, 189.pdf](2008/Scientometrics75,%20189.pdf)

Abstract: the structure of scientific collaboration networks in scientometrics is investigated at the level of individuals by using bibliographic data of all papers published in the international journal Scientometrics retrieved from the Science Citation Index (SCI) of the years 1978-2004. Combined analysis of social network analysis (SNA), co-occurrence analysis, cluster analysis and frequency analysis of words is explored to reveal: (1) the microstructure of the collaboration network on scientists’ aspects of scientometrics; (2) the major collaborative fields of the whole network and of different collaborative sub-networks; (3) the collaborative center of the collaboration network in scientometrics.

Keywords: Analysis, Cluster, Cluster Analysis, Cocitation, Collaboration, Collaboration Networks, Data, International, Journal, Microstructure, Network, Network Analysis, Networks, Papers, SCI, Science Citation Index, Scientific Collaboration, Scientometrics, Social, Social Network Analysis, Structure, Visibility, Web

Argamon, S., Dodick, J. and Chase, P. (2008), Language use reflects scientific methodology: A corpus-based study of peer-reviewed journal articles. *Scientometrics*, **75** (2), 203-238.

Full Text: [2008\Scientometrics75, 203.pdf](2008/Scientometrics75,%20203.pdf)

Abstract: Recently, philosophers of science have argued that the epistemological requirements of different scientific fields lead necessarily to differences in scientific method. In this paper, we examine possible variation in how language is used in peer-reviewed journal articles from various fields to see if features of such variation may help to elucidate and support claims of methodological variation among the sciences. We hypothesize that significant methodological differences will be reflected in related differences in scientists’ language style. This paper reports a corpus-based study of peer-reviewed articles from twelve separate journals in six fields of experimental and historical sciences. Machine learning methods were applied to compare the discourse styles of articles in different fields, based on easily-extracted linguistic features of the text. Features included function word frequencies, as used often in computational stylistics, as well as lexical features based on systemic functional linguistics, which affords rich resources for comparative textual analysis. We found that indeed the style of writing in the historical sciences is readily distinguishable from that of the experimental sciences. Furthermore, the most significant linguistic features of these distinctive styles are directly related to the methodological differences posited by philosophers of science between historical and experimental sciences, lending empirical weight to their contentions.

Keywords: Analysis, Author, Discourse, Evolution, Experimental, Function, Geology, Historical Science, Journal, Journal Articles, Journals, Lead, Learning, Methodology, Methods, Peer-Reviewed, Science, Sciences, Text Categorization

? Klavans, R. and Boyack, K.W. (2008), Thought leadership: A new indicator for national and institutional comparison. *Scientometrics*, **75** (2), 239-250.

Full Text: [2008\Scientometrics75, 239.pdf](2008/Scientometrics75,%20239.pdf)

Abstract: This paper introduces a new method for evaluating national publication activities. This new indicator, thought leadership, captures whether the nation is a thought leader (building on the more recently cited literature for that field) or follower (building on the older cited literature for that field). Publication data for 2003 are used to illustrate which nations tend to build on the more recent discoveries in chemistry and clinical medicine. Implications for national and laboratory policy are discussed.

Keywords: Chemistry, Clinical, Comparison, Impact, Index, Indicator, Leadership, Literature, Medicine, Nations, Policy, Publication, Science, Technology

? Markpin, T., Boonradsamee, B., Ruksinsut, K., Yochai, W., Premkamolnetr, N., Ratchatahirun, P. and Sombatsompop, N. (2008), Article-count impact factor of materials science journals in SCI database. *Scientometrics*, **75** (2), 251-261.

Full Text: [2008\Scientometrics75, 251.pdf](2008/Scientometrics75,%20251.pdf)

Abstract: This article proposed a new index, so-called ‘Article-Count Impact Factor’ (ACIF) for evaluating journal quality in light of citation behaviour in comparison with the ISI journal impact factors. The ACIF index was the ratio of the number of articles that were cited in the current year to the source items published in that journal during the previous two years. In this work, we used 171 journal titles in materials categories published in the years of 2001-2004 in international journals indexed in the Science Citation Index Expanded (SCI) database as data source. It was found that ACIF index could be used as an alternative tool in assessing the journal quality, particularly in the case where the assessed journals had the same (equal or similar) JIF values. The experimental results suggested that the higher the ACIF value, the more the number of articles being cited. The changes in ACIF values were more dependent on the JIF values rather than the total number of articles. Polymer Science had the greatest ACIF values, suggesting that the articles in Polymer Science had greater ‘citation per article’ than those in Metallurgical Engineering and Ceramics. It was also suggested that in order to increase a JIF value of 1.000, Ceramics category required more articles to be cited as compared to Metallurgical Engineering and Polymer Science categories.

Keywords: Alternative, Behaviour, Changes, Citation, Comparison, Database, Experimental, History, Impact Factor, Impact Factors, International, ISI, Journal, Journal Impact, Journal Impact Factors, Journal Quality, Journals, Quality, SCI, Science, Science Citation Index, Science Journals, Work

Andreis, M. and Jokic, M. (2008), An impact of Croatian journals measured by citation analysis from SCI-expanded database in time span 1975-2001. *Scientometrics*, **75** (2), 263-288.

Full Text: [2008\Scientometrics75, 263.pdf](2008/Scientometrics75,%20263.pdf)

Abstract: the aim of this research is to gain an insight into international recognition of the STM (Science, Technology, and Medicine) Croatian journals measured by citations in SCI-expanded database. The sample for the research was a citation analysis of 142 journals in time span 1975-2001 for papers published in 1975-1998. More than 90% of those journals are not indexed by SCI-expanded. for the purpose of this research we introduced a new scientometric indicator Normalized number of Citations per 100 Papers (NCP) that allows us direct comparison of the journals from various categories (NCP = 100C/P/IF1989). We chose the year 1989 as a mean value for time span 1975-2001. By citation analysis we established the influence of errors on recognition of Croatian journals and their articles. Obtained results show that an article-to-article link is not found for 32% of cited items. The most frequent type of error is journal title, 37%, which indicates that approximately one third of Croatian journals can not be found when searching by journal title only. Some Croatian journals, even not indexed by SCI-expanded, showed relatively high rank in an impact, i.e. Their NCP is higher than 100, and number of citations per paper is higher than 1.

Keywords: Academic Journals, Analysis, Citation, Citation Analysis, Citations, Comparison, Database, End, Error, Europe, Indicator, Indicators, Information, International, Journal, Journals, Papers, Research, Science, Scientometric, STM, Visibility, World

? Baldini, N. (2008), Negative effects of university patenting: Myths and grounded evidence. *Scientometrics*, **75** (2), 289-311.

Full Text: [2008\Scientometrics75, 289.pdf](2008/Scientometrics75,%20289.pdf)

Abstract: This paper reviews the literature on the concerns stemming from university patenting and licensing activities. Scholars investigated threats to scientific progress due to increasing disclosure restrictions; changes in the nature of the research (declining patents’ and publications’ quality, skewing research agendas toward commercial priorities, and crowding-out between patents and publications); diverting energies from teaching activity and reducing its quality. A small section explores problems lamented by industry. Each of these issues is presented and discussed, based on 82 papers published from 1980 to 2006. Some suggestions for further research conclude the essay.

Keywords: Academic Research, Bayh-Dole Act, Changes, Disclosure, Evidence, Intellectual Property, Knowledge Transfer, Licensing, Life Sciences, Literature, Nano-Science, Non-Inventing Peers, Papers, Patents, Publications, Quality, Research, Research-and-Development, Restrictions, Scientific Progress, Small, Teaching, Technology-Transfer, United-States, University

? Osca-Lluch, J., Blesa, P., Barrueco, J.M., Velasco, E. and Krichel, T. (2008), Some aspects of citation indexes in Spain: A comparative analysis. *Scientometrics*, **75** (2), 313-318.

Full Text: [2008\Scientometrics75, 313.pdf](2008/Scientometrics75,%20313.pdf)

Abstract: This paper studies the main characteristics of the citation indexes currently developed in Spain. The paper compares the impact factors offered by Spanish citation indexes with the impact factor of Spanish journals also collected by the JCRs of the ISI (SCI and SSCI) over a five-year period (2001-2005). Spanish journals published in English have higher impact factor scores in the JCR databases of the ISI than in Spanish citation indexes.

Keywords: Analysis, Citation, Citation Indexes, Impact Factor, Impact Factor Scores, Impact Factors, ISI, Journals, SCI, Spain, SSCI

? de la Potterie, B.V. and van Zeebroeck, N. (2008), A brief history of space and time: the scope-year index as a patent value indicator based on families and renewals. *Scientometrics*, **75** (2), 319-338.

Full Text: [2008\Scientometrics75, 319.pdf](2008/Scientometrics75,%20319.pdf)

Abstract: the renewal of patents and their geographical scope for protection constitute two essential dimensions in a patent’s life, and probably the most frequently used patent value indicators. The intertwining of these dimensions (the geographical scope of protection may vary over time) makes their analysis complex, as any measure along one dimension requires an arbitrary choice on the second. This paper proposes a new indicator of patent value, the scope-year index, combining the two dimensions. The index is computed for patents filed at the EPO from 1980 to 1996 and validated in its member states. It shows that the average value of patent filings has increased in the early eighties but has constantly decreased from the mid-eighties until the mid nineties, despite the institutional expansion of the EPO. This result sheds a new and worrying light on the worldwide boom in patent filings.

Keywords: Analysis, Citations, Families, History, Indicator, Indicators, Life, Patent, Patents, Protection, Rights

? Molinari, A. and Molinari, J.F. (2008), Mathematical aspects of a new criterion for ranking scientific institutions based on the h-Index. *Scientometrics*, **75** (2), 339-356.

Full Text: [2008\Scientometrics75, 339.pdf](2008/Scientometrics75,%20339.pdf)

Abstract: We develop and discuss the theoretical basis of a new criterion for ranking scientific institutions. Our novel index, which is related to the h-Index, provides a metric which removes the size dependence. We discuss its mathematical properties such as merging rules of two sets of papers and analyze the relations between the underlying rank/citation-frequency law and the h-Index. The proposed index should be seen as a complement to the h-Index, to compare the scientific production of institutions (universities, laboratories or journals) that could be of disparate sizes.

Keywords: h Index, h-Index, Institutions, Journals, Law, Laws, Merging, Papers, Ranking, Relations, Research Output, Scientific Institutions, Scientific Production, Size, Universities

? Guan, J. and Gao, X. (2008), Comparison and evaluation of Chinese research performance in the field of bioinformatics. *Scientometrics*, **75** (2), 357-379.

Full Text: [2008\Scientometrics75, 357.pdf](2008/Scientometrics75,%20357.pdf)

Abstract: Bioinformatics is an emerging and rapidly evolving discipline. The bioinformatics literature is growing exponentially. This paper aims to provide an integrated bibliometric study of the knowledge base of Chinese research community, based on the bibliometric information in the field of bioinformatics from SCI-Expanded database during the period of 2000-2005. It is found that China is productive in bioinformatics as far as publication activity in international journals is concerned. for comparative purpose, the results are benchmarked against the findings from five other major nations in the field of bioinformatics: USA, UK, Germany, Japan and India. In terms of collaboration profile, the findings imply that the collaborative scope of China has gradually transcended boundaries of organizations, regions and nations as well. Finally, further analyses on the citation share and some surrogate scientometric indicators show that the publications of Chinese authors suffer from a lowest international visibility among the six countries. Strikingly, Japan has achieved most remarkable impact of publication when compared to research effort devoted to bioinformatics amongst the six countries. The policy implication of the findings lies in that Chinese scientific community needs much work on improving the research impact and pays more attention to strengthening the academic linkages between China and worldwide nations, particularly scientifically advanced countries.

Keywords: Analyses, Bibliometric, Bibliometric Indicators, Bibliometric Study, Boundaries, China, Chinese, Citation, Collaboration, Community, Database, Evaluation, Field, Germany, Impact, Index, India, Indicators, Information, International, Japan, Journals, Knowledge, Knowledge Base, Laser Research, Literature, Nations, Needs, Output, Performance, Policy, Publication, Publication Activity, Publications, Purpose, Research, Research Performance, Science, Scientific-Research, Scientometric, Scope, Surrogate, UK, USA, Visibility, Work

Notes: Ccountry

? Vaněček, J. (2008), Patenting propensity in the Czech Republic. *Scientometrics*, **75** (2), 381-394.

Full Text: [2008\Scientometrics75, 381.pdf](2008/Scientometrics75,%20381.pdf)

Abstract: We have compared patenting propensity in the Czech Republic with eight EU countries: Germany, Austria, Hungary, Poland, Finland, Belgium, Ireland and Greece. In comparison based on the EPO and USPTO patents listed per million inhabitants, the Czech Republic ranks rather low. The Czech Republic also generated fewer patents per R&D employee than most other countries. The time series data have shown a decrease of number of Czech patents after 1990 with some revival after 1996. As our analysis indicated, the decrease was partially caused by dissolution or transformation of major patent generators, but the most important cause may lie in a little interest of local enterprises.

Keywords: Analysis, Austria, Belgium, Comparison, Dissolution, Enterprises, EU, Finland, Germany, Greece, Hungary, Ireland, Patent, Patents, Transformation

Notes: CCountry

? Ruane, F. and Tol, R.S.J. (2008), Rational (successive) h-indices: An application to economics in the Republic of Ireland. *Scientometrics*, **75** (2), 395-405.

Full Text: [2008\Scientometrics75, 395.pdf](2008/Scientometrics75,%20395.pdf)

Abstract: We rank economics departments in the Republic of Ireland according to the number of publications, number of citations, and successive h-Index of research-active staff. We increase the discriminatory power of the h(1)-index by introducing three generalizations, each of which is a rational number. The first (h(1)(+)) measures the excess over the actual h-Index, while the other two (h(1)\*, h(1)(Delta)) measures the distance to the next h-Index. At the individual level, h\* and h(Delta) coincide while h(+) is undefined.

Keywords: Application, Citations, Economics, First, h Index, h-Index, Ireland, Power, Publications, Rank, Republic of Ireland

? Thelwall, M. and Zuccala, A. (2008), A university-centred European Union link analysis. *Scientometrics*, **75** (3), 407-420.

Full Text: [2008\Scientometrics75, 407.pdf](2008/Scientometrics75,%20407.pdf)

Abstract: University web sites play an important role in facilitating a wide range of types of communication. This paper reports an analysis of international academic linking in Europe, with particular reference to European Union (EU) integration. The Microsoft search service was used to calculate international interlinking to universities and from universities. Four different web topologies were found for the link structure data and poorly connected countries were identified. The results show the expected EU dominance of the large richer Western European nations, particularly the UK and Germany. The new EU countries are not yet integrated into the EU web but some show strong regional connections.

Keywords: Analysis, Collaboration, Communication, EU, Europe, European Union, Germany, Impact, Integration, International, Nations, Patterns, Structure, UK, Universities, Web, Web Site Interlinking

? Tsay, M.Y. (2008), A bibliometric analysis of hydrogen energy literature, 1965-2005. *Scientometrics*, **75** (3), 421-438.

Full Text: [2008\Scientometrics75, 421.pdf](2008/Scientometrics75,%20421.pdf)

Abstract: the present study explores the characteristics of hydrogen energy literature from 1965 to 2005 based on the database of Science Citation Index Expanded (SCIE) and its implication using the bibliometric techniques. The results of this work reveal that the literature on hydrogen energy grows exponentially with all annual growth rate of about 18% for the last decade. Most of document type is in the form of journal articles or meeting abstracts, constituting 90.17% of the total literature and English is the predominant language (94.66%). USA, Japan and China are the three biggest contributing countries on hydrogen energy literature publishing, 25.8%, 14.9%, 7.7%, respectively. The Chinese Academy of Sciences in China is the largest contributor publishing 308 papers. The journal literature on hydrogen energy does not confirm the typical S-shape for the Bradford-Zipf plot, but five core journals, i.e. International Journal of hydrogen Energy, Journal of Power Source, Journal of the Electrochemical Society, Solid State Ionics, and Electrochimica Act, contributing about 41% can be identified. Journals with highly cited articles and most highly cited articles are also identified, in which the most highly cited article receives more than 1,000 citations.

Keywords: Act, Analysis, Bibliometric, Bibliometric Analysis, Bibliometric Techniques, Characteristics, China, Chinese, Citations, Collaboration, Database, Energy, Growth, Growth Rate, Hydrogen, Interdisciplinarity, Japan, Journal, Journal Articles, Journals, Literature, Nanoscience, Nanotechnology, Papers, Patterns, Publishing, Science Citation Index, Techniques, USA, Work

? Park, H.W. and Leydesdorff, L. (2008), Korean journals in the Science Citation Index: What do they reveal about the intellectual structure of S & T in Korea? *Scientometrics*, **75** (3), 439-462.

Full Text: [2008\Scientometrics75, 439.pdf](2008/Scientometrics75,%20439.pdf)

Abstract: During the last decade, we have witnessed a sustained growth of South Korea’s research output in terms of the world share of publications in the Science Citation Index database. However, Korea’s citation performance is not yet as competitive as publication performance. In this study, the authors examine the intellectual structure of Korean S&T field based on social network analysis of journal-journal citation data using the ten Korean SCI journals as seed journals. The results reveal that Korean SCI journals function more like publication places, neither research channels nor information sources among national scientists. Thus, these journals may provide Korean scholars with access to international scientific communities by facilitating the respective entry barriers. However, there are no citation relations based on their Korean background. Furthermore, we intend to draw some policy implications which may be helpful to increase Korea’s research potential.

Keywords: Access, Analysis, China, Citation, Database, Function, Growth, Information, Intellectual Structure, International, Journals, Korea, Network, Network Analysis, Policy, Potential, Publication, Publications, Relations, Research, SCI, Science Citation Index, Social Network Analysis, Structure, Terms

? Lee, Y.G. (2008), Patent licensability and life: A study of US patents registered by South Korean public research institutes. *Scientometrics*, **75** (3), 463-471.

Full Text: [2008\Scientometrics75, 463.pdf](2008/Scientometrics75,%20463.pdf)

Abstract: the quality and value of a patent can be represented by several proxies, such as how often the patent is cited in other patents, whether it is licensed, and the age of the patent. The paper uses a binary choice model to investigate factors affecting patent licensing, and it uses double-bounded tobit and duration models to investigate factors affecting patent life. Explanatory variables and dependent variables are extracted from U.S. patent information and related data. Findings suggest research collaboration has a positive effect on both patent licensing and patent life. Other characteristics such as invention size, namely, the scope of the invention measured by number of claims, and organizational technological cumulativeness, measured by self-citation counts, also affect patent life.

Keywords: Collaboration, Information, Licensing, Life, Model, Models, Patent, Patents, Quality, Research, Research Collaboration, Self-Citation, Size, US

? Curras, E. and Barreiro, E.W. (2008), Integration in Europe of human genetics results obtained by Spaniards in the USA: A historical perspective. *Scientometrics*, **75** (3), 473-493.

Full Text: [2008\Scientometrics75, 473.pdf](2008/Scientometrics75,%20473.pdf)

Abstract: the mobility of Spanish biochemists from Europe to the United States over the past 80 years (1927-2006) is approached from a historical perspective. The academic community on human genetics has awarded this emigrated Spanish community with the Nobel prize as well as other awards from European foundations. The vertical/horizontal integration methodology offers an opportunity to understand the extremely satisfactory history of a small European community overseas. To piece the puzzle together, continuous reference is made to the theory of systems. To test and use this holistic history, the circulation of the knowledge produced on cancer has been studied as intrinsically related to time by using the algorithmic historiography. Francisco Duran Reynals and Severe, Ochoa have been selected as examples of the vertical integration. The former one because he was the director of an important collaborator, his own wife; the latter, as the founder of a Spanish specific research school in America based in his own work. The simultaneous stay of several young Spanish scientists at the Columbia University (Mariano Barbacid, Manuel Perucho and Angel Pellicer) serves to design the horizontal integration, to create a holon hierarchy to reflect the criteria of subsidiarity and acceptability, and to focus on the Spanish discoveries and contributions to cancer research. The transatlantic flows of knowledge generated by the Spanish elite of biochemists in the USA from 1927 on define a network of geographical displacements. As a result, the social structure thus visualizes the identity of the international mobility of scientists who leave for Europe/USA, and their return to Spain. A model of the brain drain of professionals to the USA, that retain 80% of the Spanish cancer researchers, is developed.

Keywords: Biochemistry, Biology, Brain, Brain-Drain, Cancer, Cancer Research, Community, Criteria, Europe, Genes, Genetics, History, Human, Information, Integration, International, Knowledge, Methodology, Mobility, Model, Network, Origin, Research, Small, Spain, Structure, Theory, United States, USA, Work

? Bettencourt, L.M.A., Kaiser, D.I., Kaur, J., Castillo-Chavez, C. and Wojick, D.E. (2008), Population modeling of the emergence and development of scientific fields. *Scientometrics*, **75** (3), 495-518.

Full Text: [2008\Scientometrics75, 495.pdf](2008/Scientometrics75,%20495.pdf)

Abstract: We analyze the temporal evolution of emerging fields within several scientific disciplines in terms of numbers of authors and publications. From bibliographic searches we construct databases of authors, papers, and their dates of publication. We show that the temporal development of each field, while different in detail, is well described by population contagion models, suitably adapted from epidemiology to reflect the dynamics of scientific interaction. Dynamical parameters are estimated and discussed to reflect fundamental characteristics of the field, such as time of apprenticeship and recruitment rate. We also show that fields tire characterized by simple scaling laws relating numbers of new publications to new authors, with exponents that reflect increasing or decreasing returns in scientific productivity.

Keywords: Computers, Cosmology, Development, Dynamics, Epidemiology, Evolution, Flatness, Growth, Horizon, Ideas, Inflationary Universe, Interaction, Laws, Mathematical Approach, Modeling, Models, Papers, Population, Publication, Publications, Scaling, Spread

? He, Y. and Guan, J.C. (2008), Contribution of Chinese publications in computer science: A case study on LNCS. *Scientometrics*, **75** (3), 519-534.

Full Text: [2008\Scientometrics75, 519.pdf](2008/Scientometrics75,%20519.pdf)

Abstract: Conference proceedings are one of the key communication channels in computer science. This paper aims to analyze the Chinese outputs in the context of conference papers in computer science through an exploration of the conference proceedings series book - Lecture Notes in Computer Science (LNCS) in the period of 1997-2005. Results indicate that: 1. The number of Chinese papers in LNCS keeps growing in the studied period; the share of Chinese papers in LNCS in recent years is much higher than that of Chinese SCI papers in the world; In sharp contrast with remarkable growth of the share of Chinese papers in LNCS, the share of SCI articles in top journals of computer science published by the scientists of mainland China is negligible during the same period. 2. Chinese researchers are more likely to collaborate with domestic fellows; 3. In spite of the increasing amounts of Chinese papers in LNCS, they receive only a few citations; 4. The articles are strikingly more cited by authors themselves and international authors’ citations are more than Chinese authors’ non-self-citations in the first three years after publication; 5. Based on the new indicator Impact Index (II) the authors proposed, the relative impact of Chinese articles in LNCS is increasing although the average impact of Chinese papers in LNCS is obviously less than that of the publications in LNCS in each year during the studied period.

Keywords: Case Study, China, Chinese, Citation Analysis, Citations, Co-Citation, Communication, First, Growth, Indicator, Information, International, Journals, Knowledge Production, Papers, Publication, Publications, Research Performance, SCI, Science, Structural Aspects, Word Analysis

? Kim, H. and Park, Y. (2008), The impact of R&D collaboration on innovative performance in Korea: A Bayesian network approach. *Scientometrics*, **75** (3), 535-554.

Full Text: [2008\Scientometrics75, 535.pdf](2008/Scientometrics75,%20535.pdf)

Abstract: It is well known from previous research activities that R&D collaboration among economic actors for knowledge production is very important. An accompanying analysis of the impact of R&D collaboration on innovative performance has to be conducted for transferring knowledge to the globalized knowledge-based economy. When we first investigated previous research concerning R&D collaboration, we found some limitations in the analysis methodology. In order to overcome these limitations in previous research, we applied a Bayesian network for analyzing the impact of R&D collaboration in Korean firms on their innovative performance.

Keywords: Analysis, Biotechnology, Collaboration, Expert-Systems, Firms, First, Graphical Structures, Industry, Interfirm Cooperation, Inventors, Knowledge, Korea, Methodology, National Systems, Network, Probabilities, Research, Taiwan

? Mattsson, P., Laget, P., Nilsson, A. and Sundberg, C.J. (2008), Intra-EU vs. extra-EU scientific co-publication patterns in EU. *Scientometrics*, **75** (3), 555-574.

Full Text: [2008\Scientometrics75, 555.pdf](2008/Scientometrics75,%20555.pdf)

Abstract: the increase of co-authored papers is a recognized fact. At the same time the factors influencing this change is not well known. This article aims at studying the patterns of EU science co-authorships. We analyzed articles published in 18 EU countries and their intra-EU (within EU) and extra-EU (with partners outside EU) co-publication pattern in five scientific fields. The results point to a Europeanisation of shared co-authorship rather than an internationalization outside Europe. Smaller countries co-authored more with other EU countries than bigger countries while the co-authorship rate with extra-EU partners was not dependent of the country’s size. The co-authorship patterns were also found to depend on the scientific field. Engineering and Computing & Technology was the field with the highest level of national publications and Physical, Chemical & Earth Sciences the field with the highest level of both intra-EU and extra-EU collaborations. These results support the view that a single market for research is developing within the EU with a seamless extension of national systems into other Member States ones.

Keywords: Co-Authorship, Coauthorship, Cooperation, EU, Europe, Impact, Internationalization, Market, Multiple Authorship, Papers, Publications, Research, Research Collaboration, Science, Size, Universities

? Rousseau, R. and Zhang, L. (2008), Betweenness centrality and Q-measures in directed valued networks. *Scientometrics*, **75** (3), 575-590.

Full Text: [2008\Scientometrics75, 575.pdf](2008/Scientometrics75,%20575.pdf)

Abstract: Q-measures express the bridging function of nodes in a network subdivided into two groups. An approach to Q-measures in the context of weighted or valued directed networks is proposed. This new approach uses flow centrality as the main concept. Simple examples illustrate the definition.

Keywords: Function, Network

? Bar-Ilan, J. (2008), The h-Index of h-Index and of other informetric topics. *Scientometrics*, **75** (3), 591-605.

Full Text: [2008\Scientometrics75, 591.pdf](2008/Scientometrics75,%20591.pdf)

Abstract: In this paper we examine the applicability of the concept of h-Index to topics, where a topic has index h, if there are h publications that received at least h citations and the rest of the publications on the topic received at most h citations. We discuss methodological issues related to the computation of h-Index of topics (denoted h-b index by BANKS [2006]). Data collection for computing the h-b index is much more complex than computing the index for authors, research groups and/or journals, and has several limitations. We demonstrate the methods on a number of informetric topics, among them the h-Index.

Keywords: Banks, Citation Counts, Citations, Collection, Google-Scholar, h Index, h-Index, Hirsch-Index, Impact, Index h, Journals, Methods, Publications, Ranking, Research, Science, Scientists, Scopus, Web

? Janssens, F., Glänzel, W. and De Moor, B. (2008), A hybrid mapping of information science. *Scientometrics*, **75** (3), 607-631.

Full Text: [2008\Scientometrics75, 607.pdf](2008/Scientometrics75,%20607.pdf)

Abstract: Previous studies have shown that hybrid clustering methods that incorporate textual content and bibliometric information can outperform clustering methods that use only one of these components. In this paper we apply a hybrid clustering method based on Fisher’s inverse chi-square to integrate full-text with citations and to provide a mapping of the field of information science. We quantitatively and qualitatively asses the added value of such an integrated analysis and we investigate whether the clustering outcome is a better representation of the field by comparing with a text-only clustering and with another hybrid method based on linear combination of distance matrices. Our data set consists of almost 1000 articles and notes published in the period 2002-2004 in 5 representative journals. The optimal number of clusters for the field is 5, determined by using a combination of distance-based and stability-based methods. Term networks present the cognitive structure of the field and are complemented by the most representative publications. Three large traditional sub-disciplines, particularly, information retrieval, bibliometrics/scientometrics, and more social aspects, and two smaller clusters about patent analysis and webometrics, can be distinguished.

Keywords: Analysis, Bibliometric, Chi-Square, Citations, Clustering, Data, Field, Information, Information Retrieval, Information Science, Journals, Mapping, Methods, Networks, Outcome, Patent, Patent Analysis, Publications, Representation, Science, Scientific Papers, Social, Structure, Value, Visualization, Web, Webometrics

? Krampen, G. (2008), The evaluation of university departments and their scientists: Some general considerations with reference to exemplary bibliometric publication and citation analyses for a Department of Psychology. *Scientometrics*, **76** (1), 3-21.

Full Text: [2008\Scientometrics76, 3.pdf](2008/Scientometrics76,%203.pdf)

Abstract: In reference to an exemplary bibliometric publication and citation analysis for a University Department of Psychology, some general conceptual and methodological considerations on the evaluation of university departments and their scientists are presented. Data refer to publication and citation-by-others analyses (PsycINFO, PSYNDEX, SSCI, and SCI) for 36 professorial and non-professorial scientists from the tenure staff of the department under study, as well as confidential interviews on self-and colleagues-perceptions with seven of the sample under study. The results point at (1) skewed (Pareto-) distributions of all bibliometric variables demanding nonparametrical statistical analyses, (2) three personally identical outliers which must be excluded from some statistical analyses, (3) rather low rank-order correlations of publication and citation frequencies having approximately 15% common variance, (4) only weak interdependences of bibliometric variables with age, occupational experience, gender, academic status, and engagement in basic versus applied research, (5) the empirical appropriateness and utility of a normative typological model for the evaluation of scientists’ research productivity and impact, which is based on cross-classifications with reference to the number of publications and the frequency of citations by other authors, and (6) low interrater reliabilities and validity of ad hoc evaluations within the departments’ staff. Conclusions refer to the utility of bibliometric data for external peer reviewing and for feedback within scientific departments, in order to make colleague-perceptions more reliable and valid.

Keywords: Age, Analyses, Analysis, Bibliometric, Citation, Citation Analysis, Citations, Confidential, Correlations, Data, Engagement, Evaluation, Experience, Gender, General, Impact, Interviews, Journals, Model, Occupational, Outliers, Pareto, Productivity, Psycinfo, Publication, Publications, Research, Research Productivity, SCI, SSCI, Stands Today, Statistical Analyses, Tenure, University, Utility, Validity, Variance

? Eto, H. (2008), Scientometric definition of science: In what respect is the humanities more scientific than mathematical and social sciences? *Scientometrics*, **76** (1), 23-42.

Full Text: [2008\Scientometrics76, 23.pdf](2008/Scientometrics76,%2023.pdf)

Abstract: “What is science” is not only intellectually interesting but also politically crucial in the proper allocation of budget. As science does not define itself and only philosophy defines everything including science, this paper first sketches the philosophical view of science. Then, hypotheses are presented as to what definition is actually given for science by scientific circles themselves. The hypotheses are tested in a scientometric way by observing the trend in the magazine Science. Unexpected results are obtained. The actual trend in Science does not reflect what has long been considered about science. Specifically, chemistry is at the top in the number of papers, far above physics. More papers are in historical sciences (part of the humanities) than in mathematics, computer science and social science. It is discussed in what respect chemistry is the most scientific, and the humanities is more scientific than the abovementioned three scientific fields. It is interpreted that, out of the two aspects in Galilei’s view of science (metodo compositivo and metodo risolutivo.), The latter (empirical solution of problems by using technical instruments) dominates the former (systematic theory using mathematics) in Science.

Keywords: Articles, Authorship, Budget, Chemistry, Citation Patterns, First, Humanities, Journals, Operational-Research, Papers, Philosophy, Physics, Science, Sciences, Scientometric, Social Sciences, Solution, Technology, Theory

? Kostoff, R.N., Barth, R.B. and Lau, C.G.Y. (2008), Relation of seminal nanotechnology document production to total nanotechnology document production - South Korea. *Scientometrics*, **76** (1), 43-67.

Full Text: [2008\Scientometrics76, 43.pdf](2008/Scientometrics76,%2043.pdf)

Abstract: This study evaluates trends in quality of nanotechnology and nanoscience papers produced by South Korean authors. The metric used to gauge quality is ratio of highly cited nanotechnology papers to total nanotechnology papers produced in sequential time frames. In the first part of this paper, citations (and publications) for nanotechnology documents published by major producing nations and major producing global institutions in four uneven time frames are examined. All nanotechnology documents in the Science Citation Index [SCI, 2006] for 1998, 1999-2000, 2001-2002, 2003 were retrieved and analyzed in March 2007. In the second part of this paper, all the nanotechnology documents produced by South Korean institutions were retrieved and examined. All nanotechnology documents produced in South Korea (each document had at least one author with a South Korea address) in each of the above time frames were retrieved and analyzed. The South Korean institutions were extracted, and their fraction of total highly cited documents was compared to their fraction of total published documents. Non-Korean institutions that co-authored papers were included as well, to offer some perspective on the value of collaboration.

Keywords: Citations, Collaboration, First, Institutions, Korea, Nanoscience, Nanotechnology, Nations, Papers, Publications, Quality, Science Citation Index, Trends

? Sotudeh, H. and Horri, A. (2008), Great expectations: the role of Open Access in improving countries’ recognition. *Scientometrics*, **76** (1), 69-93.

Full Text: [2008\Scientometrics76, 69.pdf](2008/Scientometrics76,%2069.pdf)

Abstract: Open Access movement has been proven to be capable to enhance the recognition of scientific outputs by improving their visibility. However, it is not clear how different entities benefit from the Open Access advantage; because, the recognition process is dominated by some psychological or realistic biases, resulting in an unequal distribution of citations between different entities. The biases may be exacerbated in Open Access world, e.g. due to the scientists uncertainty about the quality of Open Access materials, or quantitatively or qualitatively unequal presence of countries. Consequently, although, Open Access is able to achieve their potential citations, it is not unlikely that it increases the inequalities, depriving the already “have-nots”. Trying to illuminate how countries are benefiting from Open Access advantage, this study compares citation performances of the world’s countries in two journal sets, i.e. Open Access and non Open Access journals. The results of the analyses conducted at subject field level show that overall recognition gap between developed and less-developed blocks is widened by publishing in Open Access journals. The verification of individual countries’ performances confirms the finding by revealing that open-access-advantaged nations are mainly consisted of developed ones. However, some open-access-advantaged instances are from the less-developed block, which may promisingly suggest early heralds of Open Access potentialities to achieve the recognition of “lost sciences”, leading to relative reparation of the gap in future.

Keywords: Advantage, Articles, Citation, Citations, Impact, Journal, Journals, Nations, Performance, Potential, Publishing, Quality, Science, System, Uncertainty

? Kao, C., Lin, H.W., Chung, S.L., Tsai, W.C., Chiou, J.S., Chen, Y.L., Chen, L.H., Fang, S.C. and Paoh, H.L. (2008), Ranking Taiwanese management journals: A case study. *Scientometrics*, **76** (1), 95-115.

Full Text: [2008\Scientometrics76, 95.pdf](2008/Scientometrics76,%2095.pdf)

Abstract: To improve the quality of journals in Taiwan, the National Science Council (NSC) of the Republic of China evaluates journals in the fields of humanities and social sciences periodically. This paper describes the evaluation of 46 management journals conducted by the authors, as authorized by the NSC. Both a subjective approach, with judgments solicited from 345 experts, and an objective approach, with data collected on four indicators: journal cross citation, dissertation citation, authors’ scholastic reputation, and author diversity, were used to make a comprehensive evaluation. Performance in the four indicators were aggregated using weights which were most favourable to all journals, in a compromise sense, to produce the composite indices. The subjective evaluation reflects the general image, or reputation, of journals while the objective evaluation discloses blind spots which have been overlooked by experts. The results show that using either approach alone would have produced results which are misleading, which suggests that both approaches should be used. All of the editors of the journals being evaluated agreed that the evaluation was appropriate and the results are reasonable.

Keywords: Case Study, China, Citation, Composite, Evaluation, Frequency, Humanities, Impact, Indicators, Journal, Journals, Management, Quality, Sciences, Social Sciences, Weights

? Egghe, L. (2008), The mathematical relation between the impact factor and the uncitedness factor. *Scientometrics*, **76** (1), 117-123.

Full Text: [2008\Scientometrics76, 117.pdf](2008/Scientometrics76,%20117.pdf)

Abstract: In a general framework, given a set of articles and their received citations (time periods of publication or citation are not important here) one can define the impact factor (IF) as the total number of received citations divided by the total number of publications (articles). The uncitedness factor (UF) is defined as the fraction of the articles that received no citations. It is intuitively clear that IF should be a decreasing function of UF. This is confirmed by the results in [VAN LEEUWEN & MOED, 2005] but all the given examples show a typical shape, seldom seen in informetrics: a horizontal S-shape (first convex then concave). Adopting a simple model for the publication-citation relation, we prove this horizontal S-shape in this paper, showing that such a general functional relationship can be generally explained.

Keywords: Citation, Citations, First, Framework, Function, Impact Factor, Informetrics, Model, Publication, Publications

? Moghaddam, G.G. and Moballeghi, M. (2008), How do we measure the use of scientific journals? A note on research methodologies. *Scientometrics*, **76** (1), 125-133.

Full Text: [2008\Scientometrics76, 125.pdf](2008/Scientometrics76,%20125.pdf)

Abstract: Scientific journals represent a significant and growing part of the libraries and many researchers have attempted to measure their use by various methodological approaches till date. In this paper, the author reviews the methodologies employed by researchers working on scientific journals Usage. It aims to present an overall picture of the research methods used in the area, in a way that will be of value to anyone seeking to study scientific journals. The author reviews four main research methodologies which are being used for profiling scientific journals Usage including questionnaire, interview, citation analysis and transaction log analysis.

Keywords: Analysis, Citation, Citation Analysis, Impact Factors, Journals, Logs, Methods, Questionnaire, Research, Scientific Journals

? Fiala, D., Rousselot, F. and Jezek, K. (2008), PageRank for bibliographic networks. *Scientometrics*, **76** (1), 135-158.

Full Text: [2008\Scientometrics76, 135.pdf](2008/Scientometrics76,%20135.pdf)

Abstract: In this paper, we present several modifications of the classical PageRank formula adapted for bibliographic networks. Our versions of PageRank take into account not only the citation but also the co-authorship graph. We verify the viability of our algorithms by applying them to the data from the DBLP digital library and by comparing the resulting ranks of the winners of the ACM E. F. Codd Innovations Award. Rankings based on both the citation and co-authorship information turn out to be “better” than the standard PageRank ranking.

Keywords: Citation, Co-Authorship, Coauthorship, Graph, Information, Publications, Ranking, Standard

? Leydesdorff, L. (2008), The delineation of nanoscience and nanotechnology in terms of journals and patents: A most recent update. *Scientometrics*, **76** (1), 159-167.

Full Text: [2008\Scientometrics76, 159.pdf](2008/Scientometrics76,%20159.pdf)

Abstract: the journal set which provides a representation of nanoscience and nanotechnology at the interfaces among applied physics, chemistry, and the life sciences is developing rapidly because of the introduction of new journals. The relevant contributions of nations can be expected to change according to the representations of the relevant interfaces among journal sets. In the 2005 set the position of the USA decreased more than in the 2004-set, while the EU-27 gained in terms of its percentage of world share of citations. The tag “Y01N” which was newly added to the EU classification system for patents, allows for the visualization of national profiles of nanotechnology in terms of relevant patents and patent classes.

Keywords: Chemistry, China, Citations, Classification, EU, Interfaces, Journal, Journals, Life, Life Sciences, Nanoscience, Nanoscience and Nanotechnology, Nanotechnology, Nations, Patent, Patents, Representation, Science, Sciences, USA, Visualization

? Haslam, N., Ban, L., Kaufmann, L., Loughnan, S., Peters, K., Whelan, J. and Wilson, S. (2008), What makes an article influential? Predicting impact in social and personality psychology. *Scientometrics*, **76** (1), 169-185.

Full Text: [2008\Scientometrics76, 169.pdf](2008/Scientometrics76,%20169.pdf)

Abstract: Factors contributing to citation impact in social-personality psychology were examined in a bibliometric study of articles published in the field’s three major journals. Impact was operationalized as citations accrued over 10 years by 308 articles published in 1996, and predictors were assessed using multiple databases and trained coders. Predictors included author characteristics (i.e., number, gender, nationality, eminence), institutional factors (i.e., university prestige, journal prestige, grant support), features of article organization (i.e., title characteristics, number of studies, figures and tables, number and recency of references), and research approach (i.e., topic area, methodology). Multivariate analyses demonstrated several strong predictors of impact, including first author eminence, having a more senior later author, journal prestige, article length, and number and recency of references. Many other variables - e.g., author gender and nationality, collaboration, university prestige, grant support, title catchiness, number of studies, experimental vs. correlational methodology, topic area - did not predict impact.

Keywords: Analyses, Approach, Bibliometric, Bibliometric Study, Characteristics, Citation, Citations, Collaboration, Databases, Disciplines, Experimental, First, Gender, Impact, Information-Science, Institutional Factors, Journal, Journals, Length, Manuscript, Methodology, Model, Organization, Personality, Personality Psychology, Predictors, Psychology, Quality, Reliability, Research, Social, Support, University

? Schreiber, M. (2008), The influence of self-citation corrections on Egghe’s g index. *Scientometrics*, **76** (1), 187-200.

Full Text: [2008\Scientometrics76, 187.pdf](2008/Scientometrics76,%20187.pdf)

Abstract: the g index was introduced by Leo Egghe as an improvement of Hirsch’s index h for measuring the overall citation record of a set of articles. It better takes into account the highly skewed frequency distribution of citations than the h Index. I propose to sharpen this g index by excluding the self-citations. I have worked out nine practical cases in physics and compare the h and g values with and without self-citations. As expected, the g index characterizes the data set better than the h Index. The influence of the self-citations appears to be more significant for the g index than for the h Index.

Keywords: Citation, Citation Record, Citations, g Index, g-Index, h Index, h-Index, Index h, Record, Researchers, Self-Citation, Self-Citations

? Lombardo, L. (2008), New indicators linking patenting and business R&D expenditure. *Scientometrics*, **76** (2), 201-224.

Full Text: [2008\Scientometrics76, 201.pdf](2008/Scientometrics76,%20201.pdf)

Abstract: the paper presents a new national level indicator based on shares of OECD aggregate ‘external’ patent applications world-wide. It provides the first reliable trend data for patent applications since new patent application procedures were introduced in the 1980s. The trends show a strong correlation with business R&D expenditure (BERD) trend data similarly based on shares of OECD aggregate BERD, reaffirming a relationship observed in previous studies using granted patents. However the reliability of the current indicator over an extended 20 year period shows that in two cases, the US and UK, there is divergence in correlation over part of the period studied. This aspect of the study provides evidence that the surge in external patenting in the US, over the period 1989 to 1996, is not driven by BERD and strongly suggests public sector research as a driver. This result shows that the new patent applications indicator can monitor factors in national systems not easily observed by other means. In this case it shows potential for monitoring the success of policies in driving public sector research towards commercial outcomes.

Keywords: Business, Driving, Evidence, First, Indicator, Indicators, Outcomes, Patent, Patents, Potential, Procedures, Public Sector, Reliability, Research, Sector, Statistics, Trends, UK, US

Notes: UUniversity

Abramo, G., D’Angelo, C.A. and Pugini, F. (2008), The measurement of Italian universities’ research productivity by a non parametric-bibliometric methodology. *Scientometrics*, **76** (2), 225-244.

Full Text: [2008\Scientometrics76, 225.pdf](2008/Scientometrics76,%20225.pdf)

Abstract: This paper presents a methodology for measuring the technical efficiency of research activities. It is based on the application of data envelopment analysis to bibliometric data on the Italian university system. for that purpose, different input values (research personnel by level and extra funding) and output values (quantity, quality and level of contribution to actual scientific publications) are considered. Our study aims at overcoming some of the limitations connected to the methodologies that have so far been proposed in the literature, in particular by surveying the scientific production of universities by authors’ name.

Keywords: Analysis, Application, Bibliometric, Citation, Data, Data Envelopment, Data Envelopment Analysis, Efficiency, Funding, Impact, Indicators, Literature, Measurement, Methodologies, Methodology, Personnel, Productivity, Publications, Purpose, Quality, Research, Research Productivity, Scientific Production, Scientific Publications, Scientists, Universities, University

Notes: UUniversity

? Ma, R.M., Ni, C.Q. and Qiu, J.P. (2008), Scientific research competitiveness of world universities in computer science. *Scientometrics*, **76** (2), 245-260.

Full Text: [2008\Scientometrics76, 245.pdf](2008/Scientometrics76,%20245.pdf)

Abstract: This article evaluates the scientific research competitiveness of world universities in computer science. The data source is the Essential Science Indicator (ESI) database with a time span of more than 10 years, from 01/01/1996 to 08/31/2006. We establish a hierarchical indicator system including four primary indicators which consist of scientific research production, influence, innovation and development and six secondary indicators which consist of the number of papers, total citations, highly cited papers, hot papers, average citations per paper and the ration of highly cited papers to papers. Then we assign them with proper weights. Based on these, we obtain the rankings of university and country/territory competitiveness in computer science. We hope this paper can contribute to the further study in the evaluation of a certain subject or a whole university.

Keywords: Bibliometric Methods, Citations, Data, Database, Development, Evaluation, Indicator, Indicators, Innovation, Papers, Primary, Rankings, Research, Research Performance, Science, Scientific Research, Source, Universities, University, World

? Sambunjak, D., Ivanis, A., Marusic, A. and Marusic, M. (2008), Representation of journals from five neighboring European countries in the Journal Citation Reports. *Scientometrics*, **76** (2), 261-271.

Full Text: [2008\Scientometrics76, 261.pdf](2008/Scientometrics76,%20261.pdf)

Abstract: This study explores the representation of scientific journals from Italy, Hungary, Slovenia, Croatia, and Serbia and Montenegro in the Thomson Scientific’s 2005 Journal Citation Reports (JCR). The number of journals covered by JCR was analyzed in relation to scientific productivity of selected countries and the size of their economies, and no apparent relationship between these factors was found. Our findings suggest that other factors, including the quality of individual journals, may influence how many journals a country will have in the JCR.

Keywords: Croatia, Database, Hungary, Impact Factor, Italy, Journal Citation Reports, Journals, Language, Quality, Representation, Scientific Journals, Size, Visibility, War

Ahlgren, P. and Jarneving, B. (2008), Bibliographic coupling, common abstract stems and clustering: A comparison of two document-document similarity approaches in the context of science mapping. *Scientometrics*, **76** (2), 273-290.

Full Text: [2008\Scientometrics76, 273.pdf](2008/Scientometrics76,%20273.pdf)

Abstract: This paper deals with two document-document similarity approaches in the context of science mapping: bibliographic coupling and a text approach based on the number of common abstract stems. We used 43 articles, published in the journal Information Retrieval, as test articles. An information retrieval expert performed a classification of these articles. We used the cosine measure for normalization, and the complete linkage method was used for clustering the articles. A number of articles pairs were ranked (1) according to descending normalized coupling strength, and (2) according to descending normalized frequency of common abstract stems. The degree of agreement between the two obtained rankings was low, as measured by Kendall’s tau. The agreement between the two cluster solutions, one for each approach, was fairly low, according to the adjusted Rand index. However, there were examples of perfect agreement between the coupling solution and the stems solution. The classification generated by the expert contained larger groups compared to the coupling and stems solutions, and the agreement between the two solutions and the classification was not high. According to the adjusted Rand index, though, the stems solution was a better approximation of the classification than the coupling solution. With respect to cluster quality, the overall Silhouette value was slightly higher for the stems solution. Examples of homogeneous cluster structures, as well as negative Silhouette values, were found with regard to both solutions. The expert classification indicates that the field of information retrieval, as represented by one volume of articles published in Information Retrieval, is fairly heterogeneous regarding research themes, since the classification is associated with 15 themes. The complete linkage method, in combination with the upper tail rule, gave rise to a fairly good approximation of the classification with respect to the number of identified groups, especially in case of the stems approach.

Keywords: Bibliographic Coupling, Classification, Clustering, Comparison, Information, Information Retrieval, Journal, Linkage, Normalization, Quality, Rankings, Research, Science, Science Mapping, Similarity, Solution

? Navarro, A. and Martin, M. (2008), Scientific production and collaboration in Epidemiology and Public Health, 1997-2002. *Scientometrics*, **76** (2), 291-313.

Full Text: [2008\Scientometrics76, 291.pdf](2008/Scientometrics76,%20291.pdf)

Abstract: This study aims to describe international scientific production and collaboration in Epidemiology and Public Health. It is a bibliometric analysis of articles published during 1997-2002 in 39 international journals. The United States has the greatest production in absolute terms, participating in 46% of the articles studied. Next come Great Britain (13.3%), and Canada (6.8%). In 34.8% of the articles involved participation by at least one of the 15 European Union countries. After adjustment for population and GDP, the Scandinavian countries, the Netherlands, and Australia holding the leading positions. In terms of collaboration, groups of countries with similar profiles are observed.

Keywords: Analysis, Australia, Bibliometric, Bibliometric Analysis, Britain, Canada, Collaboration, European Union, International, International Collaboration, Journals, Participation, Population, Profiles, Science, Scientific Production, the Netherlands, United States

? Yan, E. and Zhu, Q.H. (2008), Hyperlink analysis for government websites of Chinese provincial capitals. *Scientometrics*, **76** (2), 315-326.

Full Text: [2008\Scientometrics76, 315.pdf](2008/Scientometrics76,%20315.pdf)

Abstract: With the data retrieved from the search engines of Yahoo and SOGOU, this article aims to study the total backlink counts, external backlink counts and the Web Impact Factors for government websites of Chinese provincial capitals. By studying whether the backlink counts and WIFs of websites associate with the comprehensive ratings for these websites, the article demonstrates that the backlink counts can be a better evaluation measure for government websites than WIFs. At length, this article also discusses the correlation between backlink counts and economic capacity, and illustrates that backlink counts can also be an indicator for economic status.

Keywords: Analysis, Capacity, Chinese, Citations, Counts, Evaluation, Indicator, Information, Links, Sites, University, Web Impact Factors

? Qiu, J.P., Li, Y.J., Li, J. and Ren, Q. (2008), An exploratory study on substantive co-link analysis: A modification to total co-link analysis. *Scientometrics*, **76** (2), 327-341.

Full Text: [2008\Scientometrics76, 327.pdf](2008/Scientometrics76,%20327.pdf)

Abstract: Since the term “co-link” was put forward, many scholars have done exploratory investigations to prove the applicability and validity of co-link analysis used in mapping internet structure and mining relationships among internet colonies. All of these studies are based on the whole links in the web called “total co-link analysis”. However, there are both substantive and non-substantive links in the web, and the number of the latter outweights that of the former, which makes the preconditions of total co-link analysis untenable. In this paper, we present “substantive co-link analysis”, and believe it is more sound and valid than “total co-link analysis”. Then exploratory investigations on both total and substantive co-link analysis are carried out with the sample of 20 academic blogs on Library and Information Science, the results of which testify our assumption that “substantive co-link analysis” is more efficient and reasonable than “total co-link analysis”.

Keywords: Analysis, Author Cocitation Analysis, Information-Science, Mining, Modification, Structure, Validity, Web, Web Environment

? Ynalvez, M.A. and Shrum, W. (2008), International graduate training, digital inequality and professional network structure: An ego-centric social network analysis of knowledge producers at the “Global South”. *Scientometrics*, **76** (2), 343-368.

Full Text: [2008\Scientometrics76, 343.pdf](2008/Scientometrics76,%20343.pdf)

Abstract: Based on a face-to-face survey of 312 scientists from government research institutes and state universities in two Philippine locations - Los Banos, Laguna and Munoz, Nueva Ecija - we examine how graduate training and digital factors shape the professional network of scientists at the “Global South.” Results suggest that scientists prefer face-to-face interaction; there is no compelling evidence that digitally-mediated interaction will replace meaningful face-to-face interaction. What is evident is that among none face-to-face modes of communication a reordering maybe in progress. The effect of digital factors - expressed through advance hardware-software-user interaction skills - lies on network features pertaining to size, proportion of male and of core-based alters, and locational diversity. International graduate training and ascribed factors (gender and number of children) also configure the professional network of scientists - actors traditionally viewed as the epitome of rationality and objectivity. We argue that these factors influence knowledge production through a system of patronage and a culture that celebrates patrifocality. We forward the hypothesis that knowledge production at the “Global South” closely fits Callon’s [1995] extended translation model of science.

Keywords: Analysis, Children, Communication, Core, Culture, Evidence, Gender, Graduate, Inequality, Interaction, Internet, Knowledge, Male, Model, Network, Network Analysis, Rationality, Research, Resources, Science, Scientists, Size, Social Network Analysis, Structure, Survey, Tacit Knowledge, Ties, Training, Translation, Universities, Voluntary Organizations

? Lehmann, S., Jackson, A.D. and Lautrup, B.E. (2008), A quantitative analysis of indicators of scientific performance. *Scientometrics*, **76** (2), 369-390.

Full Text: [2008\Scientometrics76, 369.pdf](2008/Scientometrics76,%20369.pdf)

Abstract: Condensing the work of any academic scientist into a one-dimensional indicator of scientific performance is a difficult problem. Here, we employ Bayesian statistics to analyze several different indicators of scientific performance. Specifically, we determine each indicator’s ability to discriminate between scientific authors. Using scaling arguments, we demonstrate that the best of these indicators require approximately 50 papers to draw conclusions regarding long term scientific performance with usefully small statistical uncertainties. Further, the approach described here permits statistical comparison of scientists working in distinct areas of science.

Keywords: Analysis, Comparison, Complex Networks, Indicator, Indicators, Papers, Quantitative Analysis, Scaling, Science, Small, Statistics, Work

? Sonderstrup-Andersen, E.M. and Sonderstrup-Andersen, H.H.K. (2008), An investigation into diabetes researcher’s perceptions of the Journal Impact Factor - reconsidering evaluating research. *Scientometrics*, **76** (2), 391-406.

Full Text: [2008\Scientometrics76, 391.pdf](2008/Scientometrics76,%20391.pdf)

Abstract: Currently the Journal Impact Factors (JIF) attracts considerable attention as components in the evaluation of the quality of research in and between institutions. This paper reports on a questionnaire study of the publishing behaviour and researchers preferences for seeking new knowledge information and the possible influence of JIF on these variables. 54 Danish medical researchers active in the field of Diabetes research took part. We asked the researchers to prioritise a series of scientific journals with respect to which journals they prefer for publishing research and gaining new knowledge. In addition we requested the researchers to indicate whether or not the JIF of the prioritised journals has had any influence on these decisions. Furthermore we explored the perception of the researchers as to what degree the JIF could be considered a reliable, stable or objective measure for determining the scientific quality of journals. Moreover we asked the researchers to judge the applicability of JIF as a measure for doing research evaluations. One remarkable result is that app. 80% of the researchers share the opinion that JIF does indeed have an influence on which journals they would prefer for publishing. As such we found a statistically significant correlation between how the researchers ranked the journals and the JIF of the ranked journals. Another notable result is that no significant correlation exists between journals where the researchers actually have published papers and journals in which they would prefer to publish in the future measured by JIF. This could be taken as an indicator for the actual motivational influence on the publication behaviour of the researchers. That is, the impact factor actually works in our case. It seems that the researchers find it fair and reliable to use the Journal Impact Factor for research evaluation purposes.

Keywords: Behaviour, Citation Analysis, Diabetes, Evaluation, Impact Factor, Indicator, Information, Institutions, Investigation, Journals, Knowledge, Medical, Papers, Perception, Publication, Publishing, Quality, Questionnaire, Research, Research Evaluation, Scientific Journals

? Yu, G. and Yu, D.R. (2008), Design and simulation on the publication delay control system. *Scientometrics*, **76** (3), 407-427.

Full Text: [2008\Scientometrics76, 407.pdf](2008/Scientometrics76,%20407.pdf)

Abstract: Based on the simulation study of the publication delay control process [YU & AL., 2005], transfer function models of delay control processes by adjusting the accepted contribution flux and the published contribution flux are identified using system identification. According to Cybernetics, the feedback control system of the publication delay is designed and control processes are simulated and analyzed when the average publication delay are regarded as the controlled object. On the basis of the relation between the average publication delay and the deposited contribution quantity, another control method is proposed that the deposited contribution quantity is regarded as the controlled object and the simulation result proves that the method is an excellent means and can help editors expediently manage their journals and control publication delays.

Keywords: AL, Control, Function, Identification, Journals, Models, Publication, Publication Delay, Publishing Process, Simulation, Transfer Function

? Plaza, L.M. and Albert, A. (2008), Scientific literature cited in USPTO patent documents as indicators for the evaluation and analysis of Spanish scientific research in biomedical disciplines. *Scientometrics*, **76** (3), 429-438.

Full Text: [2008\Scientometrics76, 429.pdf](2008/Scientometrics76,%20429.pdf)

Abstract: the use of indicators based on the analysis of the scientific literature cited in patent documents is proposed for the evaluation of biomedical research. A study carried out on several groups of researchers working in universities, public research centers, and hospitals, has shown that an important percentage of Spanish scientists have authored publications that are cited in US patents in the field of Biotechnology. The study and analysis of those cites allows a evaluation of the flow of knowledge generated by the different groups of scientists towards the development of technologies, and to learn on the relationship between the characteristics of the cited publications and the frequency they are cited in the patents. The results obtained avail the use of new indicators based on the cites in patents to perform a more complete evaluation of the published research related with Biotechnology and Biomedicine, both at the level of research institutions and individual scientists.

Keywords: Analysis, Biomedical, Biomedical Research, Biotechnology, Characteristics, Development, Evaluation, Field, Flow, Hospitals, Indicators, Institutions, Knowledge, Literature, Patent, Patents, Public, Publications, Research, Science, Scientific Literature, Scientific Research, Technologies, Technology, Universities, US

? Kyvik, S. and Olsen, T.B. (2008), Does the aging of tenured academic staff affect the research performance of universities? *Scientometrics*, **76** (3), 439-455.

Full Text: [2008\Scientometrics76, 439.pdf](2008/Scientometrics76,%20439.pdf)

Abstract: This paper examines the common contentions that the collective aging of tenured academic staff has negative effects on research performance of universities due to (a) negative effects of aging in itself, and (b) to a lack of newcomers who could revitalise the research. Data on academic staff and research at Norwegian universities over two decades have been used to examine these contentions. While older staff published less than their younger colleagues two decades ago, no differences in productivity are found today. Furthermore, during this period, a large increase in the number of post-doctoral fellows and PhD students has taken place, compensating for the aging of tenured staff.

Keywords: Accumulative Advantage, Age, Aging, Performance, Productivity, Research, Research Performance, Scientific Productivity, Students, Universities

? Martin-Sempere, M.J., Garzon-Garcia, B. and Rey-Rocha, J. (2008), Team consolidation, social integration and scientists’ research performance: An empirical study in the Biology and Biomedicine field. *Scientometrics*, **76** (3), 457-482.

Full Text: [2008\Scientometrics76, 457.pdf](2008/Scientometrics76,%20457.pdf)

Abstract: the effects of team consolidation and social integration on individual scientists’ activity and performance were investigated by analysing the relationships between these factors and scientists’ productivity, impact, collaboration patterns, participation in funded research projects and programs, contribution to the training of junior researchers, and prestige. Data were obtained from a survey of researchers ascribed to the Biology and Biomedicine area of the Spanish Council for Scientific Research, and from their curricula vitae. The results show that high levels of team consolidation and of integration of the scientist within his or her team are factors which might help create the most favourable social climate for research performance and productivity. Researchers who carried out their activity in a social climate characterized by these factors participated in more domestic research projects and supervised more doctoral dissertations than the rest of their colleagues. They were also more productive, as shown by the higher number of papers published in journals included in the Journal Citation Reports and the higher number of patents granted. These metrics are the main indicators taken into account in the evaluation of the research activity of Spanish scientists, and are therefore the activities that scientists invest the most energy in with a view to obtaining professional recognition. The results corroborate the importance of research teamwork, and draw attention to the importance of teamwork understood not as two or more scientists working together to solve a problem, but as a complex process involving interactions and interpersonal relations within a particular contextual framework.

Keywords: Climate, Collaboration, Curricula, Energy, Evaluation, Field, Framework, Impact, Indicators, Integration, Journal Citation Reports, Journals, Metrics, Papers, Participation, Patents, Performance, Productivity, Relations, Research, Research Performance, Social, Survey, Teamwork, Training

? Sharma, S. and Thomas, V.J. (2008), Inter-country R&D efficiency analysis: An application of data envelopment analysis. *Scientometrics*, **76** (3), 483-501.

Full Text: [2008\Scientometrics76, 483.pdf](2008/Scientometrics76,%20483.pdf)

Abstract: This study examines the relative efficiency of the R&D process across a group of 22 developed and developing countries using Data Envelopment Analysis (DEA). The R&D technical efficiency is examined using a model with patents granted to residents as an output and gross domestic expenditure on R&D and the number of researchers as inputs. Under CRS (Constant Returns to Scale), Japan, the Republic of Korea and China are found to be efficient, whereas under the VRS (Variable Returns to Scale) framework, Japan, the Republic of Korea, China, India, Slovenia and Hungary are found to be efficient. The emergence of some of the developing nations on the efficiency frontier indicates that these nations can also serve as benchmarks for their efficient use of R&D resources. The inefficiency in the R&D resource Usage highlighted by this study indicates the underlying potential that can be tapped for the development and growth of nations.

Keywords: Analysis, Application, Bibliometric Assessment, China, CR, Data, Data Envelopment, Data Envelopment Analysis, DEA, Developing, Developing Countries, Development, Efficiency, Framework, Growth, Hungary, India, Indicators, Innovation, Japan, Korea, Model, Nations, Patent Statistics, Patents, Potential, Publications, Science-Citation-Index, Slovenia, Technical Change, Technology, UK Scientific Performance

Notes: TTopic

? Lee, W.H. (2008), How to identify emerging research fields using scientometrics: An example in the field of Information Security. *Scientometrics*, **76** (3), 503-525.

Full Text: [2008\Scientometrics76, 503.pdf](2008/Scientometrics76,%20503.pdf)

Abstract: In the highly competitive world, there has been a concomitant increase in the need for the research and planning methodology, which can perform an advanced assessment of technological opportunities and an early perception of threats and possibilities of the emerging technology according to the nation’s economic and social status. This research is aiming to provide indicators and visualization methods to measure the latest research trend and aspect underlying scientific and technological documents to researchers and policy planners using “co-word analysis”. Information Security field is a highly prospective market value. In this paper, we presented an analysis Information Security. Co-word analysis was employed to reveal patterns and trends in the Information Security fields by measuring the association strength of terms representatives of relevant publications or other texts produced in the Information Security field. Data were collected from SCI and the critical keywords could be extracted from the author keywords. These extracted keywords were further standardized. In order to trace the dynamic changes in the Information Security field, we presented a variety of technology mapping. The results showed that the Information Security field has some established research theme and also rapidly transforms to embrace new themes.

Keywords: Analysis, Area, Assessment, Association, Changes, Cocitation, Competitive, Dynamic, Economic, Field, Indicators, Mapping, Market, Measure, Methodology, Methods, Networks, Perception, Performance, Planning, Policy, Prospective, Publications, Research, Research Trend, SCI, Scientometrics, Social, Strength, Technology, Trend, Trends, Value, Visualization, Word, World

? Nicolini, C. and Nozza, F. (2008), Objective assessment of scientific performances world-wide. *Scientometrics*, **76** (3), 527-541.

Full Text: [2008\Scientometrics76, 527.pdf](2008/Scientometrics76,%20527.pdf)

Abstract: In order to identify the indicators having world-wide standards for the assessment of scientific performances at the level of both individual and institutions normalized for disciplines, we have carried out a comparative analysis of the relative scientific and technological level of individual scientists and individual scientific institutions competing internationally for given fields, using alternative indicators all based on the number of publications and on their impact factors in international SCI journals properly ranked properly weighted for their position, number of coauthors and discipline using deciles. This study, contrary to some gloomy opinions, suggests that interesting conclusions can be drawn from the above indicators. The utilization of the chosen indicators, tested world-wide in real situations, appears capable to effectively and objectively assess institutions and individual university professors and researchers proving to be quite significant and should be used to provide computer-assisted evaluation criteria for either maintaining or upgrading the given position, maintaining or closing public Institutions, and filtering grant applications.

Keywords: Alternative, Analysis, Assessment, Bibliometric Indicators, Criteria, Evaluation, Impact, Impact Factors, Indicators, Institutions, International, Journals, Opinions, Public, Publications, SCI, Scientific Institutions, Standards, University, Utilization

Notes: CCountry

? Onder, C., Sevkli, M., Altinok, T. and Tavukcuoglu, C. (2008), Institutional change and scientific research: A preliminary bibliometric analysis of institutional influences on Turkey’s recent social science publications. *Scientometrics*, **76** (3), 543-560.

Full Text: [2008\Scientometrics76, 543.pdf](2008/Scientometrics76,%20543.pdf)

Abstract: This paper provides a detailed assessment of recent indexed journal publications by Turkish social scientists. We first present information on SCI, SSCI and AHCI indexed journal articles that were published by Turkish researchers over the past three decades. An inspection of publication statistics indicates a considerable improvement, especially during the last five years of the 1973-2005 period that we examine, in Turkey’s publication record in terms of number of articles authored or co-authored by Turkish researchers. In the next step, we scrutinize institutional sources of this improvement, emphasizing regulatory and organizational changes that have both forced researchers to publish in indexed journals and remunerated those who did so. Finally, we provide a qualitative assessment of recent improvement in publication performance of Turkish researchers by focusing on a particular behavioral consequence of institutional changes and its implications for impact that research from Turkey has on global research activity. Bibliometric analysis of articles published by Turkish researchers in SSCI-indexed journals during 2000-2005 shows that recent regulatory and organizational changes seem to have instituted a particular publication habit, publishing in journals with lower impact factor, which was earlier observed in other parts of the world where publication counts were used for performance evaluation, and that signs of improvement in our select indicators of impact are yet to be observed.

Keywords: Analysis, Assessment, Bibliometric, Bibliometric Analysis, Biomedical Literature 1988-1997, Changes, Evaluation, First, Impact, Impact Factor, Improvement, Indicators, Information, Inspection, Journal, Journal Articles, Journals, Organizational, Output, Performance, Performance Evaluation, Physics, Publication, Publication Counts, Publication Record, Publication Statistics, Publications, Publishing, Qualitative, Record, Research, SCI, Science, Scientific Research, Social, Sources, SSCI, Statistics, Turkey, University, World

? Manjarres-Henriquez, L., Gutierrez-Gracia, A. and Vega-Jurado, J. (2008), Coexistence of university-industry relations and academic research: Barrier to or incentive for scientific productivity. *Scientometrics*, **76** (3), 561-576.

Full Text: [2008\Scientometrics76, 561.pdf](2008/Scientometrics76,%20561.pdf)

Abstract: In this article we analyse whether university-industry relations (UIR) are penalising research activity and inhibiting university researchers’ scientific productivity and, if so, to what extent. The analysis is based on a case study of two Spanish universities. We find that UIR exercise a positive effect on university scientific productivity only when they are based on the development of R&D contracts, and when the funds obtained through these activities do not exceed 15% of the researcher’s total budget. We also find that researchers who combine research and UIR activities obtain higher funding from competitive public sources than that engage only in research. In addition, their average scientific productivity is higher and they achieve higher status within their institutions than those members of faculty who concentrate only on research.

Keywords: Analysis, Budget, Case Study, Collaboration, Competitive, Concentrate, Contracts, Development, Exercise, Faculty, Funding, Government Relations, Institutions, Productivity, Public, Relations, Research, Research Performance, Science, Scientific Productivity, Sources, Triple-Helix, Universities, University

Anderson, T.R., Hankin, R.K.S. and Killworth, P.D. (2008), Beyond the Durfee square: Enhancing the h-Index to score total publication output. *Scientometrics*, **76** (3), 577-588.

Full Text: [2008\Scientometrics76, 577.pdf](2008/Scientometrics76,%20577.pdf)

Abstract: An individual’s h-Index corresponds to the number h of his/her papers that each has at least h citations. When the citation count of an article exceeds h, however, as is the case for the hundreds or even thoUSAnds of citations that accompany the most highly cited papers, no additional credit is given (these citations falling outside the so-called “Durfee square”). We propose a new bibliometric index, the “tapered h-Index” (h(T)), that positively enumerates all citations, yet scoring them on an equitable basis with h. The career progression of h(T) and h are compared for six eminent scientists in contrasting fields. Calculated h(T) for year 2006 ranged between 44.32 and 72.03, with a corresponding range in h of 26 to 44. We argue that the h(T)-index is superior to h, both theoretically (it scores all citations), and because it shows smooth increases from year to year as compared with the irregular jumps seen in h. Conversely, the original h-Index has the benefit of being conceptually easy to visualise. Qualitatively, the two indices show remarkable similarity (they are closely correlated), such that either can be applied with confidence.

Keywords: Bibliometric, Citation, Citations, Confidence, h Index, h-Index, Impact Factor, Index, Indices, Papers, Publication, Researchers, Science, Scientists, Similarity, Skewness

? Lee, B. and Jeong, Y.I. (2008), Mapping Korea’s national R&D domain of robot technology by using the co-word analysis. *Scientometrics*, **77** (1), 3-19.

Full Text: [2008\Scientometrics77, 3.pdf](2008/Scientometrics77,%203.pdf)

Abstract: In this paper, we show a “Strategic Diagram” of the robot technology by applying the co-word analysis to the metadata of Korean related national R&D projects in 2001. The strategic diagram shows the evolutionary trends of the specific R&D domain and relational patterns between sub-domains. We may use this strategic diagram to support both the strategic planning and the R&D Program.

Keywords: Analysis, Co-Word Analysis, Cocitation, Network, Planning, Strategic, Strategic Planning, Support, Technology, Trends

? Davarpanah, M.R. and Aslekia, S. (2008), A scientometric analysis of international LIS journals: Productivity and characteristics. *Scientometrics*, **77** (1), 21-39.

Full Text: [2008\Scientometrics77, 21.pdf](2008/Scientometrics77,%2021.pdf)

Abstract: This paper presents a quantitative study of productivity, characteristics and various aspects of global publication in the field of library and information science (LIS). A total of 894 contributions published in 56 LIS journals indexed in SSCI during the years of 2000-2004 were analyzed. A total of 1361 authors had contributed publications during the five years. The overwhelming majority (89.93%) of them wrote one paper, the average number of authors per paper is 1.52. All the studied papers were published in English. The sum of research output of the authors form USA and UK reaches 70% of the total productivity. Most papers received few citations. Each article received on an average 1.6 citations and the LIS researchers cite mostly latest articles. About 48% of citing authors had tendency of self-citation. The productive authors, their contribution and authorship position are listed to indicate their productivity and degree of involvement in their research publications.

Keywords: Analysis, Articles, Authorship, Characteristics, Citation, Citations, Field, Impact, Information, Information Science, Information-Science, International, Journals, Library, Library and Information Science, LIS, Papers, Productivity, Publication, Publications, Research, Science, Scientometric, Self-Citation, SSCI, UK, USA

? Levitt, J.M. and Thelwall, M. (2008), Patterns of annual citation of highly cited articles and the prediction of their citation ranking: A comparison across subjects. *Scientometrics*, **77** (1), 41-60.

Full Text: [2008\Scientometrics77, 41.pdf](2008/Scientometrics77,%2041.pdf)

Abstract: High citation is associated with research quality and consequently findings on highly cited articles are useful to increase understanding of the factors that produce high quality research. This study explores highly cited articles in six Subjects, focusing on late citation and peak citation years. Longitudinal citation patterns were found to be highly varied and, oil average, different from the remaining articles in each subject. for four of the six subjects, there is a correlation of over 0.42 between the percentage of early citations and total citation ranking but more highly ranked articles had a lower percentage of early citations. Surprisingly, for highly cited articles in all six subjects the prediction of citation ranking of from the sum of citations during their first six years was less accurate than prediction using the sum of the citations for only the fifth and sixth year.

Keywords: Citation, Citation Patterns, Citations, Comparison, Correlation, First, Prediction, Quality, Ranking, Research, Research Quality, Science, Sleeping Beauties, Understanding

? van Campenhout, G., van Caneghem, T. and van Uytbergen, S. (2008), A comparison of overall and sub-area journal influence: the case of the accounting literature. *Scientometrics*, **77** (1), 61-90.

Full Text: [2008\Scientometrics77, 61.pdf](2008/Scientometrics77,%2061.pdf)

Abstract: In most scientific disciplines, a number of divergent and often highly specialized research areas are examined, which is reflected in substantial differences among journal scopes. Using the accounting literature as an example, we argue that this diversity in scopes should be considered when assessing journal influence. Concretely, we examine a citation-based structural influence measure for a sample of 41 accounting journals. Next, we identify sub-areas in the accounting literature and we explore journal influence in these sub-areas. Our results clearly demonstrate the importance of distinguishing between overall and sub-area influence. In addition, we show that sub-areas should be identified using a fuzzy clustering procedure.

Keywords: Accounting Journals, Assessing, Author Self-Citations, Clustering, Cocitation Analysis, Comparison, Diversity, Economics Journals, Finance, Impact Factor, Index, Journal, Journal Influence, Journals, Literature, Measure, Network, Perceptions, Procedure, Quality, Research, Science

? Cho, S.R. (2008), New evaluation indexes for articles and authors’ academic achievements based on Open Access Resources. *Scientometrics*, **77** (1), 91-112.

Full Text: [2008\Scientometrics77, 91.pdf](2008/Scientometrics77,%2091.pdf)

Abstract: In Open Access (OA) environment where article-based or author-based evaluation is important, a nexv evaluation system is needed to accommodate characteristics of Open Access Resources (OAR) and to overcome limitations of pre-existing evaluation systems such as journal-based evaluation. Primary and secondary evaluation factors were selected. Primary factors include hits and citations that constitutes composite index. Several secondary factors each for article and author evaluation were selected for normalization of the indexes. To validate superiority of newly developed normalized composite index systems compared to the monovariable index system, time-driven bias and power of discrimination were adopted. The results led to the conclusion that composite index proved to be a more stable index offsetting the negative effects from one element to another and normalization makes the composite index even more stable by controlling the bias from external elements.

Keywords: Author Evaluation, Bias, Characteristics, Citation, Citations, Composite, Discrimination, Environment, Evaluation, Impact, Index, Normalization, Power, Ranking, Research Performance, Systems

Notes: TTopic

? Xie, S.D., Zhang, J. and Ho, Y.S. (2008), Assessment of world aerosol research trends by bibliometric analysis. *Scientometrics*, **77** (1), 113-130.

Full Text: [2008\Scientometrics77, 113.pdf](2008/Scientometrics77,%20113.pdf)

Abstract: This study was to explore a bibliometric approach to quantitatively assessing current research trends on atmospheric aerosol, using the related literature in the Science Citation Index (SCI) database from 1991 to 2006. Articles were concentrated on the analysis by scientific output, research performances by individuals, institutes and countries, and trends by the frequency of keywords used. Over the years, there had been a notably growth trend in research outputs, along with more participation and collaboration of institutes and countries. Research collaborative papers shifted from national inter-institutional to international collaboration. The decreasing share of world total and independent articles by the seven major industrialized countries (G7) was examined. Aerosol research in environmental and chemical related fields other than in medical fields was the mainstream of current years. Finally, author keywords, words in title and keywords plus were analyzed contrastively, with research trends and recent hotspots provided.

Keywords: Aerosol, Articles, Atmospheric Aerosol, Author Keywords, Bibliometric, Bibliometric Analysis, Chemical-Characterization, Chemistry, Citation, Collaboration, Database, Emissions, Frequency, Growth, International, International Collaboration, Language, Literature, Medical, Organic Aerosol, Particulate Matter, Pollution, Research, Research Trends, SCI, Science, Science Citation Index, Sciences, Scientific Output, Trend, Trends, Ultrafine Particles, United-States

? Lascurain-Sanchez, M.L., Garcia-Zorita, C., Martin-Moreno, C., Suarez-Balseiro, C. and Sanz-Casado, E. (2008), Impact of health science research on the Spanish health system, based on bibliometric and healthcare indicators. *Scientometrics*, **77** (1), 131-146.

Full Text: [2008\Scientometrics77, 131.pdf](2008/Scientometrics77,%20131.pdf)

Abstract: the present study aimed to determine the possible impact of medical research on the Spanish health system. To this end, an analysis was conducted of Spanish researchers’ scientific production, measured in terms of the publications cited in MEDLINE, along with a series of economic, demographic and socio-sanitary data such as the R&D resources allocated to medical science, the actual population during the period Studied mortality, morbidity and drug spending. The results showed increases in all the variables studied, identified the areas most intensely researched and defined the relationship between this information and the chief causes of mortality. morbidity and drug spending.

Keywords: Analysis, Bibliometric, Biomedical-Research, Citation-Index, Data, Drug, Economic, Health, Health System, Impact, Indicators, Information, Medical, Medical Research, MEDLINE, Morbidity, Mortality, Population, Publications, Research, Science, Science Research, Scientific Production

? Gauffriau, M., Larsen, P.O., Maye, I., Roulin-Perriard, A. and von Ins, M. (2008), Comparisons of results of publication counting using different methods. *Scientometrics*, **77** (1), 147-176.

Full Text: [2008\Scientometrics77, 147.pdf](2008/Scientometrics77,%20147.pdf)

Abstract: Using a database for publications established at CEST and covering the period from 1981 to 2002 the differences in national scores obtained by different Counting methods have been measured. The results are supported by analysing data from the literature. Special attention has been paid to the comparison between the EU and the USA. There are big differences between scores obtained by different methods. In one instance the reduction in scores going from whole to complete-normalized (fractional) counting is 72 per cent. In the literature there is often not enough information given about methods used, and no sign of a clear and consistent terminology and of agreement on properties of and results from different methods. As a matter of fact, Whole counting is favourable to certain countries, especially countries with a high level of international cooperation. The problems are increasing with time because of the ever-increasing national and international cooperation in research and the increasing average number of authors per publication. The need for a common understanding and a joint effort to rectify the situation is stressed.

Keywords: Bibliometric Assessment, British Science, Citation, Comparison, Cooperation, Data, Database, Decline, EU, Indicators, Information, International, International Cooperation, Literature, Methods, Multiple Authorship, Output, Productivity Measures, Publication, Publications, Reduction, Research, Standards, Terminology, UK Scientific Performance, Understanding, USA

? Huang, Y., Yang, Q. and Ao, X.L. (2008), Bibliometric analysis of pentachlorophenol remediation methods during the period of 1994 to 2005. *Scientometrics*, **77** (1), 177-186.

Full Text: [2008\Scientometrics77, 177.pdf](2008/Scientometrics77,%20177.pdf)

Abstract: A bibliometric analysis was performed to assess the quantitative trend of published pentachlorophenol (PCP) remediation studies, including both degradation and sorption. The documents studies were retrieved from the Science Citation Index (SCI) for the period from 1994 to 2005. The trends were analyzed with the retrieved results in publication language, document type, page count. publication output, publication pattern, authorship, citation analysis and country of publication. The results indicated that degradation was the emphasis for PCP remediation. The average impact factor of the journals was higher for publishing degradation studies in comparison to that publishing sorption studies. and there was a positive correlation between CPP and IF for journals published more than two papers. The publishing Countries of both degradation and sorption denoted that most of these researches were done by USA and Canada. Two to four authors was the most popular level of co-authorship.

Keywords: Analysis, Authorship, Bibliometric, Bibliometric Analysis, Canada, Citation, Citation Analysis, Co-Authorship, Coauthorship, Comparison, Correlation, Country, Degradation, Impact, Impact Factor, Journals, Methods, Mineralization, Ozonation, Papers, Pattern, Publication, Publishing, Remediation, SCI, Science Citation Index, Sorption, Trend, Trends, USA, Water

? Glänzel, W. (2008), On some new bibliometric applications of statistics related to the h-Index. *Scientometrics*, **77** (1), 187-196.

Full Text: [2008\Scientometrics77, 187.pdf](2008/Scientometrics77,%20187.pdf)

Abstract: In this paper some new fields of application of Hirsch-related statistics are presented. Furthermore, so far unrevealed properties of the h-Index are analysed in the context of rank-frequency and extreme-value statistics.

Keywords: Application, Bibliometric, Citation Impact, Context, h Index, h-Index, Journals, Statistics

? Zsindely, S. (2008), From vanity fair to scientific research: the place of genealogy in contemporary science. A scientometric approach. *Scientometrics*, **77** (1), 197-206.

Full Text: [2008\Scientometrics77, 197.pdf](2008/Scientometrics77,%20197.pdf)

Abstract: the place of genealogy in present scientific research has been investigated by scientometric methods. The term “genealogy” and related words were searched in the title, keywords, and abstracts of science journals for the period 1975-2006. It was concluded that 1991 onward the number of articles about “applied” genealogy has increased dramatically, whereas that of classical (or “pure”) genealogy only modestly. In contemporary science, the fields medicine and genetics are those who profit most from human genealogy. More than forty percent of the medical articles containing the search terms were from the neurology and oncology in the period investigated.

Keywords: Approach, Genetics, Human, Journals, Medical, Medicine, Methods, Neurology, Oncology, Profit, Research, Science, Science Journals, Scientific Research, Scientometric, Term

? Riikonen, P. and Vihinen, M. (2008), National research contributions: A case study on Finnish biomedical research. *Scientometrics*, **77** (2), 207-222.

Full Text: [2008\Scientometrics77, 207.pdf](2008/Scientometrics77,%20207.pdf)

Abstract: the long-term influence and contribution of research can be evaluated relatively reliably by bibliometric citation analysis. Previously, productivity of nations has been estimated by using either the number of published articles or journal impact factors and/or citation data. These studies show certain trends, but detailed analysis is not possible due to the assumption that all articles in a journal were equally cited. Here we describe the first comprehensive, longterm, nationwide analysis of scientific performance. We studied the lifetime research output of 748 Finnish principal investigators in biomedicine during the years 1966-2000, analysed national trends, and made a comparison with international research production. Our results indicate that analyses of the scientific contribution of persons, disciplines, or nations should be based on actual publication and citation counts rather than on derived information like impact factors. 51% of the principal investigators have published altogether 75% of the articles; however, the whole scientific community has contributed to the growth of biomedical research in Finland since the Second World War.

Keywords: Analyses, Analysis, Bibliometric, Biomedical, Biomedical Research, Biomedicine, Case Study, Citation, Citation Analysis, Citation Counts, Community, Comparison, Data, European-Union, Finland, First, Growth, Health, Impact, Impact Factor, Impact Factors, Information, International, Journal, Journal Impact, Journal Impact Factors, Journals, Long Term, Long-Term, Nations, NOV, Performance, Productivity, Publication, Publications, Research, Research Output, Scientific Performance, Skewness, Trends

? Rousseau, S. (2008), Journal evaluation by environmental and resource economists: A survey. *Scientometrics*, **77** (2), 223-233.

Full Text: [2008\Scientometrics77, 223.pdf](2008/Scientometrics77,%20223.pdf)

Abstract: Using an online survey, we have asked the researchers in the field of environmental and resource economics how they themselves would rank a representative list of journals in their field. The results of this ranking are then compared to the ordering based on the journals’ impact factors as published by Thomson Scientific. The two sets of rankings seem to be positively correlated, but statistically the null hypothesis that the two rankings are uncorrelated cannot be rejected. This observation suggests that researchers interpret the current quality of journals based on other factors in addition to the impact factors.

Keywords: Economics, Environmental, Evaluation, Field, Impact, Impact Factors, Journals, NOV, Observation, Quality, Quality Of, Rank, Ranking, Rankings, Relative Impacts, Survey

? Larsen, P.O. (2008), The state of the art in publication counting. *Scientometrics*, **77** (2), 235-251.

Full Text: [2008\Scientometrics77, 235.pdf](2008/Scientometrics77,%20235.pdf)

Abstract: the proceedings of the ISSI conferences in Stockholm, 2005, and Madrid, 2007, contain 85 contributions based on publication counting. The methods used in these contributions have been analyzed. The counting methods used are stated explicitly in 26 contributions and can be derived implicitly from the discussion of methods in 10 contributions. In only five contributions, there is a justification for the choice of method. Only one contribution gives information about different results obtained by using different methods. The non-additive results from whole counting give problems in the calculation of shares in seven contributions, but these problems are not mentioned. Only 11 contributions give a term (terms) for the counting method(s) used. To illustrate the problems, 11 of the contributions are discussed in detail. The conclusion is that 40 years of publication counting have not resulted in general agreement on definitions of methods and terminology nor in any kind of standardization.

Keywords: Art, Bibliometric Assessment, Calculation, Choice, Collaboration, Conferences, General, Information, Methods, NOV, Publication, Standardization, State, Term, Terminology, UK Scientific Performance

? Harwood, N. (2008), Publication outlets and their effect on academic writers’ citations. *Scientometrics*, **77** (2), 253-265.

Full Text: [2008\Scientometrics77, 253.pdf](2008/Scientometrics77,%20253.pdf)

Abstract: This article focuses on how and why the publication outlets in which academic writers’ work appears can impact on their citations, as part of a qualitative interview-based study of computer scientists’ and sociologists’ citing behaviour. Informants spoke of how they cited differently when writing in outlets aimed at a less knowledgeable audience, and for audiences from different disciplines and in different parts of the world. Citation behaviour can also be affected when writing for journals which favour different research paradigms, and the word limits journals impose led some informants to cite more selectively than they would have wished. The implications of the findings and the strengths and weaknesses of the interview-based method of investigation are also discussed.

Keywords: Behavior, Behaviour, Citations, Citer Motivations, Communication, Impact, Informants, Investigation, Journals, Model, NOV, Publication, Qualitative, Research, Self-Citation, Work, World

? Costas, R. and Bordons, M. (2008), Is g-index better than h-Index? An exploratory study at the individual level. *Scientometrics*, **77** (2), 267-288.

Full Text: [2008\Scientometrics77, 267.pdf](2008/Scientometrics77,%20267.pdf)

Abstract: the ability of g-index and h-Index to discriminate between different types of scientists (low producers, big producers, selective scientists and top scientists) is analysed in the area of Natural Resources at the Spanish CSIC (WoS, 1994-2004). Our results show that these indicators clearly differentiate low producers and top scientists, but do not discriminate between selective scientists and big producers. However, g-index is more sensitive than h-Index in the assessment of selective scientists, since this type of scientist shows in average a higher g-index/h-Index ratio and a better position in g-index rankings than in the h-Index ones. Current research suggests that these indexes do not substitute each other but that they are complementary.

Keywords: Assessment, Bibliometric Indicators, Citation Impact, Complementary, CSIC, g Index, g-Index, h Index, h-Index, Indicators, Journals, NOV, Output, Publication, Ranking, Rankings, Research, Researchers, Science, Scientists, System

? Igami, M. (2008), Exploration of the evolution of nanotechnology via mapping of patent applications. *Scientometrics*, **77** (2), 289-308.

Full Text: [2008\Scientometrics77, 289.pdf](2008/Scientometrics77,%20289.pdf)

Abstract: This study explored the evolution of nanotechnology based on a mapping of patent applications. Citations among patent applications designated to the European Patent Office were intensively analysed. Approximately 4300 nanotechnology patent applications linked through citations were mapped. Fifteen domains of nanotechnology patent applications were found in the map in 2003. The domains cover a wide range of application fields; they are domains related to measurement and manufacturing; electronics; optoelectronics; biotechnology; and nano materials. Maps in several reference years registered the evolution of nanotechnology, where the breadth of application fields has been broadening over time. Direct and indirect knowledge flows among different domains of nanotechnology are seemingly small at the present. Each domain of nanotechnology is likely pushing the technological frontier within its own domain. The exception is sensing and actuating technologies on the nanometre scale. Direct and indirect knowledge flows to/from this domain describe their vital role in nanotechnology. Countries’ specialisation was also analysed. Patent applications from the United States and the European Union cover a wide range of nanotechnology. Inventive activities in Japan are, however, strongly focusing on electronics. Intensive knowledge creation in specific technologies was found in Switzerland and Korea.

Keywords: Application, Biotechnology, Citations, European Union, Evolution, Japan, Knowledge, Korea, Manufacturing, Mapping, Measurement, Nanotechnology, NOV, Patent, Reference, Role, Scale, Science, Small, Switzerland, Technologies, Technology, United States

? Jonkers, K. and Tijssen, R. (2008), Chinese researchers returning home: Impacts of international mobility on research collaboration and scientific productivity. *Scientometrics*, **77** (2), 309-333.

Full Text: [2008\Scientometrics77, 309.pdf](2008/Scientometrics77,%20309.pdf)

Abstract: the aim of this study is to contribute to the debate on the relationship between scientific mobility and international collaboration. This case study deals with leading Chinese researchers in the field of plant molecular life sciences who returned to their home country. A correlation analysis of their mobility history, publication output, and international co-publication data, shows the relationship between scientific output, levels of international collaboration and various individual characteristics of returned researchers. The outcome of the analysis suggests that while host countries may loose human capital when Chinese scientists return home, the so-called “return brain drain”, they may also gain in terms of scientific linkages within this rapidly emerging and globalizing research field.

Keywords: Analysis, Brain, Brain-Drain, Case Study, Characteristics, Chinese, Collaboration, Correlation, Correlation Analysis, Country, Data, Field, Growth, History, Host, Human, International, Life, Life Sciences, Migration, Mobility, NOV, Outcome, Plant, Productivity, Publication, Research, Research Collaboration, Science, Sciences, Scientific Output, Scientific Productivity

? Qiu, J.P., Ma, R.M. and Cheng, N. (2008), New exploratory work of evaluating a researcher’s output. *Scientometrics*, **77** (2), 335-344.

Full Text: [2008\Scientometrics77, 335.pdf](2008/Scientometrics77,%20335.pdf)

Abstract: SCI has been popular all over the world since it was published by Garfield in 1963. Researches on evaluating a researcher’s output with SCI have always been continuous. In recent years, a great breakthrough has been made since the h-Index was put forward in 2005. In this paper, we also advance a new method - Paper Quality Index (PQI) to evaluate the output of a researcher. The main purpose of our method is to solve two problems that consist in the method of h-Index: one is that the h-Index can’t compare the outputs of researchers in different fields; the other is that it is unsuitable for evaluating the outputs of young researchers. A simple mathematical expression is constructed to eliminate the difference of citation among different fields and makes the evaluation of short-term outputs of researchers possible.

Keywords: Advance, Breakthrough, Citation, Constructed, Evaluation, Expression, h Index, h-Index, Index, NOV, Purpose, SCI, Work, World

? Vaněček, J. (2008), Bibliometric analysis of the Czech research publications from 1994 to 2005. *Scientometrics*, **77** (2), 345-360.

Full Text: [2008\Scientometrics77, 345.pdf](2008/Scientometrics77,%20345.pdf)

Abstract: We have compared bibliometric data of Czech research papers generated from 1994 to 2005 with papers from six other EU countries: Austria, Hungary, Poland, Finland, Ireland and Greece. The Czech Republic ranked the fifth in number of papers per thoUSAnd inhabitants and the sixth in number of citations/paper. Relatively the most cited were Czech papers from fields Engineering and Mathematics ranking the third, and Computer Science, Environment/Ecology and Molecular Biology ranking the fourth among 7 EU countries. Our analysis indicates that Czech research is lagging behind the leading EU countries, but its output is proportional to the R&D expenses.

Keywords: Analysis, Austria, Bibliometric, Bibliometric Analysis, Citation, Czech Republic, Data, EU, Europe, Fields, Finland, Greece, Hungary, Ireland, NOV, Papers, Publications, Ranking, Research, Science

? da Luz, M.P., Marques-Portella, C., Mendlowicz, M., Gleiser, S., Coutinho, E.S.F. and Figueira, I. (2008), Institutional h-Index: the performance of a new metric in the evaluation of Brazilian Psychiatric Post-graduation Programs. *Scientometrics*, **77** (2), 361-368.

Full Text: [2008\Scientometrics77, 361.pdf](2008/Scientometrics77,%20361.pdf)

Abstract: A fair assessment of merit is needed for better resource allocation in the scientific community. We analyzed the performance of the institutional h-Index in the case of Brazilian Psychiatry Post-graduation Programs. Traditional bibliometric indicators and the institutional h-Index similarly ranked the programs, except for the Average Impact Factor. The institutional h-Index correlated strongly with the majority of the traditional bibliometric indicators, which did not occur with the Average Impact Factor. The institutional h-Index balances “quantity” and “quality”, and can be used as part of a panel of bibliometric indicators to aid the peer-review process.

Keywords: Allocation, Assessment, Bibliometric, Bibliometric Indicators, Citation Indexes, Community, Decisions, Evaluation, h Index, h-Index, Impact Factor, Indicators, Journals, NOV, Peer Review, Peer-Review, Performance, Quality, Ranking, Resource Allocation, Scientific-Research Output, Work

? Glänzel, W. (2008), h-Index concatenation. *Scientometrics*, **77** (2), 369-372.

Full Text: [2008\Scientometrics77, 369.pdf](2008/Scientometrics77,%20369.pdf)

Abstract: A method for the calculation of a ‘concatenated’ h-Index of jointly ranked combined bibliographies is presented in the case when only size and h-Index of the original publication sets are known.

Keywords: Bibliographies, Calculation, h Index, h-Index, NOV, Publication, Size

? Zhivotovsky, L.A. and Krutovsky, K.V. (2008), Self-citation can inflate h-Index. *Scientometrics*, **77** (2), 373-375

Full Text: [2008\Scientometrics77, 373.pdf](2008/Scientometrics77,%20373.pdf)

Keywords: h Index, h-Index, NOV

? Egghe, L. (2008), Modelling successive h-indices. *Scientometrics*, **77** (3), 377-387.

Full Text: [2008\Scientometrics77, 377.pdf](2008/Scientometrics77,%20377.pdf)

Abstract: From a list of papers of an author, ranked in decreasing order of the number of citations to these papers one can calculate this author’s Hirsch Index (or h-Index). If this is done for a group of authors (e. g. from the same institute) then we can again list these authors in decreasing order of their h-indices and from this, one can calculate the h-Index of (part of) this institute. One can go even further by listing institutes in a country in decreasing order of their h-indices and calculate again the h-Index as described above. Such h-indices are called by SCHUBERT [2007] “successive” h-indices. In this paper we present a model for such successive h-indices based on our existing theory on the distribution of the h-Index in Lotkaian informetrics. We show that, each step, involves the multiplication of the exponent of the previous h-Index by 1/alpha where alpha > 1 is a Lotka exponent. We explain why, in general, successive h-indices are decreasing. We also introduce a global h-Index for which tables of individuals (authors, institutes,.) are merged. We calculate successive and global h-indices for the (still active) D. De Solla Price awardees.

Keywords: Authors, Citations, Country, Distribution, General, Group, h Index, h-Index, Hirsch, Hirsch Index, Index, Informetrics, Lotka, Lotkaian Informetrics, Model, Modelling, Papers, Theory

? Dastidar, P.G. and Ramachandran, S. (2008), Intellectual structure of Antarctic science: A 25-years analysis. *Scientometrics*, **77** (3), 389-414.

Full Text: [2008\Scientometrics77, 389.pdf](2008/Scientometrics77,%20389.pdf)

Abstract: To delineate the intellectual structure of Antarctic science, the research outputs on Antarctic science have been analyzed for a period of 25 years (1980-2004) through a set of scientometrics and network analysis techniques. The study is based on 10,942 records (research articles, letters, reviews, etc.), published in 961 journals/documents, and retrieved from the Science Citation Index (SCI) database. Over the years interest in Antarctic science has increased, as is evident from the growing number of ratified countries and research stations. During the period under study, the productivity has increased 3-times and there is a 13-fold increase in collaborative articles. Attempt has been made to identify important players like scientists, organizations and countries working in the field and to identify frontier areas of research that is being conducted in this continent. The highest 41% scientific output is contributed by the USA and the UK, followed by Australia and Germany. British Antarctic Survey (BAS), UK and Alfred Wegener Institute of Polar & Marine Research, Germany are the most productive institutes in Antarctic science. Maximum number of research articles on Antarctic science, have been published in the journal Polar Biology, indicating substantial work being done on the biology of this continent. The journals-Nature and Science are the highly-cited journals in Antarctic science. The paper written by J. C. Farman et al., published in Nature in 1985, reporting depletion of ozone layer, is the most-cited article. Semantic relationships between cited documents were measured through co-citation analysis. J. C. Farman and S. Solomon are co-cited most frequently.

Keywords: Analysis, Antarctic Science, Australia, Biology, British, Citation, Co-Citation, Co-Citation Analysis, Cocitation, Database, Field, Germany, Intellectual Structure, Journal, Journals, Network, Network Analysis, Networks, Ozone, Ozone Layer, Productivity, Records, Relationships, Reporting, Research, Reviews, SCI, Science, Science Citation Index, Scientific Output, Scientometrics, Structure, Techniques, UK, USA, Work

? Bornmann, L., Nast, I. and Daniel, H.D. (2008), Do editors and referees look for signs of scientific misconduct when reviewing manuscripts? A quantitative content analysis of studies that examined review criteria and reasons for accepting and rejecting manuscripts for publication. *Scientometrics*, **77** (3), 415-432.

Full Text: [2008\Scientometrics77, 415.pdf](2008/Scientometrics77,%20415.pdf)

Abstract: the case of Dr. Hwang Woo Suk, the South Korean stem-cell researcher, is arguably the highest profile case in the history of research misconduct. The discovery of Dr. Hwang’s fraud led to fierce criticism of the peer review process (at Science). To find answers to the question of why the journal peer review system did not detect scientific misconduct (falsification or fabrication of data) not only in the Hwang case but also in many other cases, an overview is needed of the criteria that editors and referees normally consider when reviewing a manuscript. Do they at all look for signs of scientific misconduct when reviewing a manuscript? We conducted a quantitative content analysis of 46 research studies that examined editors’ and referees’ criteria for the assessment of manuscripts and their grounds for accepting or rejecting manuscripts. The total of 572 criteria and reasons from the 46 studies could be assigned to nine main areas: (1) ‘relevance of contribution,’ (2) ‘writing/presentation,’ (3) ‘design/conception,’ (4) ‘method/statistics,’ (5) ‘discussion of results,’ (6) ‘reference to the literature and documentation,’ (7) ‘theory,’ (8) ‘author’s reputation/institutional affiliation,’ and (9) ‘ethics.’ None of the criteria or reasons that were assigned to the nine main areas refers to or is related to possible falsification or fabrication of data. In a second step, the study examined what main areas take on high and low significance for editors and referees in manuscript assessment. The main areas that are clearly related to the quality of the research underlying a manuscript emerged in the analysis frequently as important: ‘theory,’ ‘design/conception’ and ‘discussion of results.’.

Keywords: Affiliation, Analysis, Assessment, Content Analysis, Contribution, Criteria, Data, Discovery, Documentation, Ethics, History, Journal, Journals, Korean, Literature, Peer, Peer Review, Peer-Review, Process, Publication, Quality, Quality of, Referees, Reference, Relevance, Research, Review, Review Process, Scientific Misconduct, Significance, Stem Cell, Stem-Cells, Theory

? Vaughan, L. and You, J. (2008), Content assisted web co-link analysis for competitive intelligence. *Scientometrics*, **77** (3), 433-444.

Full Text: [2008\Scientometrics77, 433.pdf](2008/Scientometrics77,%20433.pdf)

Abstract: Building on a previous study that succeeded in mapping business competition positions at an industry level using Web co-link analysis, the current study attempted to improve Web co-link analysis by adding Web page content to obtain the mapping at a particular market segment level. This method combines the ideas of Web content mining with Web structure mining. The method was tested in the WiMAX sector of the telecommunication industry. Specifically, the keyword WiMAX was incorporated into queries that searched for co-links to pairs of company Websites. Two sets of data were collected: one with the proposed method and one with co-link search alone. The resulting two data matrices were analyzed using multidimensional scaling (MDS) to generate maps of business competition. The comparison between the two maps shows that the proposed method produced a map focusing on the WiMAX sector. The study also proposed the measure of reduction of co-link count that can be used to gauge the effectiveness of focusing the analysis on a particular sector. The reduction of co-link count could also be an easy and pragmatic measure for an analysis of a company’s competitiveness in a particular market segment.

Keywords: Analysis, Business, Comparison, Competition, Competitive, Data, Effectiveness, Intelligence, Mapping, Market, MDS, Measure, Mining, Multidimensional, Multidimensional Scaling, Reduction, Scaling, Sector, Structure, Web

? Yoo, S.H. and Moon, H.S. (2008), A note on approximation of distribution function for the number of innovation activities. *Scientometrics*, **77** (3), 445-452.

Full Text: [2008\Scientometrics77, 445.pdf](2008/Scientometrics77,%20445.pdf)

Abstract: This note attempts to approximate the distribution function for the number of innovation activities (NIA) in the manufacturing sector using the dataset of 2002 Korean Innovation Survey. The mixture model applied here can easily capture the bimodality feature of the NIA distribution and provide some useful information such as the mean of NIA and the effect of a firm’s characteristic on whether the firm will undertake innovation activity.

Keywords: Behavior, Distribution, Feature, Firms, Function, Information, Innovation, Korean, Manufacturing, Manufacturing-Industry, Model, Research-and-Development, Sector, Technological Innovation

Notes: FField

? Barrios, M., Borrego, A., Vilagines, A., Olle, C. and Somoza, M. (2008), A bibliometric study of psychological research on tourism. *Scientometrics*, **77** (3), 453-467.

Full Text: [2008\Scientometrics77, 453.pdf](2008/Scientometrics77,%20453.pdf)

Abstract: the psychology of tourism is a new, multidisciplinary research field. However, no systematic analyses of the scientific production in this field have been carried out to date. This study presents a bibliometric analysis of the area of psychology of tourism between 1990 and 2005. The evolution of scientific production during this period, Price’s, Lotka’s and Bradford’s laws and citation patterns were studied. The results show a significant growth in the literature on the subject, as well as an increase in coauthorship and institutional collaboration. Bibliometric laws and empiric regularities observed in other disciplines are also present in this new research field.

Keywords: Analyses, Analysis, Articles, Authored Papers, Bibliometric, Bibliometric Analysis, Bibliometric Study, Citation, Citation Patterns, Citedness, Coauthorship, Collaboration, Evolution, Field, Growth, Impact, Laws, Literature, Lotka Law, Multidisciplinary, Patterns, Production, Psychology, Quality, Research, Scientific Collaboration, Scientific Production, Social-Sciences, Tourism

? Villarroya, A., Barrios, M., Borrego, A. and Frias, A. (2008), PhD theses in Spain: A gender study covering the years 1990-2004. *Scientometrics*, **77** (3), 469-483.

Full Text: [2008\Scientometrics77, 469.pdf](2008/Scientometrics77,%20469.pdf)

Abstract: In this study we analyse gender equality in the preparation, supervision and defence of PhD theses in Spain in the period 1990-2004. The results indicate a tendency towards greater equality in the number of men and women successfully completing doctoral studies. However, the gender imbalance among thesis supervisors and on thesis assessment boards is more apparent, with a predominance of male academics. Moreover, the gender of the PhD student is clearly related to the gender of the supervisor, and both are related to the gender of the members of the assessment boards of PhD theses in Spain.

Keywords: Assessment, Careers, Equality, Gender, Impact, Male, Matter, Men, Preparation, Productivity, Science, Social Origin, Spain, Student, Students, Supervision, Universalism, University, Women, Women Scientists

? Jarneving, B. (2008), A variation of the calculation of the first author cocitation strength in author cocitation analysis. *Scientometrics*, **77** (3), 485-504.

Full Text: [2008\Scientometrics77, 485.pdf](2008/Scientometrics77,%20485.pdf)

Abstract: the method of author cocitation analysis (ACA) was first presented by White and Griffith in 1981 as a “literature measure of intellectual structure” and its applicability for the mapping of areas of science has since then been tested in various bibliometric science mapping studies. In this study, an experimental method of calculating the first or single author cocitation frequency is presented and compared with the standard method. Applying Ward’s method of clustering, the analysis revealed that the two approaches did not produce similar results and a tentative interpretation of deviations was that the experimental method provided with a more detailed depiction of the specialty structure. It was also concluded that a number of additional research questions need to be resolved before a comprehensive understanding of the suggested method’s merits and demerits is reached.

Keywords: Analysis, Author Cocitation Analysis, Bibliometric, Calculation, Clustering, Cocitation, Experimental, First, Intellectual Structure, Mapping, Measure, Research, Retrieval, Science, Science Mapping, Specialty, Standard, Strength, Structure, Understanding, White

? Vanclay, J.K. (2009), Bias in the journal impact factor. *Scientometrics*, **78** (1), 3-12.

Full Text: [2009\Scientometrics78, 3.pdf](2009/Scientometrics78,%203.pdf)

Abstract: the ISI journal impact factor (JIF) is based on a sample that may represent half the whole-of-life citations to some journals, but a small fraction (<10%) of the citations accruing to other journals. This disproportionate sampling means that the JIF provides a misleading indication of the true impact of journals, biased in favour of journals that have a rapid rather than a prolonged impact. Many journals exhibit a consistent pattern of citation accrual from year to year, so it may be possible to adjust the JIF to provide a more reliable indication of a journal’s impact.

Keywords: Citation, Citations, Impact, Impact Factor, Indication, ISI, Journal, Journal Impact, Journal Impact Factor, Journals, Pattern, Prolonged, Sampling, Small, System

? Buranathiti, T., Premkamolnetr, N., Markpin, T., Ratchatahirun, P., Yochai, W. and Sombatsompop, N. (2009), Redistributed random sampling method for categorizing materials research publications from SCI database: Metallurgy and polymer subfields. *Scientometrics*, **78** (1), 13-21.

Full Text: [2009\Scientometrics78, 13.pdf](2009/Scientometrics78,%2013.pdf)

Abstract: This article introduced two sampling methods, including Directly Random Sampling (DRS) and Redistributed Random Sampling (RRS) methods for categorization of a large number of research articles retrieved from metallurgy and polymer subfields from the Science Citation Index (SCI) database. The accuracy of the proposed sampling methods was considered in association by comparing with reference results previously obtained by Fully Retrieving Sampling (FRS) method, which involved analyzing the contents and categories of all articles from the database. The results suggested that RRS and DRS methods were appropriate, efficient and reasonably accurate for categorization of relatively large volume of research articles. RRS method was highly recommended, especially when the contents of sample articles was unevenly distributed. By DRS and RRS methods, only about 6.3% of total articles were required for obtaining similar results as those given by FRS method. The percentage Expected Worst Errors (EWE) from DRS and RRS methods were observed to range from 1.0 to 5.5%. The EWE value could be reduced by increasing the sample size.

Keywords: Accuracy, Association, Citation, Database, Distributed, Drs, Ewe, Methods, Polymer, Publications, Reference, Research, Research Publications, Sample Size, Sampling, Sampling Methods, SCI, Science, Science Citation Index, Size, Value, Volume

? Leydesdorff, L. and Wagner, C. (2009), Is the United States losing ground in science? A global perspective on the world science system. *Scientometrics*, **78** (1), 23-36.

Full Text: [2009\Scientometrics78, 23.pdf](2009/Scientometrics78,%2023.pdf)

Abstract: Based on the Science Citation Index-Expanded web-version, the USA is still by far the strongest nation in terms of scientific performance. Its relative decline in percentage share of publications is largely due to the emergence of China and other Asian nations. In 2006, China has become the second largest nation in terms of the number of publications within this database. In terms of citations, the competitive advantage of the American “domestic market” is diminished, while the European Union (EU) is profiting more from the enlargement of the database over time than the USA. However, the USA is still outperforming all other countries in terms of highly cited papers and citation/publication ratios, and it is more successful than the EU in coordinating its research efforts in strategic priority areas like nanotechnology. In this field, the People’s Republic of China (PRC) has become second largest nation in both numbers of papers published and citations behind the USA.

Keywords: American, Asian, Bibliometric Assessment, Centrality, China, Citation, Citations, Competitive, Database, Delineation, Emergence, Enlargement, EU, European Union, Field, Indicators, Nanoscience, Nanotechnology, Nations, Papers, People’s Republic of China, Performance, Publications, Research, Science, Scientific Performance, Strategic, Technology, Terms, UK Scientific Performance, United States, USA, World

? Inzelt, A., Schubert, A. and Schubertc, M. (2009), Incremental citation impact due to international co-authorship in Hungarian higher education institutions. *Scientometrics*, **78** (1), 37-43.

Full Text: [2009\Scientometrics78, 37.pdf](2009/Scientometrics78,%2037.pdf)

Abstract: International co-authorship is generally thought and often found to have positive effects on the citation rate of scientific publications. We study the effect quantitatively in the example of four major and four medium Hungarian universities. The conclusions may be generalized to other countries of similar international status.

Keywords: Articles, Bibliometric Analysis, Citation, Co-Authorship, Coauthorship, Collaboration, Education, Effects, Higher Education, Impact, Institutions, International, Molecular-Biology, Publications, Scientific Cooperation, Scientific Publications, Status, Universities

? Levitt, J.M. and Thelwall, M. (2009), The most highly cited Library and Information Science articles: Interdisciplinarity, first authors and citation patterns. *Scientometrics*, **78** (1), 45-67.

Full Text: [2009\Scientometrics78, 45.pdf](2009/Scientometrics78,%2045.pdf)

Abstract: Highly cited articles are interesting because of the potential association between high citation counts and high quality research. This study investigates the 82 most highly cited Information Science and Library Science’ (IS&LS) articles (the top 0.1%) in the Web of Science from the perspectives of disciplinarity, annual citation patterns, and first author citation profiles. First, the relative frequency of these 82 articles was much lower for articles solely in IS&LS than for those in IS&LS and at least one other subject, suggesting that that the promotion of interdisciplinary research in IS&LS may be conducive to improving research quality. Second, two thirds of the first authors had an h-Index in IS&LS of less than eight, show that much significant research is produced by researchers without a high overall IS&LS research productivity. Third, there is a moderate correlation (0.46) between citation ranking and the number of years between peak year and year of publication. This indicates that high quality ideas and methods in IS&LS often are deployed many years after being published.

Keywords: Association, Authors, Citation, Citation Counts, Citation Patterns, Correlation, First, h Index, h-Index, Interdisciplinary, Interdisciplinary Research, Methods, Potential, Productivity, Profiles, Promotion, Publication, Quality, Ranking, Research, Research Productivity, Research Quality, Researchers, Sleeping Beauties, Web of Science

? Sternitzke, C. (2009), Technological specialization and patenting strategies in East Asia - Insights from the electronics industry. *Scientometrics*, **78** (1), 69-76.

Full Text: [2009\Scientometrics78, 69.pdf](2009/Scientometrics78,%2069.pdf)

Abstract: We elicit filing strategies for patent families in China and Japan in two prominent technology fields: telecommunications and audiovisual technology. for the two destination countries we find substantial heterogeneity in filing strategies among applications from different countries. This heterogeneity cannot be explained with activities in technological subfields.

Keywords: Asia, China, East Asia, Families, Heterogeneity, Japan, Patent, Technology

? Prakasan, E.R., Kalyane, V.L. and Kumar, V. (2009), Sustained impact of publications of CV Raman. *Scientometrics*, **78** (1), 77-97.

Full Text: [2009\Scientometrics78, 77.pdf](2009/Scientometrics78,%2077.pdf)

Abstract: C.V. Raman is being acknowledged by worldwide physics community for his classic works. The present study has made an effort to analyze how much impact in number of citation receiving for his publications. of course, there was a lack of tools for such a study some years back. The study has limited to the database Science Citation Index for the period 1982-2005. The noteworthy results are: One third of his research papers have been cited at least once; the research papers published during 1918-1940 could make remarkable impact; Three of his papers have shown an upward growth in number of citations receiving; the total citations to papers of age 46 and 54 as on the year 1982 accounted for more than 50 per cent of the total citations received; Research works in the ‘Acoustics’ area have been cited more than any other area of his works; Eponymal citations are to be explored and analysed to understand the real impact of his works.

Keywords: Age, Citation, Citations, Community, Course, CV, Database, Growth, Impact, Papers, Publications, Raman, Research, Science Citation Index

? Szydlowski, M. and Krawiec, A. (2009), Growth cycles of knowledge. *Scientometrics*, **78** (1), 99-111.

Full Text: [2009\Scientometrics78, 99.pdf](2009/Scientometrics78,%2099.pdf)

Abstract: We have developed a way of describing the increase with time of the number of papers in a scientific field and apply it to a data base of about 2000 papers on symbolic logic published between 1666 and 1934. We find (a) a general exponential increase in the cumulative total number of papers, (b) oscillations around this due to the appearance of new ideas in the field and the time required for their full incorporation, and (c) exogenously caused fluctuations due to wars and other non-scientific events.

Keywords: Cumulative, Cycles, Data, Data Base, Events, Field, General, Growth, Incorporation, Knowledge, Logic, Mathematical Approach, Model, Papers, Science

? Sternitzke, C. and Bergmann, I. (2009), Similarity measures for document mapping: A comparative study on the level of an individual scientist. *Scientometrics*, **78** (1), 113-130.

Full Text: [2009\Scientometrics78, 113.pdf](2009/Scientometrics78,%20113.pdf)

Abstract: This paper investigates the utility of the Inclusion Index, the Jaccard Index and the Cosine Index for calculating similarities of documents, as used for mapping science and technology. It is shown that, provided that the same content is searched across various documents, the Inclusion Index generally delivers more exact results, in particular when computing the degree of similarity based on citation data. In addition, various methodologies such as co-word analysis, Subject-Action-Object (SAO) structures, bibliographic coupling, co-citation analysis, and self-citation links are compared. We find that the two former ones tend to describe rather semantic similarities that differ from knowledge flows as expressed by the citation-based methodologies.

Keywords: Algorithm, Analysis, Bibliographic Coupling, Citation, Co-Citation, Co-Citation Analysis, Co-Word Analysis, Cocitation, Comparative Study, Data, Knowledge, Mapping, Methodologies, Science, Science and Technology, Self-Citation, Similarity, Technology, Utility

? Pouris, A. (2009), Fluorine research in South Africa and four benchmarking countries: Comparative mapping and assessment. *Scientometrics*, **78** (1), 131-143.

Full Text: [2009\Scientometrics78, 131.pdf](2009/Scientometrics78,%20131.pdf)

Abstract: Fluorine research has been identified as a priority area in South Africa and the South African Nuclear Energy Corporation (NECSA) is embarking in an effort to expand its hydrogen fluoride and aluminium trifluoride production capacity. On the eve of those efforts this article reports the findings of an effort to map and assess fluorine research in South Africa in comparison to four other countries i.e. Malaysia, Australia, Germany and Italy. The results of the assessment are aimed at guiding future directions for fluorine research in the country, at identifying centres of expertise nationally where new research chairs could be established, at identifying international centres of expertise to be utilised for collaboration and of course for inter-temporal benchmarking of fluorine research in South Africa. South Africa is identified to be producing a small number of fluorine research publications in comparison to other countries like Germany and Italy which produce orders of magnitude larger number of publications and in comparison to country’s total research effort. Furthermore the relevant research effort appears to be dispersed geographically and in disciplinary terms. Relevant recommendations are provided with particular emphasis on the pluralistic science policy approach followed in the country.

Keywords: Africa, African, Aluminium, Approach, Assessment, Australia, Benchmarking, Capacity, Chemistry, Collaboration, Comparison, Country, Course, Fluoride, Fluorine, Germany, Hydrogen, International, Italy, Malaysia, Mapping, Policy, Production, Publications, Recommendations, Research, Research Publications, Science, Science Policy, Small, South Africa

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Full Text: [2009\Scientometrics78, 145.pdf](2009/Scientometrics78,%20145.pdf)

Abstract: Increasingly, funding of academic research is carried out through the support of collaboration, rather than through single awards to a sole grant holder. The practice is well supported by evidence that larger, network-based research achieves high quality while leading to a number of capacity building benefits for the research system, although with significant transaction costs. However, the question of what kind of funding schemes should be made available to researchers is not a simple dichotomy between single grant-holder projects and networks. A key question is how to achieve a balance in each subject field between different forms of funding instrument employed while ensuring different forms of funding retain a reputation for generating research of high scientific quality. This paper reports the results of a systematic comparison of the scientific quality of 1010 scientific papers from the ISI database produced under two contrasting forms of funding instrument for a single year in the Austrian science system. Comparison of the arcsinh transformed citation counts of papers from the two main forms of funding for basic science at the level of main scientific field shows there is no statistically significant difference in the quality achieved by the two forms of funding. This may suggest that funders and research performers have succeeded in ensuring that different research instruments nevertheless achieve very similar levels of scientific excellence.

Keywords: Academic, Benefits, Building, Capacity, Capacity Building, Citation, Citation Counts, Collaboration, Comparison, Costs, Cross-Disciplinary, Database, Evidence, Field, Forms, Funding, Impact, International Collaboration, ISI, ISI Database, Networks, Papers, Practice, Quality, Quality of, Research, Research Productivity, Science, Support, Transaction Costs, Transformation

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Full Text: [2009\Scientometrics78, 165.pdf](2009/Scientometrics78,%20165.pdf)

Abstract: A common problem in comparative bibliometric studies at the meso and micro level is the differentiation and specialisation of research profiles of the objects of analysis at lower levels of aggregation. Already the institutional level requires the application of more sophisticated techniques than customary in evaluation of national research performance. In this study institutional profile clusters are used to examine which level of the hierarchical subject-classification should preferably be used to build subject-normalised citation indicators. It is shown that a set of properly normalised indicators can serve as a basis of comparative assessment within and even among different clusters, provided that their profiles still overlap and such comparison is thus meaningful. On the basis of 24 selected European universities, a new version of relational charts is presented for the comparative assessment of citation impact.

Keywords: Aggregation, Analysis, Application, Assessment, Bibliometric, Bibliometric Indicators, Bibliometric Studies, Citation, Citation Impact, Classification, Comparison, Distributions, Evaluation, Generation, Impact, Indicators, Journals, National, Performance, Profiles, Reliability, Research, Research Performance, Science Fields, Scientific Publications, Techniques, Universities, Version

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Full Text: [2009\Scientometrics78, 189.pdf](2009/Scientometrics78,%20189.pdf)

Abstract: One way to achieve international patent protection is to file patents via the Patent Cooperation Treaty (PCT). The application process therein can be divided into two phases, those represented by chapters I and II of the PCT. According to the literature, patent applications filed via chapter II of the Treaty tend to be more valuable. The results presented in this paper suggest that in general this assumption is not justified. The analyses further revealed that for practitioners seeking fast patent protection at the European Patent Office (EPO) via the PCT, the choice should be chapter II of the PCT, with the EPO as preliminary examination authority.

Keywords: Analyses, Application, Choice, Examination, General, Grants, Indicators, International, Literature, Opposition, Patent, Patents, Process, Protection, Value

Notes: CCountry

? Bouabid, H. and Martin, B.R. (2009), Evaluation of Moroccan research using a bibliometric-based approach: Investigation of the validity of the h-Index. *Scientometrics*, **78** (2), 203-217.

Full Text: [2009\Scientometrics78, 203.pdf](2009/Scientometrics78,%20203.pdf)

Abstract: This paper presents the results of an evaluation of the national research system in Morocco. The exercise focuses on the period 1997-2006 and includes a comparison with South Africa, Egypt, Nigeria, Tunisia, Algeria, Portugal and Greece. Ratings of highly ranked researchers are developed on the basis of their number of publications, number of citations and also their ‘h-Index’ (or Hirsch Index). Finally, we examine the empirical model set by Glänzel that related the h-Index to the number of publications and the mean citation rate per paper for these ‘upper-class’ researchers. The use of this model confirms that the h-Index is likely to reflect the importance and the quality of the scientific output of a given researcher.

Keywords: Africa, Algeria, Approach, Citation, Citations, Comparison, Egypt, Evaluation, Exercise, Greece, h Index, h-Index, Hirsch, Hirsch Index, Hirsch-Index, Index, Indicators, Investigation, Model, Morocco, National, Nigeria, Portugal, Publications, Quality, Quality Of, Research, Scientific Output, South Africa, Validity

? Neuhaus, C. and Daniel, H.D. (2009), A new reference standard for citation analysis in chemistry and related fields based on the sections of Chemical Abstracts. *Scientometrics*, **78** (2), 219-229.

Full Text: [2009\Scientometrics78, 189.pdf](2009/Scientometrics78,%20189.pdf)

Abstract: Citation analysis for evaluative purposes requires reference standards, as publication activity and citation habits differ considerably among fields. Reference standards based on journal classification schemes are fraught with problems in the case of multidisciplinary and general journals and are limited with respect to their resolution of fields. To overcome these shortcomings of journal classification schemes, we propose a new reference standard for chemistry and related fields that is based on the sections of the Chemical Abstracts database. We determined the values of the reference standard for research articles published in 2000 in the biochemistry sections of Chemical Abstracts as an example. The results show that citation habits vary extensively not only between fields but also within fields. Overall, the sections of Chemical Abstracts seem to be a promising basis for reference standards in chemistry and related fields for four reasons: (1) the wider coverage of the pertinent literature, (2) the quality of indexing, (3) the assignment of papers published in multidisciplinary and general journals to their respective fields, and (4) the resolution of fields on a lower level (e.g. mammalian biochemistry) than in journal classification schemes (e.g. biochemistry & molecular biology).

Keywords: Analysis, Biochemistry, Biology, Chemistry, Citation, Citation Analysis, Classification, Coverage, Database, General, Habits, Indexing, Indicators, Journal, Journals, Literature, Molecular, Molecular Biology, Multidisciplinary, Normalization, Online Databases, Output, Papers, Publication, Publication Activity, Quality, Quality of, Reference, Reference Standards, Research, Searches, Standard, Standards, Values

? Long, R., Crawford, A., White, M. and Davis, K. (2009), Determinants of faculty research productivity in information systems: An empirical analysis of the impact of academic origin and academic affiliation. *Scientometrics*, **78** (2), 231-260.

Full Text: [2009\Scientometrics78, 231.pdf](2009/Scientometrics78,%20231.pdf)

Abstract: This manuscript provides guidance to Deans and other academic decision makers in the hiring process and dispels the validity of a widely held assumption commonly used as a decision factor in the selection process. This paper investigates: (a) whether graduates of prestigious information systems (IS) doctoral programs (graduates with high-status academic origins) are more likely to be successful in their academic careers (as measured by research productivity) than graduates of less prestigious programs, (b) whether IS faculty who are employed by esteemed universities (faculty with high-status academic affiliations) are more productive researchers than IS faculty employed by lower-status institutions, and (c) examines faculty productivity in terms of Lotka’s Law [Lotka, 1926]. The findings indicate that in the IS field, productivity does not follow a Lotka distribution. Moreover, our study also shows that academic affiliation is a significant determinant of research productivity in terms of quantity (as measured by publication counts) and quality (as measured by citation counts). Contrary to common expectations, however, the analysis shows that the status of a faculty member’s academic origin is not a significant determinant of research productivity in the field of information systems. Therefore, continued reliance on academic pedigree as a primary criterion for hiring decisions may not be justified in the IS discipline.

Keywords: Academic, Affiliation, Analysis, Business Schools, Careers, Citation, Citation Analysis, Citation Counts, Decision, Distribution, Faculty, Field, Global Perceptions, Guidance, Hiring, Impact, Information, Information Systems, Institutions, Is, Leading Journals, Lotka, Management, Mis Research, Origin, Primary, Process, Productivity, Publication, Publication Counts, Publication Productivity, Quality, Research, Research Performance, Research Productivity, Scientific Productivity, Selection, Status, Systems, Theoretical Population-Genetics, Universities, Validity

? Kao, C. and Pao, H.L. (2009), An evaluation of research performance in management of 168 Taiwan universities. *Scientometrics*, **78** (2), 261-277.

Full Text: [2009\Scientometrics78, 261.pdf](2009/Scientometrics78,%20261.pdf)

Abstract: As the major concerns of the university are teaching and research, this paper describes the study of a nation-wide evaluation of research performance in management for 168 universities in Taiwan. In addition to the popular indicators of SCI/SSCI journal publications and citations, the number of projects funded by the National Science Council of Taiwan was used to account for the special characteristic of the field of management. The evaluation was based on individual professors rather than management programs, so that all types of universities, including those without management departments, could be compared. Performances of each university in those three indicators were aggregated by a set of a posteriori weights which were most favourable to all universities in calculating the aggregated score. The results show that public universities, in general, performed better than private ones. Universities with specific missions had comparable performance to general comprehensive ones. Analyses from a set of a priori weights solicited from experts showed that the results of this study are robust to the indicators selected and the weights used.

Keywords: Citations, Data Envelopment Analysis, Departments, Efficiency, Evaluation, Experts, Field, General, Indicators, Journal, Journal Evaluation, Libraries, Management, Performance, Public, Publications, Research, Research Performance, Taiwan, Teaching, Universities, University, Weights

? Tsay, M.Y. (2009), An analysis and comparison of scientometric data between journals of physics, chemistry and engineering. *Scientometrics*, **78** (2), 279-293.

Full Text: [2009\Scientometrics78, 279.pdf](2009/Scientometrics78,%20279.pdf)

Abstract: By employing the Pearson correlation, Fisher-and t-tests, the present study analyzes and compares scientometric data including number of source items, number of citations, impact factor, immediacy index, citing half-life and cited half-life, for essential journals in physics, chemistry and engineering, from SCI JCR on the Web 2002. The results of the study reveal that for all the scientometric indicators, except the cited half-life, there is no significant mean difference between physics and chemistry subjects indicating similar citation behavior among the scientists. There is no significant mean difference in the citing half-life among the three subjects. Significant mean difference is generally observed for most of the scientometric indicators between engineering and physics (or chemistry) demonstrating the difference in citation behavior among engineering researchers and scientists in physics or chemistry. Significant correlations among number of source items, number of citations, impact factor, and immediacy index and between cited half-life and citing half-life generally prevail for each of the three subjects. On the contrary, in general, there is no significant correlation between the cited half-life and other scientometric indicators. The three subjects present the same strength of the correlations between number of source items and number of citations, between number of citations and impact factor, and between cited half-life and citing half-life.

Keywords: Analysis, Behavior, Chemistry, Citation, Citations, Cited Half-Life, Comparison, Correlation, Correlations, Data, Engineering, General, Half-Life, Immediacy Index, Impact, Impact Factor, Index, Indicators, Journals, SCI, Scientometric, Source, Strength

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Full Text: [2009\Scientometrics78, 295.pdf](2009/Scientometrics78,%20295.pdf)

Abstract: the paper reviews the present status of Indian physics research, in particular its nature of research system, nature of institutions involved, type of education offered and outturn at postgraduate and Ph.D level, the extent to which extra-mural funding support is available from various governmental R&D agencies, and the nature of professional organizations involved. The study is based on analysis of Indian physics output, as indexed in Expanded Science Citation Index (Web of Science) during 1993-2001. The study also discusses various features of Indian physics research such as its growth in terms of research papers, institutional publication productivity, nature of collaboration, and the quality and impact of its research output.

Keywords: Analysis, China, Citation, Citation Patterns, Collaboration, Education, Funding, Growth, Impact, India, Indian, Institutions, Laser Research, Macro, Papers, Productivity, Publication, Quality, Research, Reviews, Science, Science Citation Index, Scientometrics, Status, Support, Technology, Type of Education, Web of Science

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Full Text: [2009\Scientometrics78, 317.pdf](2009/Scientometrics78,%20317.pdf)

Abstract: In restructuring environmental research organisations, smaller sites generally disappear and larger sites are created. These decisions are based on the economic principle, ‘economies of scale’, whereby the average cost of each unit produced falls as output increases. We show that this principle does not apply to the scientific performance of environmental research institutes, as productivity per scientist decreased with increasing size of a research site. The results are best explained by the principle ‘diseconomies of scale’, whereby powerful social factors limit the productivity of larger groupings. These findings should be considered when restructuring environmental science organisations to maximise their quality.

Keywords: Cost, Economic, Economics, Environmental, Environmental Research, Environmental Science, Law, Performance, Planned Behavior, Productivity, Quality, Reasoned Action, Research, Scale, Science, Scientific Performance, Site, Size, Social, Social Factors

? Gossart, C. and Ozman, M. (2009), Co-authorship networks in social sciences: the case of Turkey. *Scientometrics*, **78** (2), 323-345.

Full Text: [2009\Scientometrics78, 323.pdf](2009/Scientometrics78,%20323.pdf)

Abstract: We analyse the co-authorship networks of researchers affiliated at universities in Turkey by using two databases: the international SSCI database and the Turkish ULAKBIM database. We find that co-authorship networks are composed largely of isolated groups and there is little intersection between the two databases, permitting little knowledge diffusion. There seems to be two disparate populations of researchers. While some scholars publish mostly in the international journals, others target the national audience, and there is very little intersection between the two populations. The same observation is valid for universities, among which there is very little collaboration. Our results point out that while Turkish social sciences and humanities publications have been growing impressively in the last decade, domestic networks to ensure the dissemination of knowledge and of research output are very weak and should be supported by domestic policies.

Keywords: Co-Authorship, Co-Authorship Networks, Coauthorship, Collaboration, Cooperation, Database, Databases, Diffusion, Humanities, International, Journals, Knowledge, Knowledge Diffusion, Localization, National, Networks, Observation, Patterns, Policies, Populations, Profiles, Publications, Research, Research Collaboration, Sciences, Self-Organization, Social, Social Sciences, SSCI, Turkey, Turkish, Universities

? Jasienski, M. (2009), Garfield’s demon and “surprising” or “unexpected” results in science. *Scientometrics*, **78** (2), 347-353.

Full Text: [2009\Scientometrics78, 189.pdf](2009/Scientometrics78,%20189.pdf)

Abstract: the relative occurrence of the words “surprising” and “unexpected” in the titles of scientific papers was 11 times more common in 2001-2005 than in 1900-1955. However, papers which had titles containing one of these words did not receive enhanced numbers of citations. Both words (and also adjectives “unusual” and “unfortunately”) are used significantly more frequently in science than in social sciences and humanities. The distribution of the statements of surprise is not random in scientific literature (chemistry journals ranked highest in the number of papers claiming “surprising” or “unexpected” results) and may reflect the level of maturity of a discipline.

Keywords: Challenge, Chemistry, Citations, Discovery, Distribution, Humanities, Index, Journals, Literature, Media, Papers, Science, Sciences, Scientific Literature, Social, Social Sciences

? Glänzel, W. (2009), The multi-dimensionality of journal impact. *Scientometrics*, **78** (2), 355-374.

Full Text: [2009\Scientometrics78, 355.pdf](2009/Scientometrics78,%20355.pdf)

Abstract: In recent studies the issue of the relatedness between journal impact factors and other measures of journal impact have been raised and discussed from both merely empirical and theoretical perspectives. Models of the underlying citation processes suggest distributions with two or more free parameters. Proceeding from the relation between the journals’ mean citation rate and uncitedness and the assumption of an underlying Generalised Waring Distribution (GWD) model, it is found that the journal impact factor alone does not sufficiently describe a journal’s citation impact, while a two-parameter solution appropriately reflects its main characteristics. for the analysis of highly cited publications an additional model derived from the same GWD is suggested. This approach results in robust, comprehensible and interpretable solutions that can readily be applied in evaluative bibliometrics.

Keywords: Analysis, Approach, Bibliometrics, Characteristics, Citation, Citation Impact, Generalized Waring Distribution, Impact, Impact Factor, Impact Factors, Index, Journal, Journal Impact, Journal Impact Factor, Journal Impact Factors, Journals, Model, Models, Publications, Scientific Literature, Skew Distributions, Solution, Solutions, Stochastic-Model, Uncitedness

? Schubert, A., Korn, A. and Telcs, A. (2009), Hirsch-type indices for characterizing networks. *Scientometrics*, **78** (2), 375-382.

Full Text: [2009\Scientometrics78, 375.pdf](2009/Scientometrics78,%20375.pdf)

Abstract: Hirsch-type indices are devised for characterizing networks and network elements. Their actual use is demonstrated on scientometric examples, and the potential value of the concept on a practically unlimited range of networks is suggested.

Keywords: h-Index, Indices, Journals, Network, Networks, Potential, Scientometric, Value

? Valles-Valenzuela, J., Perez-Carceles, M.D., Osuna, E. and Luna, A. (2009), Quantitative analysis of Spanish university scientific output in the area of Legal and Forensic Medicine: International exposure. *Scientometrics*, **78** (3), 383-395.

Full Text: [2009\Scientometrics78, 383.pdf](2009/Scientometrics78,%20383.pdf)

Abstract: We set out to analyse and quantify the papers published (for an international readership) by Spanish universities in the field of Legal and Forensic Medicine. for this, we used the MEDLINE data base, to analyse research articles in which a Spanish university teacher (whose sole employment was with a university, as registered by the Ministry of Education in July 2005, (n = 67), appeared as author or co-author in this field. The years covered are 1952 (First year that a Spanish author appears for an article on Legal and Forensic Medicine in this service) to July 2005. A total of 770 articles were counted; the productivity in this area was increasing substantially from the 1980’s onwards. English language scientific journals were the preferred channel of communication. Slightly more than 85% of the works can be classified into four themes, of which Genetics is the most prolific. The number of papers published in English journals represented 84% of the total and only 13% was published in Spanish journals. There was a close relationship between growth in the authority index and inter-institutional co-operation, which boosted the production of articles. When at least one of the authorship of a published paper was a Spanish university teacher, the research was led by a university in 62.4% of cases, and of this 85.6% were Spanish universities.

Keywords: Analysis, Authority, Authors, Authorship, Co-Author, Communication, Cooperation, Data, Data Base, Employment, Exposure, Field, Growth, Index, International, Journals, Language, Mar, MEDLINE, Papers, Production, Productivity, Research, Scientific Journals, Scientific Output, Service, Spain, Spanish, Spanish Journals, Universities, University

? Kao, C. (2009), The authorship and country spread of Operation Research journals. *Scientometrics*, **78** (3), 397-407.

Full Text: [2009\Scientometrics78, 397.pdf](2009/Scientometrics78,%20397.pdf)

Abstract: This paper surveys 56 internationally renowned OR journals published in 1996-2005 with regard to authorship. Our findings show that the USA was the country that contributed the largest amount, approximately one-third, of research results to OR journals. Authors tend to publish papers in their home-country journals. Journal of the Operations Research Society of Japan has the highest author concentration, with more than 85% of the authors from Japan and European Journal of Operational Research, on the contrary, has the widest country spread of its authors. The entropy measure provides a whole picture of the share of all countries, based on which the editorial policy of a journal can be adjusted.

Keywords: Authors, Authorship, Citation Patterns, Concentration, Country, Entropy, Flagship Journals, Japan, Journal, Journals, Mar, Measure, OR, MS, Papers, Policy, Research, Research Results, Surveys, USA

? Johnston, R. (2009), The extent of influence: An alternative approach to identifying dominant contributors to a discipline’s literature. *Scientometrics*, **78** (3), 409-420.

Full Text: [2009\Scientometrics78, 409.pdf](2009/Scientometrics78,%20409.pdf)

Abstract: Most studies of scholarly influence within disciplines using citation data do not investigate the extent of an individual’s influence; does it extend over a number of years with a sequence of publications or is it confined to a short period and a small number of publications? Using bibliographic data from a series of quadrennial reports into developments in UK geography, this paper finds that few authors are cited on more than one occasion.

Keywords: Alternative, Approach, Authors, Citation, Data, Influence, International Geographical Congress, Literature, Mar, Publications, Small, UK, United-Kingdom

? Yang, H. (2009), The top 40 citation classics in the Journal of the American Society for Information Science and Technology. *Scientometrics*, **78** (3), 421-426.

Full Text: [2009\Scientometrics78, 421.pdf](2009/Scientometrics78,%20421.pdf)

Abstract: This study used citation analysis method to identify the 40 classics published in the Journal of the American Society for Information Science and Technology from 1956 to 2007. Yhe year and subject distributions of these classic references reflect the history and the current status of information science.

Keywords: American, Analysis, Citation, Citation Analysis, Citation Classics, History, Information, Information Science, Jasis, MAR, References, Science, Status

Notes: CCountry

? Zimmerman, E., Glänzel, W. and Bar-Ilan, J. (2009), Scholarly collaboration between Europe and Israel: A scientometric examination of a changing landscape. *Scientometrics*, **78** (3), 427-446.

Full Text: [2009\Scientometrics78, 427.pdf](2009/Scientometrics78,%20427.pdf)

Abstract: In this paper we examine various aspects of the scientific collaboration between Europe and Israel, and show that the traditional collaboration patterns of Israel (preference towards collaboration with the US) is changing, and the collaboration with the EU countries is growing.

Keywords: Co-Authorship, Collaboration, EU, Europe, Examination, Indicators, Israel, Landscape, MAR, Preference, Science Fields, Scientific Collaboration, Scientometric, US

? Amat, C.B. and Yegros, A. (2009), Median age difference of references as indicator of information update of research groups: A case study in Spanish food research. *Scientometrics*, **78** (3), 447-465.

Full Text: [2009\Scientometrics78, 447.pdf](2009/Scientometrics78,%20447.pdf)

Abstract: Median age difference (D) is obtained by subtracting median value of the age distribution of references of a scientific paper from citing half life of the journal that published it. Such an indicator can be related to the state of knowledge of research groups and can show some interesting properties: 1) it must be related with the incorporation of information pieces in an informal way, say the rate of self-citations; 2) it must follow the natural tendency of the groups towards a progressively updated state of knowledge, and 3) more productive groups will tend to use more recent information. These natural hypotheses have been investigated using a medium sized Spanish institution devoted to Food Research as a case study. Scientific output comprised 439 papers published in SCI journals between 1999 and 2004 by 16 research teams. Their 14,617 references were analyzed. Variables studied were number of published papers by every team, number of authors per paper, number of references per paper, type of documents cited, self citation rate and chronological range of reference lists. Number of authors per paper ranged between 1 and 15. The most frequent value (N = 128) was 3 authors. Average number of authors per paper is 4.03 (SD = 1.74). Mean number of references per paper (including review papers) is 33.3 (SD= 17.39) with slight differences between the groups. Mean self-citation rate was 13.72 % (SD = 11.7). The greatest chronological range was 119 years; half of all ranges was 30 years and the general mean for this variable was 33.34 years (SD = 16.34). D values were associated with self-citation rate and a negative relationship between D and chronological range of references was also found. Nevertheless, correlation figures were too small to reach sound conclusions about the effect of these variables. Number of references per paper, number of contributing authors and number of papers published by each team were not associated with D. D values can discriminate between groups managing updated information and delayed research teams. Publication delay affects D figures. Discontinuity of research lines, heterogeneity of research fields and the short time lapse studied could have some influence on the results of the study. It is suggested that a great coverage is needed to evaluate properly D figures as indicators of information update of research groups.

Keywords: Age, Authors, Case Study, Citation, Correlation, Coverage, Delay, Distribution, Food, General, Half-Life, Heterogeneity, Incorporation, Indicator, Indicators, Influence, Informal, Information, Journal, Journals, Knowledge, Life, MAR, N, Natural, Papers, Reference, Reference Lists, References, Research, Review, SCI, Science, Self, Self-Citation, Self-Citations, Small, Spanish, State, Value, Values

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Full Text: [2009\Scientometrics78, 467.pdf](2009/Scientometrics78,%20467.pdf)

Abstract: We have developed a method to obtain robust quantitative bibliometric indicators for several thoUSAnd scientists. This allows us to study the dependence of bibliometric indicators (such as number of publications, number of citations, Hirsch Index...) on the age, position, etc. of CNRS scientists. Our data suggests that the normalized h-Index (h divided by the career length) is not constant for scientists with the same productivity but different ages. We also compare the predictions of several bibliometric indicators on the promotions of about 600 CNRS researchers. Contrary to previous publications, our study encompasses most disciplines, and shows that no single indicator is the best predictor for all disciplines. Overall, however, the Hirsch Index h provides the least bad correlations, followed by the number of papers published. It is important to realize however that even h is able to recover only half of the actual promotions. The number of citations or the mean number of citations per paper are definitely not good predictors of promotion.

Keywords: Age, Bibliometric, Bibliometric Indicators, Citation, Citations, Correlations, Data, Dependence, h Index, h-Index, Hirsch, Hirsch Index, Index, Index h, Indicator, Indicators, Length, MAR, Papers, Prediction, Predictions, Predictors, Productivity, Promotion, Publications, Single Indicator

? Wu, Z.Q. (2009), An empirical study of the accessibility of web references in two Chinese academic journals. *Scientometrics*, **78** (3), 481-503.

Full Text: [2009\Scientometrics78, 481.pdf](2009/Scientometrics78,%20481.pdf)

Abstract: To discover the current situation and characteristics of web reference accessibility, the present study examined the accessibility of 1,637 web references in two key Chinese academic journals published from 1999 to 2003. The author develops linear regression models to demonstrate the decay of web reference accessibility. The study examines the influence of high use of web references in a paper, the associations between web reference accessibility and generic domain, country domain, protocol, and resource type, respectively, and classifies inaccessible web references according to Internet Explorer feedbacks. It compares the retrieval efficacy among three kinds of retrieval methods and reports on the limitations of Internet Archive.

Keywords: Academic, Characteristics, Chinese, Country, Decay, Efficacy, Influence, Internet, Internet Citations, Journals, Linear Regression, Linear-Regression, Link, MAR, Methods, Models, Page, Permanence, Persistence, Reference, References, Regression, Resource, Stability, Time, Urls, Web

? Yanagisawa, K. and Takahashi, S. (2009), Socio-economic effects of the material science in JAERI. *Scientometrics*, **78** (3), 505-524.

Full Text: [2009\Scientometrics78, 505.pdf](2009/Scientometrics78,%20505.pdf)

Abstract: A socio-economic networking (SEN) of the public funded basic research (PFBR) in the Japan Atomic Energy Research Institute (JAERI) was studied by the bibliometric method combined with the international nuclear database INIS. As PFBR, Material Science (MS) research of JAERI is chosen. The appropriateness of the present bibliometric method is discussed. The authors believe that this method is applicable to studying the socio-economic effect on PFBR. The shortcoming of it is, however, the use of the inevitable Usage of biased EBRF (ranked keywords), accompanied with the feeling of unfairness. The authors confirm that the S-matrix has a potential capability to show the quantitative magnitude of co-operation among research institutions avoiding significant bias.

Keywords: Authors, Bias, Bibliometric, Cooperation, Database, Effects, Energy, Institutions, International, Japan, MAR, MS, Potential, Public, Research, Science, Socioeconomic

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Full Text: [2009\Scientometrics78, 525.pdf](2009/Scientometrics78,%20525.pdf)

Abstract: This study examines the relationship between citation frequency and the human capital of teams of authors. Analysis of a random sample of articles published in top natural science journals shows that articles co-authored by teams including frequently cited scholars and teams whose members have diverse disciplinary backgrounds have greater citation frequency. The institutional prestige, the percentage of team members at U. S. institutions and the variety of disciplines represented by team member backgrounds do not influence citation frequency. The study introduces a method for evaluating the extent of multidisciplinarity that accounts for the relatedness of disciplines or authors.

Keywords: Articles, Authors, Citation, Citation Frequency, Human, Human Capital, Impact, Index, Influence, Institutions, Interdisciplinarity, Journals, MAR, Model, Multidisciplinarity, Natural, Patterns, Random Sample, Research Collaboration, Science, Science Journals, Scientific Teams, U, Universities

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Full Text: [2009\Scientometrics78, 543.pdf](2009/Scientometrics78,%20543.pdf)

Abstract: Optics is an important research domain both for its scientific interest and industrial applications. In this paper, we constructed a citation network of papers and performed topological clustering method to investigate the structure of research and to detect emerging research domains in optics. We found that optics consists of main five subclusters, optical communication, quantum optics, optical data processing, optical analysis and lasers. Then, we further investigated the detailed subcluster structures in it. By doing so, we detected some emerging research domains such as nonlinearity in photonic crystal fiber, broad band parametric amplifier, and in-vivo imaging techniques. We also discuss the distinction between research front and intellectual base in optics.

Keywords: Analysis, Approach, Bibliometric, Citation, Citation Network, Clustering, Communication, Companies, Constructed, Data, Growth, Imaging, Indicators, MAR, Network, Networks, Optics, Papers, Parametric, Photonic Crystal, Research, Research Front, Research Fronts, Science, Semiconductor Literature, Structure, Techniques, Technology, Tracking, Visualization

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Full Text: [2009\Scientometrics78, 559.pdf](2009/Scientometrics78,%20559.pdf)

Abstract: It is shown that a Hirsch-type index can be used for assessing single highly cited publications by calculating the h-Index of the set of papers citing the work in question. This index measures not only the direct impact of a publication but also its indirect influence through the citing papers.

Keywords: Assessing, Citations, h Index, h-Index, Hirsch-Type Indexes, Impact, Index, Indicators, Influence, Journals, MAR, Papers, Publication, Publications, Work

? Bar-Ilan, J. and Peritz, B. (2009), The lifespan of “informetrics” on the Web: An eight year study (1998-2006). *Scientometrics*, **79** (1), 7-25.

Full Text: [2009\Scientometrics79, 7.pdf](2009/Scientometrics79,%207.pdf)

Abstract: the World Wide Web is growing at an enormous speed, and has become an indispensable source for information and research. New pages are constantly added, but there are additional processes as well: pages are moved or removed and/or their content changes. We report here the results of an eight year long project started in 1998, when multiple search engines were used to identify a set of pages containing the term informetrics. Data collection was repeated once a year for the last eight years (with the exception of 2000 and 2001) using both search engines and revisiting previously identified pages. The results show that the number of pages grew from 866 in 1998 to 28,914 in 2006 - a 33-fold growth. Besides the obvious growth of the topic on the Web, we observed both decay (pages disappearing from the Web) and modification. Even though most of the pages from 1998 either disappeared or ceased to contain the term informetrics, 165 pages (19.1%) still exist in 2006 and contain the search term. We followed the “fate” of these 165 pages: characterized the publishers, the contents and the changes that occurred the whole period. In recent years e-print servers and publishers’ sites became sources of large number of pages related to informetrics. Longitudinal studies following the evolution of a topic on the Web are very important, since they provide insights about content and the underlying Web processes.

Keywords: Changes, Collection, Content, Decay, Evolution, Growth, Information, Informetrics, Lifespan, Link Rot, Modification, Pages, Persistence, References, Research, Search, Search Engines, Source, Sources, Speed, Term, World Wide Web

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Full Text: [2009\Scientometrics79, 27.pdf](2009/Scientometrics79,%2027.pdf)

Abstract: Research on the effects of collaboration in scientific research has been increasing in recent years. A variety of studies have been done at the institution and country level, many with an eye toward policy implications. However, the question of how to identify the most fruitful targets for future collaboration in high-performing areas of science has not been addressed. This paper presents a method for identifying targets for future collaboration between two institutions. The utility of the method is shown in two different applications: identifying specific potential collaborations at the author level between two institutions, and generating an index that can be used for strategic planning purposes. Identification of these potential collaborations is based on finding authors that belong to the same small paper-level community (or cluster of papers), using a map of science and technology containing nearly 1 million papers organized into 117,435 communities. The map used here is also unique in that it is the first map to combine the ISI Proceedings database with the Science and Social Science Indexes at the paper level.

Keywords: Authors, Cluster, Collaboration, Collaborations, Communities, Community, Country, Database, Effects, First, Index, Institution, Institutions, ISI, Papers, Planning, Policy, Potential, Research, Science, Science and Technology, Scientific Research, Small, Strategic, Strategic Planning, Technology, Utility

? Boyack, K.W., Borner, K. and Klavans, R. (2009), Mapping the structure and evolution of chemistry research. *Scientometrics*, **79** (1), 45-60.

Full Text: [2009\Scientometrics79, 45.pdf](2009/Scientometrics79,%2045.pdf)

Abstract: How does our collective scholarly knowledge grow over time? What major areas of science exist and how are they interlinked? Which areas are major knowledge producers; which ones are consumers? Computational scientometrics - the application of bibliometric/scientometric methods to large-scale scholarly datasets - and the communication of results via maps of science might help us answer these questions. This paper represents the results of a prototype study that aims to map the structure and evolution of chemistry research over a 30 year time frame. Information from the combined Science (SCIE) and Social Science (SSCI) Citations Indexes from 2002 was used to generate a disciplinary map of 7,227 journals and 671 journal clusters. Clusters relevant to study the structure and evolution of chemistry were identified using JCR categories and were further clustered into 14 disciplines. The changing scientific composition of these 14 disciplines and their knowledge exchange via citation linkages was computed. Major changes on the dominance, influence, and role of Chemistry, Biology, Biochemistry, and Bioengineering over these 30 years are discussed. The paper concludes with suggestions for future work.

Keywords: Application, Changes, Chemistry, Citation, Citations, Collective, Communication, Composition, Consumers, Dominance, Evolution, Exchange, Influence, Journal, Journal Cocitation Analysis, Journals, Knowledge, Maps, Methods, Research, Role, Science, Science-Citation-Index, Scientometrics, SSCI, Structure, Time, Work

? Braam, R. (2009), Everything about genes: Some results on the dynamics of genomics research. *Scientometrics*, **79** (1), 61-77.

Full Text: [2009\Scientometrics79, 61.pdf](2009/Scientometrics79,%2061.pdf)

Abstract: In this study some novel indicators and publication data resources are explored to study the dynamics of genomics research at three different levels: worldwide; national and at individual Research Centers. Our results indicate that the growth of genomics research worldwide seems to be stabilizing, whereas genomics research in the Netherlands aims at getting ‘ready for the next step’. As we find differences in research dynamics at the level of individual Research Centers, governmental support in a ‘next step’ could take these differences into account. for this purpose, we introduce a general model of research dynamics and timing of research management, building on ideas of Price and Bonaccorsi. Based on this model a framework is presented to discuss steering options in relation to research dynamics. We apply this framework to Research Centers of the Netherlands Genomics Initiative (NGI) and discuss findings.

Keywords: Building, Data, Dynamics, Framework, General, Genomics, Growth, Indicators, Management, Model, National, Netherlands, Options, Publication, Purpose, Research, Resources, Support, the Netherlands, Timing

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Full Text: [2009\Scientometrics79, 79.pdf](2009/Scientometrics79,%2079.pdf)

Abstract: In recent issues of the ISSI Newsletter, Egghe [2006a] proposed the g-index and Kosmulski [2006] the h(2)-index, both claimed to be improvements on the original h-Index proposed by Hirsch [2005]. The aim of this paper is to investigate the inter-relationships between these measures and also their time dependence using the stochastic publication/citation model proposed by Burrell [1992, 2007a]. We also make some tentative suggestions regarding the relative merits of these three proposed measures.

Keywords: Dependence, G Index, G-Index, h Index, h-Index, Hirsch, Index, Model, Scientists, Stochastic, Time, Time Dependence

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Full Text: [2009\Scientometrics79, 93.pdf](2009/Scientometrics79,%2093.pdf)

Abstract: the purpose of this paper is to analyse the relationship between bureaucracy and research performance within Public Research Bodies. The research methodology is applied on a sample of 100 interviewed belonging to 11 institutes of National Research Council of Italy. The main finding is that within Italian Public Research Council there is academic bureaucratization that reduces performance and efficiency of institutes. In fact, institutes have two organizational behaviours: high bureaucracy - low performance and low bureaucracy - high performance. These bureaucratic tendencies are also present in other countries and particularly: the public research labs have an academic bureaucratization because of administrative burden necessary to the governance of the structures, whereas the universities have mainly an administrative bureaucratization generated by the increase of administrative staff in comparison with researchers and faculty.

Keywords: Academic, Burden, Bureaucracy, Comparison, Efficiency, Faculty, Governance, Italy, Methodology, Organizational, Performance, Public, Purpose, Red Tape, Relationship, Research, Research Methodology, Research Performance, Universities

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Full Text: [2009\Scientometrics79, 109.pdf](2009/Scientometrics79,%20109.pdf)

Abstract: A novel subject-delineation strategy has been developed for the retrieval of the core literature in bioinformatics. The strategy combines textual components with bibliometric, citation-based techniques. This bibliometrics-aided search strategy is applied to the 1980-2004 annual volumes of the Web of Science. Retrieved literature has undergone a structural as well as quantitative analysis. Patterns of national publication activity, citation impact and international collaboration are analysed for the 1990s and the new millennium.

Keywords: Activity, Analysis, Bibliometric, Citation, Collaboration, Developed, Fields, Impact, International, Literature, National, Publication, Publication Activity, Quantitative Analysis, Search, Search Strategy, Strategy, Techniques, Web of Science, World

? Gomes, I., Bordons, M., Fernandez, M.T. and Morillo, F. (2009), Structure and research performance of Spanish universities. *Scientometrics*, **79** (1), 131-146.

Full Text: [2009\Scientometrics79, 131.pdf](2009/Scientometrics79,%20131.pdf)

Abstract: the aim of this paper is to describe Spanish universities by means of structural, input and output indicators, to explore the relationship between those indicators and to analyse university behaviour in different dimensions. Seniority of the universities and environmental conditions are taken into account, together with input and output indicators, as well as others related to the networks and links established. Our results will contribute to the knowledge of the university research system in Spain, producing data that could be useful for research management at the institutional, regional and national level.

Keywords: Behaviour, Data, Environmental, Indicators, Institutional, Knowledge, Management, National, Networks, Performance, Regional, Relationship, Research, Research Performance, Spain, Spanish, Universities, University

Notes: CCountry

? Harnad, S. (2009), Open access scientometrics and the UK Research Assessment Exercise. *Scientometrics*, **79** (1), 147-156.

Full Text: [2009\Scientometrics79, 147.pdf](2009/Scientometrics79,%20147.pdf)

Abstract: Scientometric predictors of research performance need to be validated by showing that they have a high correlation with the external criterion they are trying to predict. The UK Research Assessment Exercise (RAE) - together with the growing movement toward making the full-texts of research articles freely available on the web - offer a unique opportunity to test and validate a wealth of old and new scientometric predictors, through multiple regression analysis: Publications, journal impact factors, citations, co-citations, citation chronometrics (age, growth, latency to peak, decay rate), hub/authority scores, h-Index, prior funding, student counts, co-authorship scores, endogamy/exogamy, textual proximity, download/co-downloads and their chronometrics, etc. can all be tested and validated jointly, discipline by discipline, against their RAE panel rankings in the forthcoming parallel panel-based and metric RAE in 2008. The weights of each predictor can be calibrated to maximize the joint correlation with the rankings. Open Access Scientometrics will provide powerful new means of navigating, evaluating, predicting and analyzing the growing Open Access database, as well as powerful incentives for making it grow faster.

Keywords: Access, Age, Analysis, Citation, Citations, Co-Authorship, Coauthorship, Correlation, Database, Exercise, Factors, Funding, Growth, h Index, h-Index, Impact, Impact Factors, Incentives, Joint, Journal, Journal Impact, Journal Impact Factors, Latency, Movement, Multiple Regression, Performance, Predictors, Rae, Rankings, Regression, Regression Analysis, Research, Research Performance, Scientometric, Scientometrics, Student, UK, Wealth, Web, Weights

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Full Text: [2009\Scientometrics79, 157.pdf](2009/Scientometrics79,%20157.pdf)

Abstract: It has been shown that information collected from and about links between web pages and web sites can reflect real world phenomena and relationships between the organizations they represent. Yet, government linking has not been extensively studied from a webometric point of view. The aim of this study was to increase the knowledge of governmental interlinking and to shed some light on the possible real world phenomena it may indicate. We show that interlinking between local government bodies in Finland follows a strong geographic, or rather a geopolitical pattern and that governmental interlinking is mostly motivated by official cooperation that geographic adjacency has made possible.

Keywords: Analysis, Bodies, Business Information, Cooperation, Finland, Framework, Government, Impact Factors, Information, Interlinking, Knowledge, Links, Local, Local Government, Motivations, Organizations, Pattern, Relationships, Web, World

? Hornbostel, S., Bohmer, S., Klingsporn, B., Neufeld, J. and von Ins, M. (2009), Funding of young scientist and scientific excellence. *Scientometrics*, **79** (1), 171-190.

Full Text: [2009\Scientometrics79, 171.pdf](2009/Scientometrics79,%20171.pdf)

Abstract: the German Research Foundation’s (DFG) Emmy Noether Programme aims to fund excellent young researchers in the postdoctoral phase and, in particular, to open up an alternative to the traditional route to professorial qualification via the Habilitation (venia legendi). This paper seeks to evaluate this funding programme with a combination of methods made up of questionnaires, interviews, appraisals of the reviews, and bibliometric analyses. The key success criteria in this respect are the frequency of professorial appointments plus excellent research performance demonstrated in the form of publications. Up to now, such postdoc programme evaluations have been conducted only scarcely. In professional terms, approved applicants are actually clearly better placed. The personal career satisfaction level is also higher among funding recipients. Concerning publications and citations, some minor performance differences could be identified between approved and rejected applicants. Nevertheless, we can confirm that, on average, the reviewers indeed selected the slightly better performers from a relatively homogenous group of very high-performing applicants. However, a comparison between approved and rejected applicants did not show that participation in the programme had decisively influenced research performance in the examined fields of medicine and physics.

Keywords: Alternative, Analyses, Bibliometric, Bibliometric Analyses, Career Satisfaction, Citations, Comparison, Criteria, Decisions, DFG, Excellence, Funding, Group, Interviews, Medicine, Methods, Minor, Open, Participation, Performance, Predictive-Validity, Professional, Publications, Questionnaires, Research, Research Performance, Respect, Reviews, Route, Satisfaction, Science, Success, Young

? Iribarren-Maestro, I., Lascurain-Sanchez, M. and Sanz-Casado, E. (2009), Are multi-authorship and visibility related? Study of ten research areas at Carlos III University of Madrid. *Scientometrics*, **79** (1), 191-200.

Full Text: [2009\Scientometrics79, 191.pdf](2009/Scientometrics79,%20191.pdf)

Abstract: Opinions in the literature on the possible relationship between co-authorship and number of citations vary. This paper contributes to the debate with a further analysis of the subject, taking account of the number and quality of citations found for multi-(author, institution, country) and single-authored papers. The study is based on the scientific production of ten Carlos III University of Madrid departmental areas between 1997 and 2003 as reflected in the ISI Web of Science, and the number of times the respective papers were cited between 1997 and 2004. Univariate multifactorial analysis of variance (ANOVA) was used to verify the relationship between multi-authorship and visibility. The correlation between multi-institutional and multi-national authorship and the quartile of the citing journals was analyzed with correspondence analysis. The results show that while multi-institutional and multi-national authorship raise the number of citations, co-authorship and number of citations are unrelated. Correspondence analysis failed to show any correlation between the quartile of the citing journal and multi-institutional or multinational authorship, but did reveal a relationship between citing journal quartile and departmental area.

Keywords: Analysis, Anova, Authorship, Citations, Co-Authorship, Coauthorship, Correlation, Correspondence Analysis, Country, Impact, Institution, ISI, ISI Web of Science, Journal, Journals, Literature, Multiauthored Papers, Multinational, Papers, Production, Quality, Quality of, Relationship, Research, Scientific Collaboration, Scientific Production, Single, Visibility, Web of Science

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Full Text: [2009\Scientometrics79, 201.pdf](2009/Scientometrics79,%20201.pdf)

Abstract: the possibilities of the Response Surface Methodology (RSM) has been explored within the ambit of Scientific Activity Analysis. The case of the system “Departments of the Area of Health Sciences of the University of Navarre (Spain)” has been studied in relation to the system “Scientific Community in the Health Sciences”, from the perspective of input/output models (factors/response). It is concluded that the RSM reveals the caUSAl relationships between factors and responses through the construction of polynomial mathematical models. Similarly, quasiexperimental designs are proposed, these permitting scientific activity to be analysed with minimum effort and cost and high accuracy.

Keywords: Accuracy, Activity, Application, Community, Construction, Cost, Effort, Factors, Mathematical Models, Minimum, Models, Relationships

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Full Text: [2009\Scientometrics79, 219.pdf](2009/Scientometrics79,%20219.pdf)

Abstract: the Scholarly Database aims to serve researchers and practitioners interested in the analysis, modelling, and visualization of large-scale data sets. A specific focus of this database is to support macro-evolutionary studies of science and to communicate findings via knowledge-domain visualizations. Currently, the database provides access to about 18 million publications, patents, and grants. About 90% of the publications are available in full text. Except for some datasets with restricted access conditions, the data can be retrieved in raw or pre-processed formats using either a web-based or a relational database client. This paper motivates the need for the database from the perspective of bibliometric/scientometric research. It explains the database design, setup, etc., and reports the temporal, geographical, and topic coverage of data sets currently served via the database. Planned work and the potential for this database to become a global testbed for information science research are discussed at the end of the paper.

Keywords: Access, Analysis, Coverage, Data, Database, Design, Information, Information Science, Knowledge Domains, Modelling, Patents, Potential, Practitioners, Publications, Relational Database, Research, Science, Science Research, Scientometrics, Support, Temporal, Utility, Visualization, Work

? Liu, Y.X. and Rousseau, R. (2009), Properties of Hirsch-type indices: the case of library classification categories. *Scientometrics*, **79** (2), 235-248.

Full Text: [2009\Scientometrics79, 235.pdf](2009/Scientometrics79,%20235.pdf)

Abstract: We present an application of the h-Index in a context which does not include publications or citations. Rankings of library classification categories using the h-, g- and R-index are shown to be statistically equivalent. Moreover these indices seem to have the same discriminating power, as measured by the Gini concentration index. We further present best fitting Zipf-Mandelbrot functions for the h-distributions of classifications in different libraries.

Keywords: Application, Citations, Classification, Concentration, Context, Functions, h Index, h-Index, Index, Indices, Power, Publications, R-Index, Ranking, Scientists

Notes: CCountry

? Markusova, V.A., Jansz, M., Libkind, A.N., Libkind, I. and Varshavsky, A. (2009), Trends in Russian research output in post-Soviet ERA. *Scientometrics*, **79** (2), 249-260.

Full Text: [2009\Scientometrics79, 249.pdf](2009/Scientometrics79,%20249.pdf)

Abstract: Recently, the Russian government has ordered evaluation and reform of the basic research system. As a consequence, the number of research staff at the Russian Academy of Sciences will be reduced by 20% by 2007. The basis for research evaluation and institute budgeting will be bibliometric indicators. In view of these changes we look at the Russian publication output and argue that (1)publication output and citedness have to be considered in relation to the level of expenditure on R&D bibliometric indicators depend strongly on the database used (ISI’s databases are biased) and their interpretation can be confusing; better coverage of Russian publications or a Russian Science Citation Index are needed. Also, research results are communicated in more ways than paper publications. policy makers have misused ISI statistics to demonstrate “a low level” of Russian R&D. Our paper is a part of a project designed to trace R&D development in a transition economy and knowledge transfer from basic research to innovation. Results of our project shed light on science policy and the social issues due to the indiscriminate introduction of quantitative indicators.

Keywords: Bibliometric, Bibliometric Indicators, Changes, Citation, Coverage, Database, Databases, Development, Economy, Evaluation, Government, Indicators, Innovation, ISI, Knowledge, Knowledge Transfer, Policy, Publication, Publications, R&D, Reform, Research, Research Evaluation, Research Results, Russian, Science, Science Citation Index, Science Policy, Social, Social Issues, Statistics, Trace, Transfer, Transition, Transition Economy

? Noyons, E.C.M. and Calero-Medina, C. (2009), Applying bibliometric mapping in a high level science policy context. *Scientometrics*, **79** (2), 261-275.

Full Text: [2009\Scientometrics79, 261.pdf](2009/Scientometrics79,%20261.pdf)

Abstract: Bibliometric maps have the potential to become useful tools for science policy issues. The complexity of the structures, however, makes it often very difficult to interpret the results. In this study, we present a case study in which we use the bibliometric mapping results to address a high level science policy issue of research efficiency. By revealing the results in an alternative way, we increased the utility of bibliometric mapping within the science policy context. Moreover, by including additional information to the entities in the landscape, we provide useful input for the research potential.

Keywords: Alternative, Bibliometric, Bibliometric Mapping, Case Study, Complexity, Context, Efficiency, Information, Landscape, Mapping, Policy, Policy Issues, Potential, Research, Science, Science Policy, Utility

Onyancha, O.B. and Ocholla, D.N. (2009), Is HIV/AIDS in Africa distinct? What can we learn from an analysis of the literature? *Scientometrics*, **79** (2), 277-296.

Full Text: [2009\Scientometrics79, 277.pdf](2009/Scientometrics79,%20277.pdf)

Abstract: This paper investigates, through an analysis of the published literature, the notion held by several people that HIV/AIDS in Africa is unique. Using co-word and multidimensional scaling (MDS) analyses of MEDLINE-extracted HIV/AIDS records, this study used five lists of terms to investigate the related-ness of various factors and diseases to HIV/AIDS. The lists consisted of risk factors, sexually transmitted diseases, tropical diseases, opportunistic diseases, and pre-disposing factors. Data (i.e. words.txt - consisting of keywords/phrases describing the aforementioned factors and diseases; and text.txt - containing HIV/AIDS papers’ titles) were analyzed using TI computer-aided application software, developed by Leydesdorff. Results revealed that several factors and diseases that are pre-dominant in Sub-Saharan Africa exhibited strong and high pattern of co-occurrences with HIV/AIDS, implying close associated-ness with the epidemic in the region. Further areas of research, whose results will be used to make conclusive observations and arguments concerning the uniqueness of HIV/AIDS in Sub-Saharan Africa, are recommended.

Keywords: Africa, Analyses, Analysis, Application, Co-Word Analysis, Developed, Diseases, Epidemic, Factors, HIV, AIDS, Literature, MDS, Multidimensional, Multidimensional Scaling, Notion, Papers, Pattern, Predisposing Factors, Records, Research, Risk, Risk Factors, Scaling, Science, Sexually Transmitted Diseases, Software, Sub-Saharan Africa, TI, Tropical

Notes: CCountry

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Full Text: [2009\Scientometrics79, 297.pdf](2009/Scientometrics79,%20297.pdf)

Abstract: This article reports for first time the state of science and technology in the African Continent on the basis of two scientometric indicators - number of research publications and number of patents awarded. Our analysis shows that Africa produced 68,945 publications over the 2000-2004 period or 1.8% of the World’s publications. In comparison India produced 2.4% and Latin America 3.5% of the World’s research. More detailed analysis reveals that research in Africa is concentrated in just two countries - South Africa and Egypt. These two counties produce just above 50% of the Continent’s publications and the top eight countries produce above 80% of the Continent’s research. Disciplinary analysis reveals that few African countries have the minimum number of scientists required for the functioning of a scientific discipline. Examination of the Continent’s inventive profile, as manifested in patents, indicates that Africa produces less than one thoUSAnd of the world’s inventions. Furthermore 88% of the Continent’s inventive activity is concentrated in South Africa. The article recommends that the African Governments should pay particular attention in developing their national research systems.

Keywords: Activity, Africa, African, America, Analysis, Assessment, Attention, Comparison, Counties, Developing, Egypt, First, Functioning, India, Indicators, Inventions, Latin America, Minimum, National, Patents, Publications, Research, Research Publications, Science, Science and Technology, Scientometric, South Africa, South-Africa, State, Systems, Technology, the State, Time

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Full Text: [2009\Scientometrics79, 311.pdf](2009/Scientometrics79,%20311.pdf)

Abstract: Among classical bibliometric indicators, direct and relative impact measures for countries or other players in science are appealing and standard. Yet, as shown in this article, they may exhibit undesirable statistical properties, or at least ones that pose questions of interpretation in evaluation and benchmarking contexts. In this article, we address two such properties namely sensitivity to the Yule-Simpson effect, and a problem related to convexity. The Yule-Simpson effect can occur for direct impacts and, in a variant form, for relative impact, causing an apparent incoherence between field values and the aggregate (all-fields) value. for relative impacts, it may result in a severe form of ‘out-range’ of aggregate values, where a player’s relative impact shifts from ‘good’ to ‘bad’, or conversely. Out-range and lack of convexity in general are typical of relative impact indicators. Using empirical data, we suggest that, for relative impact measures, ‘out-range’ due to lack of convexity is not exceptional. The Yule-Simpson effect is less frequent, and especially occurs for small players with particular specialisation profiles.

Keywords: Benchmarking, Bibliometric, Bibliometric Indicators, Citation, Data, Empirical, Evaluation, Field, General, Impact, Impacts, Indicators, International Scientific Collaboration, Journals, Problem, Profiles, Science, Sensitivity, Small, Standard, Statistical, Value, Values

? Romero-De-Pablos, A. and zagra-Caro, J.M. (2009), Internationalisation of patents by Public Research Organisations from a historical and an economic perspective. *Scientometrics*, **79** (2), 329-340.

Full Text: [2009\Scientometrics79, 329.pdf](2009/Scientometrics79,%20329.pdf)

Abstract: Within the field of the organisation of science, concerns about how academics generate patents tend to focus on a single set of either national or international patents. The main aim of this research is to study both national and international patenting in order to understand their differences. We have approached this issue from both a historical and an economic perspective, using data from the Spanish National Research Council (CSIC), The largest PRO in Spain. Three periods can be distinguished in the CSIC’s history, according to the political context, namely the dictatorship (1939-1975), The transition to democracy (1976-1986) and democracy (1987-to date). The prevailing legal and institutional framework has marked the way in which patenting by CSIC has evolved in each of these periods. The current situation is one in which there is strong internationalisation of patenting activity, and in this most-recent period we explore trends in some of the economic influences on patenting activity. We conclude that the political and normative context may shape the culture of international patenting at PROs like the CSIC and that increasing technological cooperation has supported this internationalisation. However, very often foreign partners are included in the application in order to extend protection abroad for commercial reasons, so their number may not be a good indicator of inventive activity.

Keywords: Activity, Application, Context, Cooperation, Csic, Culture, Data, Democracy, Economic, Field, Foreign, Framework, History, Indicator, Influences, Institutional, International, Internationalisation, Legal, National, Patents, Protection, Research, Science, Shape, Spain, Spanish, Transition, Trends, University

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Full Text: [2009\Scientometrics79, 341.pdf](2009/Scientometrics79,%20341.pdf)

Abstract: We analyze the relation between funding and output using bibliometric methods with field normalized data. Our approach is to connect individual researcher data on funding from Swedish university databases to data on incoming grants using the specific personal ID-number. Data on funding include the person responsible for the grant. All types of research income are considered in the analysis yielding a project database with a high level of precision. Results show that productivity can be explained by background variables, but that quality of research is more or less un-related to background variables.

Keywords: Analysis, Approach, Bibliometric, Bibliometric Methods, Data, Database, Databases, Distributions, Diversity, Field, Funding, Income, Methods, Model, Person, Precision, Productivity, Publication Productivity, Quality, Quality of, Research, Scientists, Scientometric Indicators, Universities, University, Variables

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Full Text: [2009\Scientometrics79, 351.pdf](2009/Scientometrics79,%20351.pdf)

Abstract: National shares of worldwide publications in the Science Citation Index (SCI) have shifted recently. The long-term decline in U.S. share accelerated in the mid-1990s, and now the EU has joined this decline. Not coincidentally, the shares of some countries have increased sharply, particularly those of China, S. Korea, Taiwan, and Singapore. Since the SCI constantly adds new journals, one reason might be that newly added journals were more favorable to them. To test this, the database was partitioned into “old journals” (added before 1995) and “new journals,” added afterward. The analysis was done for eight of the 20 fields of science defined by the National Science Indicator CD. In some fields, new journals were indeed much more favorable to the Asians. In some fields, however, new journals were actually more favorable to the U.S. In aggregate over the eight fields analyzed, the size of this effect was too small to account for much of the sharp changes in national shares. Furthermore tests between old and new journals find that differences in most fields are not statistically significant. The results provide evidence that the SCI can be used to accurately track national publication changes over time.

Keywords: Analysis, Asians, Bias, CD, Changes, China, Citation, Database, EU, Evidence, Journals, Korea, Long Term, Long-Term, National, Publication, Publications, SCI, Science, Science Citation Index, Singapore, Size, Small, Taiwan, Tests, Time

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Full Text: [2009\Scientometrics79, 365.pdf](2009/Scientometrics79,%20365.pdf)

Abstract: A case study of an emerging research area is presented dealing with the creation of organic thin film transistors, a subtopic within the general area called “plastic electronics.” the purpose of this case study is to determine the structural properties of the citation network that may be characteristic of the emergence, development, and application or demise of a research area. Research on organic thin film transistors is highly interdisciplinary, involving journals and research groups from physics, chemistry, materials science, and engineering. There is a clear path to industrial applications if certain technical problems can be overcome. Despite the applied nature and potential for patentable inventions, scholarly publications from both academia and industry have continued at a rapid pace through 2007. The question is whether the bibliometric indicators point to a decline in this area due to imminent commercialization or to insurmountable technical problems with these materials.

Keywords: Academia, Application, Bibliometric, Bibliometric Indicators, Case Study, Chemistry, Citation, Citation Network, Development, Emergence, Emerging, Engineering, Film, General, Groups, Indicators, Industry, Interdisciplinary, Inventions, Journals, Network, Organic, Potential, Publications, Purpose, Rapid, Research, Science, Specialty, Structure, Thin Film

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Full Text: [2009\Scientometrics79, 377.pdf](2009/Scientometrics79,%20377.pdf)

Abstract: the present study is part of an ongoing project on clustering European research institutions according to their publication profiles. Using hierarchical clustering eight clusters have been found the optimum solution for the classification. Aim of the present study is a structural analysis for the evaluation of research performance of specialised and multidisciplinary institutions. A breakdown by subject fields is used to characterise field-specific peculiarities of individual clusters by bibliometric indicators and to allow comparison within the same and among different clusters. Finally, benchmarks can then be used to study national research performance on basis of the institutional classification.

Keywords: Analysis, Bibliometric, Bibliometric Indicators, Classification, Clustering, Comparison, Evaluation, Indicators, Institutional, Institutions, Multidisciplinary, National, Performance, Profiles, Publication, Research, Research Performance, Self-Citation, Solution, Structural Analysis

? van Leeuwen, T.N. (2009), Strength and weakness of national science systems: A bibliometric analysis through cooperation patterns. *Scientometrics*, **79** (2), 389-408.

Full Text: [2009\Scientometrics79, 389.pdf](2009/Scientometrics79,%20389.pdf)

Abstract: In this study we have focused on long term developments of various types of scientific publishing, and the field-normalized impact generated by these various types. The types of scientific output distinguished are output resulting from international cooperation, national cooperation, and single address publications, in which no apparent cooperation is found. A fourth type is distinguished by focusing on first authorship, within the international cooperation output. Changes in especially the share of a country’s output from first-authored international cooperation and the share of single address publications can be regarded as indicators of strength and/or weakness of a science system.

Keywords: Analysis, Authorship, Bibliometric, Bibliometric Analysis, Cooperation, First, Impact, Indicators, International, International Cooperation, International Scientific Collaboration, Long Term, Long-Term, National, Publications, Publishing, Science, Scientific Output, Strength, Systems, Term

? Vinkler, P. (2009), Introducing the Current Contribution Index for characterizing the recent, relevant impact of journals. *Scientometrics*, **79** (2), 409-420.

Full Text: [2009\Scientometrics79, 409.pdf](2009/Scientometrics79,%20409.pdf)

Abstract: the Garfield (Impact) Factor characterizes the measure of the up to date specific contribution of scientific journals to the total impact of the journals in a special field. A new indicator (Current Contribution Index, CCI) was introduced in order to characterize the relative contribution of journals to recent, relevant knowledge of a corresponding field. The CC Index relates the number of citations received by a journal in a given year to the total number of citations obtained by all journals of the corresponding field in that year. Mean Garfield Factors and mean Current Contribution Indexes were calculated for some fields and several journals. No significant correlation was found between the Garfield Factor (GF) and Current Contribution Index (CCI) of journals. The ratios of the GF to CCI referring to the corresponding top 10, 20 or 50 per cent of the journals ranked by decreasing GF and CCI, strongly differ by field.

Keywords: Citations, Contribution, Correlation, Field, Impact, Indicator, Journal, Journals, Knowledge, Measure, Science, Scientific Journals, Scientometric Indicators

? Yang, L.Y., Morris, S.A. and Barden, E.M. (2009), Mapping institutions and their weak ties in a specialty: A case study of cystic fibrosis body composition research. *Scientometrics*, **79** (2), 421-434.

Full Text: [2009\Scientometrics79, 421.pdf](2009/Scientometrics79,%20421.pdf)

Abstract: the paper demonstrates visualization technique that show the collaboration structure of institutions in the specialty and the researchers that function as weak ties among them. Institution names were extracted from the collection of papers and disambiguated using the Derwent Analytics (v1.2) software product. Institutions were clustered into collaboration groups based on their co-occurrence in papers. A crossmap of clustered institutions against research fronts, which were derived using bibliographic coupling analysis, shows the research fronts that specific institutions participate in, their collaborator institutions and the research fronts in which those collaborations occurred. A crossmap of institutions to author teams, derived from co-authorship analysis, reveals research teams in the specialty and their general institutional affiliation, and further identifies the researchers that function as weak ties and the institutions that they link. The case study reveals that the techniques introduced in this paper can be used to extract a large amount of useful information about institutions participating in a research specialty.

Keywords: Affiliation, Analysis, Bibliographic Coupling, Body Composition, Case Study, Co-Authorship, Coauthorship, Collaboration, Collaborations, Collection, Composition, Cystic Fibrosis, Fibrosis, Function, General, Groups, Information, Institutional, Institutions, Papers, Research, Research Collaboration, Research Fronts, Software, Specialty, Structure, Teams, Technique, Techniques, Visualization

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Full Text: [2009\Scientometrics79, 435.pdf](2009/Scientometrics79,%20435.pdf)

Abstract: Although many studies have analyzed the “synchronic” correlation of properties between authors and their co-authors, the “diachronic” correlation of properties, i.e., the correlation between their subsequent and precedent activity, has not yet been sufficiently studied using quantitative methods. This study pays attention not only to productivity but also the importance in the collaboration network as a measure of the researcher’s activity, and clarifies whether there is any connection between (i) the researcher’s activity subsequent to a collaboration and (ii) the collaborator’s precedent activity, aiming at deriving knowledge about the diachronic effect of collaborators.

Keywords: Activity, Analysis, Attention, Attributions, Authors, Co-Authors, Coauthorship Networks, Collaboration, Collaboration Networks, Correlation, Invisible-Colleges, Knowledge, Measure, Methods, Network, Networks, Patterns, Productivity, Quantitative Methods, Science, Scientific Collaboration, Students

? Tsay, M.Y. (2009), Citation analysis of Ted Nelson’s works and his influence on hypertext concept. *Scientometrics*, **79** (3), 451-472.

Full Text: [2009\Scientometrics79, 451.pdf](2009/Scientometrics79,%20451.pdf)

Abstract: This study investigates Ted Nelson’s works and the influence of his hypertext concept through citation analysis, including citation counting, characteristics of citing articles on language, document type, citing year, discipline, and citation content. The selection of the Nelson’s works was based on searching Library Literature & Information Science, Library and Information Science Abstracts, Google and Yahoo search engines. The citation data were compiled from the database of Web of Science. The results of the study reveal that hypertext has directly great impact on information retrieval and world wide web; therefore, the concept has had profound influence on information, library and computer science disciplines. Moreover, the influence of Nelson’s works spreads to other disciplines variously, especially on education, literature, business and economics, engineering, sociology, psychology, etc. The citation context analysis of citing articles on information and library science reveals that (1) definition, orientation and general introduction of hypertext; (2) relation of Vannevar Bush and Ted Nelson in terms of hypertext; (3) Nelson’s Xanadu system and its component of hypertext; (4) the application of hypertext in information science and library science are four most citing purpose.

Keywords: Analysis, Business, Citation, Computer Science, Context, Database, Discipline, Disciplines, Document, Economics, Education, Engineering, Hypermedia, Impact, Influence, Information, Information-Retrieval, Language, Libraries, Literature, Psychology, Science, Selection, Web

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Full Text: [2009\Scientometrics79, 473.pdf](2009/Scientometrics79,%20473.pdf)

Abstract: This paper explores a methodology for delimitating scientific subfields by combining the use of (specialist) journal categories from Thomson Scientific’s Web of Science (WoS) and reference analysis. In a first step it selects all articles in journals included in a particular WoS journal category covering a subfield. These journals are labelled as a subfield’s specialist journals. In a second step, this set of papers is expanded with papers published in other, additional journals and citing a subfield’s specialist journals with a frequency exceeding a certain citation threshold. Data are presented for two medical subfields: Oncology and Cardiac & Cardiovascular System. A validation based on findings from earlier studies, from an analysis of MESH descriptors from MEDLINE, and on expert opinion provides evidence that the proposed methodology has a high precision, and that expansion substantially enhanced the recall, not merely in terms of the number of retrieved papers, but also in terms of the number of research topics covered. The paper also examines how a bibliometric ranking of countries and universities based on the citation impact of their papers published in a subfield’s specialist journals compares to that of a ranking based on the impact of their articles in additional journals. Rather weak correlations especially obtained at the level of universities underline the conclusion from earlier studies that an assessment of research groups or universities in a scientific subfield that takes into account solely papers published in a subfield’s specialist journals is unsatisfactory.

Keywords: Analysis, Assessment, Bibliometric, Cancer-Research, Cardiovascular, Categories, Citation, Difference, Evidence, Impact, Information, Item Subject Classification, Journal, Journals, Maps, Medical, Methodology, Research, Science, Validation

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Full Text: [2009\Scientometrics79, 491.pdf](2009/Scientometrics79,%20491.pdf)

Abstract: In Latin America, interactive science centres and museums are key institutions for science communication. In order to map their relationship over the Internet, a Web co-link analysis was applied to 18 websites of science centres and museums affiliated to the Network for the Popularization of Science and Technology in Latin America and the Caribbean - RedPOP. Clustering analysis, multidimensional scaling (MDS) and an analysis of all pages with links to at least two websites were performed. Results showed that language barriers played a prominent role in clustering, with external recognition by the target public representing a secondary issue.

Keywords: Analysis, Barriers, Communication, Institutions, Internet, Key, Language, Language Barriers, Latin America, Recognition, Relations, Relationship, Science, Secondary, Web

? Arencibia-Jorge, R. and Rousseau, R. (2009), Influence of individual researchers’ visibility on institutional impact: An example of Prathap’s approach to successive h-indices. *Scientometrics*, **79** (3), 507-516.

Full Text: [2009\Scientometrics79, 507.pdf](2009/Scientometrics79,%20507.pdf)

Abstract: This study applies Prathap’s approach to successive h-indices in order to measure the influence of researcher staff on institutional impact. The twelve most productive Cuban institutions related to the study of the human brain are studied. The Hirsch Index was used to measure the impact of the institutional scientific output, using the g-index and R-index as complementary indicators. Prathap’s approach to successive h-indices, based on the author-institution hierarchy, is used to determine the institutional impact through the performance of the researcher staff. The combination of different Hirsch-type indices for institutional evaluation is illustrated.

Keywords: Evaluation, Hierarchy, Human, Impact, Indicators, Indices, Individual, Influence, Institutions, Performance, Scientific-Research Output, Staff

? Abramo, G., D’Angelo, C.A. and Caprasecca, A. (2009), Gender differences in research productivity: A bibliometric analysis of the Italian academic system. *Scientometrics*, **79** (3), 517-539.

Full Text: [2009\Scientometrics79, 517.pdf](2009/Scientometrics79,%20517.pdf)

Abstract: the literature dedicated to the analysis of the difference in research productivity between the sexes tends to agree in indicating better performance for men. Through bibliometric examination of the entire population of research personnel working in the scientific-technological disciplines of Italian university system, this study confirms the presence of significant differences in productivity between men and women. The differences are, however, smaller than reported in a large part of the literature, confirming an ongoing tendency towards decline, and are also seen as more noticeable for quantitative performance indicators than other indicators. The gap between the sexes shows significant sectorial differences. In spite of the generally better performance of men, there are scientific sectors in which the performance of women does not prove to be inferior.

Keywords: Ability, Academic, Analysis, Bibliometric, Difference, Disciplines, Gender, Gender Differences, Impact, Indicators, Literature, Men, Meta-Analysis, Metaanalysis, Performance, Performance Indicators, Population, Presence, Productivity, Publication Productivity, Quantitative, Research, Scientific Productivity, Sex-Differences, University, Women

? Pislyakov, V. (2009), Comparing two “thermometers”: Impact factors of 20 leading economic journals according to Journal Citation Reports and Scopus. *Scientometrics*, **79** (3), 541-550.

Full Text: [2009\Scientometrics79, 541.pdf](2009/Scientometrics79,%20541.pdf)

Abstract: Impact factors for 20 journals ranked first by Journal Citation Reports (JCR) were compared with the same indicator calculated on the basis of citation data obtained from Scopus database. A significant discrepancy was observed as Scopus, though results differed from title to title, found in general more citations than listed in JCR. This also affected ranking of the journals. More thorough examination of two selected titles proved that the divergence resulted mainly from difference in coverage of two products, although other important factors also play their part.

Keywords: Citation, Citations, Coverage, Database, Databases, Difference, Economic, Factors, Google-Scholar, Index, ISI, Journals, Play, Web-of-Science

? Sternitzke, C. (2009), Patents and publications as sources of novel and inventive knowledge. *Scientometrics*, **79** (3), 551-561.

Full Text: [2009\Scientometrics79, 551.pdf](2009/Scientometrics79,%20551.pdf)

Abstract: This paper briefly reviews the knowledge-generation process and explores to what degree technical and scientific knowledge from prior art anticipates novelty or the inventive step of an invention. Inventions are novel if they have not been described (in the public) before, and they are inventive if the technical solution was non-obvious to a skilled person in the field. We employ a novel approach of patent citation analysis to investigate this phenomenon. Since in this context common approaches of such citation analysis are biased (usually, citations are neither exhaustive nor relevant in their entirety), we focus on examination reports of European patent applications and the references given therein. Our findings reveal that particularly technical knowledge comprised in patents serves as a source of novelty, while scientific knowledge frequently stems from multiple scientific papers and accounts for the inventive step. In addition, it is found that in many cases scientific knowledge is of commercial relevance and therefore constitutes more than general background information that aids the technical knowledge generation process.

Keywords: Analysis, Applications, Art, Background, Citation, Citations, Context, Documents, Fish-Oil, Generation, Information, Knowledge, Literature-Based Discovery, Literatures, Novel, Process, Raynauds, Relevance, Science, Scientific Knowledge, Sources, Technological Search

? Jang, S.L., Lo, S.M. and Chang, W.H. (2009), How do latecomers catch up with forerunners? Analysis of patents and patent citations in the field of flat panel display technologies. *Scientometrics*, **79** (3), 563-591.

Full Text: [2009\Scientometrics79, 563.pdf](2009/Scientometrics79,%20563.pdf)

Abstract: This paper sets out to explore the patterns of technological change and knowledge spillover in the field of flat panel display (FPD) technology, along with the catching-up behavior of latecomers, through the analysis of US patents and patent citations between 1976 and 2005. Our results show that: (i) the catching-up by FPD technology latecomers began at the transition stage (1987-1996) when the dominant design became established in areas with high ‘revealed technology advantage’ (RTA); (ii) there is no apparent localization of knowledge spillover amongst FPD technology latecomers; instead, higher citation frequencies of forerunners’ patents were found in latecomers’ FPD patents during the transition (1987-1996) and post-dominant design (1997-2005) stages and; and (iii) a few extraordinary peaks were found in the citation frequency of forerunners’ patents at long citation lags in latecomers’ FPD patents, particularly during the transition stage (1987-1996), indicative of the knowledge threshold which latecomers need to cross in order to catch up with forerunners.

Keywords: Analysis, Behavior, Change, Citation, Citations, Design, Indicators, Innovation, Knowledge, Knowledge-Diffusion, Korea, Market Value, Mobility, Need, Networks, Patterns, Regimes, Schumpeterian Patterns, Spillover, Spillovers, Technology, Transition, US

? Zhou, P., Thijs, B. and Glänzel, W. (2009), Is China also becoming a giant in social sciences? *Scientometrics*, **79** (3), 593-621.

Full Text: [2009\Scientometrics79, 593.pdf](2009/Scientometrics79,%20593.pdf)

Abstract: At present China is challenging the leading sciento-economic powers and evolving to one of the world’s largest potentials in science and technology. Jointly with other emerging economies, China has already changed the balance of power among the formerly leading nations as measured by scientific production. In the present paper, the evolution of China’s publication activity and citation impact in the social sciences is studied for the period 1997-2006. Besides the comparative analysis of trends in publication and citation patterns and of national publication profiles, an attempt is made to interpret the results in both the regional and global context.

Keywords: Analysis, China, Citation, Citation-Index, Collaboration, Comparative, Context, Database, Evolution, Impact, Indicators, Journals, Patterns, Power, Production, Research Performance, Science, Social, Social Sciences, Technology, Trends

? Lee, Y.G. (2009), What affects a patent’s value? An analysis of variables that affect technological, direct economic, and indirect economic value: An exploratory conceptual approach. *Scientometrics*, **79** (3), 623-633.

Full Text: [2009\Scientometrics79, 623.pdf](2009/Scientometrics79,%20623.pdf)

Abstract: the paper investigates three aspects of patent value - technological value, direct economic value, and indirect economic value. The paper suggests that we measure the technological value of a patent by looking at its number of citations, direct economic value by looking at its licensing and income from royalties, and indirect economic value by looking at its life (i.e., duration). for the research, the author’s two previous studies are deeply explored. It is found that these three aspects of patent value are positively correlated with one another. In addition, their domains overlap and interrelate. Research collaboration is the one variable found to have a significant effect on all three aspects. The field effect of electronics positively affects technological and indirect economic value, whereas research team size negatively affects technological and indirect economic value.

Keywords: Affect, Analysis, Citations, Collaboration, Domains, Economic, Income, Life, Research

? Archambault, E. and Larivière, V. (2009), History of the journal impact factor: Contingencies and consequences. *Scientometrics*, **79** (3), 635-649.

Full Text: [2009\Scientometrics79, 635.pdf](2009/Scientometrics79,%20635.pdf)

Abstract: This paper examines the genesis of journal impact measures and how their evolution culminated in the journal impact factor (JIF) produced by the Institute for Scientific Information. The paper shows how the various building blocks of the dominant JIF (published in the Journal Citation Report - JCR) came into being. The paper argues that these building blocks were all constructed fairly arbitrarily or for different purposes than those that govern the contemporary use of the JIF. The results are a faulty method, widely open to manipulation by journal editors and misuse by uncritical parties. The discussion examines some solution offered to the bibliometrics and scientific communities considering the wide use of this indicator at present.

Keywords: Communities, Consequences, Discussion, Evolution, Impact, Journal, Measures, Performance, Science, Subject Categories

? Arruda, D., Bezerra, F., Neris, V.A., De Toro, P.R. and Wainer, J. (2009), Brazilian computer science research: Gender and regional distributions. *Scientometrics*, **79** (3), 651-665.

Full Text: [2009\Scientometrics79, 651.pdf](2009/Scientometrics79,%20651.pdf)

Abstract: This paper analysis the distribution of some characteristics of computer scientists in Brazil according to regions and gender. Computer scientist is defined as the faculty of a graduate level computer science department. Under this definition, there were 886 computer scientists in Brazil in November 2006.

Keywords: Analysis, Brazil, Computer Science, Distribution, Faculty, Gender, Pipeline, Publications, Research, Science, Technology, Women

? Ball, R. (2009), Scholarly communication in transition: the use of question marks in the titles of scientific articles in medicine, life sciences and physics 1966-2005. *Scientometrics*, **79** (3), 667-679.

Full Text: [2009\Scientometrics79, 667.pdf](2009/Scientometrics79,%20667.pdf)

Abstract: the titles of scientific articles have a special significance. We examined nearly 20 million scientific articles and recorded the development of articles with a question mark at the end of their titles over the last 40 years. Our study was confined to the disciplines of physics, life sciences and medicine, where we found a significant increase from 50% to more than 200% in the number of articles with question-mark titles. We looked at the principle functions and structure of the titles of scientific papers, and we assume that marketing aspects are one of the decisive factors behind the growing Usage of question-mark titles in scientific articles.

Keywords: Abstracts, Colons, Communication, Development, Disciplines, Factors, Life, Myth, Number, Structure, Titular Colonicity, Transition

? Garcia-Santiago, L. and De Moya-Anegon, F. (2009), Using co-outlinks to mine heterogeneous networks. *Scientometrics*, **79** (3), 681-702.

Full Text: [2009\Scientometrics79, 681.pdf](2009/Scientometrics79,%20681.pdf)

Abstract: Clustering is applied to web co-outlink analysis to represent the heterogeneous nature of the World Wide Web in terms of the “triple helix” model (university-industry-government). An initial categorization is based on families of websites, which is then matched with Spanish institutions from diverse sectors represented on the Web, to uncover cognitive structures and related subgroups with common interests and confirm the junction of sectors of the “triple helix” model. We may conclude that the clustering method applied to web co-outlink analysis works when fully institutionalized organizations are studied, to make their interconnections manifest.

Keywords: Analysis, Citations, Cognitive, Families, Heterogeneous, Hyperlinks, Industry-Government Relations, Information, Institutions, Links, Model, Networks, Organizations, Triple-Helix, Web, Web Environment, Webometrics

? Marx, W. and Cardona, M. (2009), The citation impact outside references - formal versus informal citations. *Scientometrics*, **80** (1), 1-21.

Full Text: [2009\Scientometrics80, 1.pdf](2009/Scientometrics80,%201.pdf)

Abstract: In this study the amount of “informal” citations (i.e. those mentioning only author names or their initials instead of the complete references) in comparison to the “formal” (full reference based) citations is analyzed using some pioneers of chemistry and physics as examples. The data reveal that the formal citations often measure only a small fraction of the overall impact of seminal publications. Furthermore, informal citations are mainly given instead of (and not in addition to) formal citations. As a major consequence, the overall impact of pioneering articles and researchers cannot be entirely determined by merely counting the full reference based citations.

Keywords: Citation, Citations, Comparison, Crystals, Current Situation, Fraction, Impact, Light Diffusion, Quantum-Mechanics, Wave Mechanics

? Takeda, Y., Mae, S., Kajikawa, Y. and Matsushima, K. (2009), Nanobiotechnology as an emerging research domain from nanotechnology: A bibliometric approach. *Scientometrics*, **80** (1), 23-38.

Full Text: [2009\Scientometrics80, 23.pdf](2009/Scientometrics80,%2023.pdf)

Abstract: Nanotechnology has been intensively investigated by bibliometric methods due to its technological importance and expected impacts on economic activity. However, there is less focus on nanobiotechnology, which is an emerging research domain in nanotechnology. In this paper, we study the current status of the former, with our primary focus being to reveal the structure and research domains in nanobiotechnology. We also examine country and institutional performance in nanobiotechnology. It emerged that nanostructures, drug delivery and biomedical applications, bio-imaging, and carbon nanotubes and biosensors are the major research domains, while the USA is the leading country, and China has also made substantial contribution. Most institutions having a major impact in the area of nanobiotechnology are located in the USA.

Keywords: Applications, Bibliometric, Carbon, Carbon Nanotubes, China, Citation Analysis, Collaboration, Current, Domains, Drug, Economic, Impact, Institutions, Methods, Nano-Technology, Networks, Patents, Patterns, Performance, Research, Research-and-Development, Science, Status, Structure, Technology Field, Trends, USA

Notes: TTopic

? Li, L.L., Ding, G.H., Feng, N., Wang, M.H. and Ho, Y.S. (2009), Global stem cell research trend: Bibliometric analysis as a tool for mapping of trends from 1991 to 2006. *Scientometrics*, **80** (1), 39-58.

Full Text: [2009\Scientometrics80, 39.pdf](2009/Scientometrics80,%2039.pdf)

Abstract: In this study, we aim to evaluate the global scientific production of stem cell research for the past 16 years and provide insights into the characteristics of the stem cell research activities and identify patterns, tendencies, or regularities that may exist in the papers. Data are based on the online version of SCI, Web of Science from 1991 to 2006. Articles referring to stem cell were assessed by many aspects including exponential fitting the trend of publication outputs during 1991-2006, distribution of source title, author keyword, and keyword plus analysis. Based on the exponential fitting the yearly publicans of the last decade, it can also be calculated that, in 2,011, the number of scientific papers on the topic of stem-cell will be twice of the number of publications in 2006. Synthetically analyzing three kinds of keywords, it can be concluded that application of stem cell transplantation technology to human disease therapy, especially research related on “embryonic stem cell” and “mesenchymal stem cell” is the orientation of all the stem cell research in the 21(st) century. This new bibliometric method can help relevant researchers realize the panorama of global stem cell research, and establish the further research direction.

Keywords: Activities, Articles, Bibliometric, Bibliometric Analysis, Bone-Marrow-Transplantation, Characteristics, Differentiation, Diseases, Distribution, Global, Growth, Human, Mapping, Model, Number of Publications, Pluripotency, Production, Productivity, Publication, Publications, Regeneration, Research, Research Trend, Researchers, SCI, Science, Scientific Production, Technology, Therapy, Topic, Transplantation, Trend, Trends, Web of Science

? Liu, Y.X., Rao, I.K.R. and Rousseau, R. (2009), Empirical series of journal h-indices: the JCR category Horticulture as a case study. *Scientometrics*, **80** (1), 59-74.

Full Text: [2009\Scientometrics80, 59.pdf](2009/Scientometrics80,%2059.pdf)

Abstract: Two types of series of h-indices for journals published in the field of Horticulture during the period 1998-2007 are calculated. Type I h-indices are based on yearly data, while type II h-indices use cumulative data. These h-indices are also considered in a form normalised with respect to the number of published articles. It is observed that type I h-indices, normalised or not, decrease linearly over a period of ten years. The type II series, however, is not linear in nature: it exhibits partly a concave shape. This proves that the journals (in Horticulture) do not exhibit a linear increase in h-Index as argued by Hirsch in the case of life-time achievements of scientists. In the second part of the paper, an attempt is made to study the relative visibility of a journal and its change over time, based on h-indices of journals. It is shown that: the h-Index over the complete period 1998-2007 of the journal Theoretical & Applied Genetics (h = 62) is much higher than that of all other journals in the field the relation between the number of publications and the type II h-Index for the whole period is not an exact power law (as it would have to be if the Egghe-Rousseau model were applicable) in order to study the dynamic aspects of journal visibility, a field-relative normalised h-ratio is defined to monitor systematic changes in the field of Horticulture. Except for two journals, the Pearson correlation coefficient for yearly values of this field-relative normalised h-ratio indicates that there is no systematic change of the performance of the journals with respect to the field as a whole.

Keywords: Case Study, Change, Changes, Correlation, Correlation Coefficient, Dynamic, Hirsch-Index, Journal, Journals, Law, Lifetime, Model, Performance, Power, Time, Values

? Kim, H. and Lee, J.Y. (2009), Archiving research trends in LIS domain using profiling analysis. *Scientometrics*, **80** (1), 75-90.

Full Text: [2009\Scientometrics80, 75.pdf](2009/Scientometrics80,%2075.pdf)

Abstract: This study aims to provide archiving research trends from the perspective of the field of library and information science using profiling analysis method. The LISA database has been selected as the representative database in the library and information science field, and articles have been searched via the keyword ‘archiv\*’. The analysis methods used in this study were the journal profiling method and the descriptor profiling method. The descriptor profiling method presents descriptors as a bag of words. That is, it represents descriptors according to the word sets which are included in the documents in which those descriptors are assigned. As a result of journal analysis, six representative journals which are closely related to archiv\* have been identified. The six journals were Archivaria, Advanced Technology Libraries, Journal of the Society of Archivists, American Archivist, Archifacts, and Records Management Bulletin. The results of descriptor analysis show that the most comprehensive and core subject was digital libraries, and the most comprehensive and core object was the electronic media. Another result of detailed analysis shows that the outstanding objects were publications, special collections/sound, cultural heritage, television, image/photographs, internet/bibliographic data, and DB/newspapers. On the other hand, outstanding subjects were Archives, National Libraries, Universities, Libraries and companies.

Keywords: American, Analysis, Database, Electronic Media, Information, Journal, Journals, Lis, Media, Methods, Research, Science, Television, Trends

? Zhao, Y.Y., Cui, L. and Yang, H. (2009), Evaluating reliability of co-citation clustering analysis in representing the research history of subject. *Scientometrics*, **80** (1), 91-102.

Full Text: [2009\Scientometrics80, 91.pdf](2009/Scientometrics80,%2091.pdf)

Abstract: This paper aimed to examine the reliability of co-citation clustering analysis in representing the research history of subject by comparing the results from co-citation clustering analysis with a review written by authorities. Firstly, the treatment of traumatic spinal cord injury was chosen as an investigated subject to be retrieved the resource articles and their references were downloaded from Science Citation Index CD-ROM between 1992 and 2002. Then, the highly cited papers were arranged chronologically and clustered with the method of co-citation clustering. After mapping the time line visualization, the history and structure of treatment of spinal cord injury were presented clearly. At last, the results and the review were compared according the time period, and then the recall and the precision were calculated. The recall was 37.5%, and the precision was 54.5%. The research history of traumatic spinal cord injury treatment analyzed by co-citation clustering was nearly consistent with authoritative review, although some clusters had shorter period than which was summarized by professionals. This paper concluded that co-citation clustering analysis was a useful method in representing the research history of subject, especially for the information researchers, who do not have enough professional knowledge. Its demerit of low recall could be offset by combination this method with other analytic techniques.

Keywords: Analysis, Authoritative, History, Information, Injury, Knowledge, Mapping, Professional Knowledge, Professionals, Reliability, Research, Review, Spinal Cord, Structure, Traumatic, Treatment

? Schneider, J.W., Larsen, B. and Ingwersen, P. (2009), A comparative study of first and all-author co-citation counting, and two different matrix generation approaches applied for author co-citation analyses. *Scientometrics*, **80** (1), 103-130.

Full Text: [2009\Scientometrics80, 103.pdf](2009/Scientometrics80,%20103.pdf)

Abstract: the present article contributes to the current methodological debate concerning author co-citation analyses. (ACA) the study compares two different units of analyses, i.e. first- versus inclusive all-author co-citation counting, as well as two different matrix generation approaches, i.e. a conventional multivariate and the so-called Drexel approach, in order to investigate their influence upon mapping results. The aim of the present study is therefore to provide more methodological awareness and empirical evidence concerning author co-citation studies. The study is based on structured XML documents extracted from the IEEE collection. These data allow the construction of ad-hoc citation indexes, which enables us to carry out the hitherto largest all-author co-citation study. Four ACA are made, combining the different units of analyses with the different matrix generation approaches. The results are evaluated quantitatively by means of multidimensional scaling, factor analysis, Procrustes and Mantel statistics. The results show that the inclusion of all cited authors can provide a better fit of data in two-dimensional mappings based on MDS, and that inclusive all-author co-citation counting may lead to stronger groupings in the maps. Further, the two matrix generation approaches produce maps that have some resemblances, but also many differences at the more detailed levels. The Drexel approach produces results that have noticeably lower stress values and are more concentrated into groupings. Finally, the study also demonstrates the importance of sparse matrices and their potential problems in connection with factor analysis. We can confirm that inclusive all-ACA produce more coherent groupings of authors, whereas the present study cannot clearly confirm previous findings that first-ACA identifies more specialties, though some vague indication is given. Most crucially, strong evidence is given to the determining effect that matrix generation approaches have on the mapping of author co-citation data and thus the interpretation of such maps. Evidence is provided for the seemingly advantages of the Drexel approach.

Keywords: ACA, Analysis, Awareness, Citation, Classification, Coefficient, Comparative, Current, Evidence, Factor Analysis, Generation, Inclusion, Influence, Information-Science, Lead, Mapping, Maps, Networks, Problems, Proximity-Measures, Resemblance, Statistics, Stress, Values

? Acosta, M., Coronado, D. and Fernandez, A. (2009), Exploring the quality of environmental technology in Europe: evidence from patent citations. *Scientometrics*, **80** (1), 131-152.

Full Text: [2009\Scientometrics80, 131.pdf](2009/Scientometrics80,%20131.pdf)

Abstract: In this paper we carry out an empirical analysis to address some questions concerning the production and quality of technology in environmental sectors. The methodology involves patents as a measure of the generation of new knowledge, and patent citations as a proxy for the quality of a technological invention. The sample contains more than 12,000 environmental European patents from firms and government institutions from 1998 to 2004. From our econometric analysis, we found that environmental patents applied by individual inventors present on average less quality that those applied by institutional inventors. The size of family patent is relevant to explain forward patent citation. Furthermore, patents coming from abroad (out of Europe), in particular with US and Japan priority, are more cited on average than local patents (with European priority). Lastly, the specialization in environmental fields of a patent plays a negative role in determining the frequency of forward citation.

Keywords: Analysis, Citation, Citations, Diffusion, Environmental, Europe, Evidence, Family, Generation, Government Institutions, Impact, Indicators, Individual, Innovation, Institutions, Japan, Knowledge, Methodology, Policy, Production, Quality, Rights, Technology, US

? Gantman, E.R. (2009), International differences of productivity in scholarly management knowledge. *Scientometrics*, **80** (1), 153-165.

Full Text: [2009\Scientometrics80, 153.pdf](2009/Scientometrics80,%20153.pdf)

Abstract: Using a dataset of refereed conference papers, this work explores the determinants of academic production in the field of management. The estimation of a count data model shows that the countries’ level of economic development and their economy size have a positive and highly significant effect on scholarly management knowledge production. The linguistic variable (English as official language), which has been cited by the literature as an important factor facilitating the participation in the international scientific arena, has also a positive and statistically significant effect.

Keywords: Academic, Determinants, Development, Economic, Economic Development, International, Knowledge, Language, Literature, Management, Model, Participation, Production, Productivity, Science, Technology, Work, World

? Mukherjee, B. (2009), Scholarly research in LIS open access electronic journals: A bibliometric study. *Scientometrics*, **80** (1), 167-194.

Full Text: [2009\Scientometrics80, 167.pdf](2009/Scientometrics80,%20167.pdf)

Abstract: Using 17 fully open access electronic journals published uninterruptedly during 2000-2004 in the field of Library and Information Science the present study investigated the trend of LIS Open Access e-journals’ literature by analysing articles, authors, institutions, countries, subjects, & references. Quantitative content analysis was carried out on the data, data were analysed in order to project literature growth, authorship pattern, gender pattern, cited references pattern and related bibliometric phenomena. The analysis indicates that there were as many as 1636 articles published during 2000-2004 with an average increment of 23.75 articles per year. The authorship pattern indicates that team research has not been very common in LIS OA publishing and male authors were keener than female authors. Authors from academic institutions were paid more interest in OA publishing and most of them were from developed nations. The subject coverage of these OA e-journals was very vast and almost all facets of information and library science were covered in these articles. There were 90.10% of articles of these e-journals contained references and on an average an article contained 24 references. of these, 38.53% of references were hyperlinked and 87.35% of hyperlinked references were live during investigation. The analysis of data clearly indicates that OA e-journals in LIS are rapidly establishing themselves as a most viable media for scholarly communication.

Keywords: Academic, Access, Analysis, Area, Articles, Authorship, Bibliometric, Citation Analysis, Collaboration, Communication, Content Analysis, Coverage, Female, Gender, Growth, Impact, Information, Information-Science, Institutions, Internet, Journals, Library, Lis, Literature, Male, Media, Research, Science

? Elmacioglu, E. and Lee, D. (2009), Modeling idiosyncratic properties of collaboration networks revisited. *Scientometrics*, **80** (1), 195-216.

Full Text: [2009\Scientometrics80, 195.pdf](2009/Scientometrics80,%20195.pdf)

Abstract: A study on the network characteristics of two collaboration networks constructed from the ACM and DBLP digital libraries is presented. Different types of generic network models and several examples are reviewed and experimented on re-generating the collaboration networks. The results reveal that while these models can generate the power-law degree distribution sufficiently well, they are not able to capture the other two important dynamic metrics: average distance and clustering coefficient. While all current models result in small average distances, none shows the same tendency as the real networks do. Furthermore all models seem blind to generating large clustering coefficients. To remedy these shortcomings, we propose a new model with promising results. We get closer values for the dynamic measures while having the degree distribution still power-law by having link addition probabilities change over time, and link attachment happen within local neighborhood only or globally, as seen in the two collaboration networks.

Keywords: Attachment, Blind, Change, Collaboration, Competition, Complex Networks, Current, Distribution, Dynamic, Evolution, Evolving Networks, Measures, Model, Modeling, Models, Neighborhood, Networks, Small-World Networks, Topology, Values

? Vasconcelos, S.M.R., Sorenson, M.M. and Leta, J. (2009), A new input indicator for the assessment of science & technology research? *Scientometrics*, **80** (1), 217-230.

Full Text: [2009\Scientometrics80, 217.pdf](2009/Scientometrics80,%20217.pdf)

Abstract: Traditional input indicators of research performance, such as research funding, number of active scientists, and international collaborations, have been widely used to assess countries’ publication output. However, while publication in today’s English-only research world requires sound research in readable English, English proficiency may be a problem for the productivity of non-native English-speaking (NNES) countries. Data provided by the Brazilian National Research Council (CNPq) containing the academic profile of 51,223 Brazilian researchers show a correlation between English proficiency and publication output. According to our results, traditional input indicators may fall short of providing an accurate representation of the research performance of NNES developing countries.

Keywords: Academic, Assessment, Correlation, Developing Countries, English, Indicators, International, Language, Performance, Productivity, Profile, Publication, Representation, Research, Science, Technology

? Ketzler, R. and Zimmermann, K.F. (2009), Publications: German economic research institutes on track. *Scientometrics*, **80** (1), 231-252.

Full Text: [2009\Scientometrics80, 231.pdf](2009/Scientometrics80,%20231.pdf)

Abstract: About a decade ago the German Science Council requested a strengthening of academic research at the German economic research institutes to improve the academic foundation of policy advice - the traditional task of the institutes. Based on publications in SSCI journals, research output has since then improved remarkably in scope and quality and has involved an ever rising number of scholars within the institutes. It can be considered to be a substantial success, which should be internationally recognized. The present study demonstrates that for a wide range of different methods the rankings of publication performance is fairly robust. The results are distorted, however, if they are based on a highly selective list of journals as was the case in previous literature.

Keywords: Academic, Economic, Journals, Literature, Methods, Performance, Policy, Quality, Research

? Aminpour, F., Kabiri, P., Otroj, Z. and Keshtkar, A.A. (2009), Webometric analysis of Iranian universities of medical sciences. *Scientometrics*, **80** (1), 253-264.

Full Text: [2009\Scientometrics80, 253.pdf](2009/Scientometrics80,%20253.pdf)

Abstract: There are many researches have been conducted on webometrics, especially the impacts of websites on each other and the web impact factor. However, there are few studies focusing on the websites of Iranian universities. This study analyzed the websites of Iranian universities of medical sciences according to the webometric indicators. In a cross-sectional study, the number of web pages, inlinks, external inlinks and also the overall and absolute web impact factors for Iranian universities of medical sciences with active exclusive websites were calculated and compared using AltaVista search engine. Finally, the websites were ranked based on these webometric indicators. The results showed that the website of Tehran university of medical sciences with 49,300 web pages and 9860 inlinks was ranked first for the size and number of inlinks, while its impact factor was ranked 38th. Rafsanjan UMS with 15 web pages and 211 links had the highest rank for the web impact factor among Iranian universities of medical sciences. The study revealed that Iranian universities of medical sciences did not have much impact on the web and were not well known internationally. The major reason relies on linguistic barriers. Some of them also suffer from technical problems in their web design.

Keywords: Analysis, Barriers, Cross-Sectional, Design, Factors, Impact, Indicators, Medical, Problems, Sites, University, Web, Web Impact Factors

? Buela-Casal, G., Zych, I., Medina, A., Del Jesus, M.I.V., Lozano, S. and Torres, G. (2009), Analysis of the influence of the two types of the journal articles; theoretical and empirical on the impact factor of a journal. *Scientometrics*, **80** (1), 265-282.

Full Text: [2009\Scientometrics80, 265.pdf](2009/Scientometrics80,%20265.pdf)

Abstract: the study discusses the necessity to analyze the influence of theoretical and empirical types of journal articles on the citation impact of Spanish psychology journals. Three of the most representative Spanish psychology journals were selected for the purposes of this study: Papeles del Psiclogo, Analisis y Modificacin de Conducta and Psicothema. Twenty-three psychology journals in Spanish were used as source journals. Altogether, there were sixty-seven issues reviewed for the references and ninety-three issues for the articles. The bibliometricanalysis was conducted by six highly trained psychologists. The results demonstrated differences regarding the percentages of empirical and theoretical articles published in the three examined journals and the number of citations received by them based on the article type. When normalizing the results according to the number of theoretical and empirical articles that were published, it becomes evident that the theoretical articles receive on average twice as many references as the empirical ones. We discuss the importance of this effect on the comparison of journals based on their citation impact and show the evidence that it is only valid to compare journals which publish a similar percentage of theoretical and empirical articles.

Keywords: Citation, Citation-Index Database, Citations, Comparison, Evidence, Guide, Impact, Influence, Journal, Journals, Patterns, Physics, Psychology, Psychopathology, Publication

? Gao, X. and Guan, J.C. (2009), Networks of scientific journals: An exploration of Chinese patent data. *Scientometrics*, **80** (1), 283-302.

Full Text: [2009\Scientometrics80, 283.pdf](2009/Scientometrics80,%20283.pdf)

Abstract: We apply social network analysis to display the characteristics of the networks resulting from bibliographic coupling of journals by the Chinese patent data of United States Patent and Trademark Office (USPTO) between 1995 and 2002. The networks of journals in all fields, the three strongly science-based fields (i.e. Biotechnology, Pharmaceuticals, and Organic Fine Chemistry), and the three weakly science-based fields (i.e. Optics, Telecommunications, and Consumer Electronics), have been analyzed from the global and the ego views, respectively. We study a variety of statistical properties of our networks, including number of actors, number of edges, size of the giant component, density, mean degree, clustering coefficient and the centralization measures of the network. We also highlight some apparent differences in the network structure between the subjects studied. Besides, we use the three centrality measures, i.e. degree, closeness, and betweenness, to identify the important journals in the network of all fields and those strongly science-based networks.

Keywords: Analysis, Chinese, Domains, Journals, Linkages, Measures, Networks, References, Science Base, Scientific Journals, Social, Social Network, Social Network Analysis, Structure, Technology, United States

? Schmoch, U. and van Raan, A.F.J. (2009), Hariolf Grupp 3rd July 1950-20th January 2009 Obituary. *Scientometrics*, **80** (2), 303-304.

Full Text: [2009\Scientometrics80, 303.pdf](2009/Scientometrics80,%20303.pdf)

? Zhang, W.W., Qian, W.H. and Ho, Y.S. (2009), A bibliometric analysis of research related to ocean circulation. *Scientometrics*, **80** (2), 305-316.

Full Text: [2009\Scientometrics80, 305.pdf](2009/Scientometrics80,%20305.pdf); [2009\Scientometrics80, 307-1.pdf](2009/Scientometrics80,%20307-1.pdf)

Abstract: This study is a bibliometric analysis on ocean circulation-related research for the period 1991-2005. Selected documents included “ocean circulation, sea circulation, seas circulation, marine circulation, and circulation ocean” as a part of the title, abstract or keywords. Analyzed parameters included the document type, the article output, the article distribution in journals, the publication activity of countries, and institutes and the authorship. An indicator, citation per publication (CPP) was applied to evaluate the scientific impact of a publication. The relationship between cumulative articles and the year was modeled. Three dominant categories were picked out, and their output increase was modeled. The USA was found to be leading the research with 47% share of total articles, with a CPP up to 5.9. Woods Hole Oceanography Institute in the USA was the most productive institute with a CPP of 6.8. In the citation analysis, a 5th year citation mode was found. A paper life model was applied to compare the cumulative citations increasing rates of different years.

Keywords: Analysis, Atlantic, Authorship, Bibliometric, Categories, Citation, Citations, Distribution, Impact, Journals, Life, Marine, Model, Relationship, Research, USA, WOCE

? Tol, R.S.J. (2009), The h-Index and its alternatives: An application to the 100 most prolific economists. *Scientometrics*, **80** (2), 317-324.

Full Text: [2009\Scientometrics80, 317.pdf](2009/Scientometrics80,%20317.pdf)

Abstract: the h-Index is a recent but already quite popular way of measuring research quality and quantity. However, it discounts highly-cited papers. The g-index corrects for this, but it is sensitivity to the number of never-cited papers. Besides, h- or g-index-based rankings have a large number of ties. Therefore, this paper introduces two new indices, and tests their performance for the 100 most prolific economists. A researcher has a t-number (f-number) of t (f) if t (f) is the largest number for which it holds that she has t (f) publications for which the geometric (harmonic) average number of citations is at least t (f). The new indices overcome the shortcomings of the old indices.

Keywords: Citations, Indices, Performance, Quality, Research, Sensitivity

? Marchant, T. (2009), An axiomatic characterization of the ranking based on the h-Index and some other bibliometric rankings of authors. *Scientometrics*, **80** (2), 325-342.

Full Text: [2009\Scientometrics80, 325.pdf](2009/Scientometrics80,%20325.pdf)

Abstract: In the last few years, many new bibliometric rankings or indices have been proposed for comparing the output of scientific researchers. We propose a formal framework in which rankings can be axiomatically characterized. We then present a characterization of some popular rankings. We argue that such analyses can help the user of a ranking to choose one that is adequate in the context where she/he is working.

Keywords: Bibliometric, Characterization, Context, Indices, Output

? Patterson, M.S. and Harris, S. (2009), The relationship between reviewers’ quality-scores and number of citations for papers published in the journal Physics in Medicine and Biology from 2003-2005. *Scientometrics*, **80** (2), 343-349.

Full Text: [2009\Scientometrics80, 343.pdf](2009/Scientometrics80,%20343.pdf)

Abstract: for each of the years 2003, 2004, and 2005 the number of citations for individual papers published in Physics in Medicine and Biology was compared to the mean quality-score assigned to the manuscript by two independent experts as part of the normal peer review process. A low but statistically significant correlation was found between citations and quality score (1 best to 5 worst) for every year: 2003: -0.227 (p < 0.001); 2004: -0.238 (p < 0.001); 2005: -0.154 (p < 0.01). Papers in the highest quality category (approximately 10 per cent of those published) were cited about twice as often as the average for all papers. Data were also examined retrospectively by dividing the papers published in each year into five citation quintiles. A paper of the highest quality is about ten times more likely to be found in the most cited quintile than in the least cited quintile. By making the assumption that the mean number of citations per paper is a reasonable surrogate for the impact factor, it was also shown that the impact factor for Physics in Medicine and Biology could be increased substantially by rejecting more papers based on the reviewers’ scores. To accomplish this, however, would require a reduction in the acceptance rate of manuscripts from about 50 per cent to near 10 per cent.

Keywords: Acceptance, Articles, Citation, Citations, Correlation, Impact, Individual, Journal, Peer, Process, Quality, Reduction, Relationship, Review

? Wray, K.B. (2009), The salaries of Italian Renaissance professors. *Scientometrics*, **80** (2), 351-357.

Full Text: [2009\Scientometrics80, 351.pdf](2009/Scientometrics80,%20351.pdf)

Abstract: I offer insight into the principles by which the salaries of Italian Renaissance professors were determined. There is a longstanding fascination with the fact that some professors during the Renaissance had extremely high salaries. It has been suggested that at the top of the salary scale were the superstars, professors who could attract many students and raise the prestige of the university. Through an analysis of data on the salaries of professors at Padua in 1422-1423, I argue that much of the differences in salaries can be explained in terms of the stage of career of professors. Those professors who have taught the longest tend to be paid the most. Hence, there is little evidence for the superstar thesis.

Keywords: Analysis, Career, Evidence, Insight, Scale, Students, University

? Liang, L.M. and Rousseau, R. (2009), Bibliometric characteristics of the journal Science: Pre-Koshland, Koshland and post-Koshland period. *Scientometrics*, **80** (2), 359-372.

Full Text: [2009\Scientometrics80, 359.pdf](2009/Scientometrics80,%20359.pdf)

Abstract: During the period 1985-1995 Daniel Koshland was Editor-in-Chief of the journal Science. As such he exerted a huge influence on all aspects related to content and lay-out of the journal. This study compares Science’s bibliometric characteristics between three periods: a pre-Koshland (1975-1984) period, the Koshland period (1985-1995) and the post-Koshland period (1996-2006). The distributions of document types, the country/territory and institutional distribution of authors, co-authorship data and disciplinary impact measured by subject categories of citations are studied. These bibliometric characteristics unveil some of the changes the journal went through under the leadership of Daniel Koshland.

Keywords: Bibliometric, Categories, Changes, Citations, Distribution, Impact, Influence, Journal, Leadership, Rhythm

? Osca-Lluch, J., Velasco, E., Lopez, M. and Haba, J. (2009), Co-authorship and citation networks in Spanish history of science research. *Scientometrics*, **80** (2), 373-383.

Full Text: [2009\Scientometrics80, 373.pdf](2009/Scientometrics80,%20373.pdf)

Abstract: This paper studies cooperation patterns in Spain between science history researchers by analysing co-authorship in the scientific publications of the Social Science Citation Index (SSCI) and the Science Citation Index (SCI) databases.

Keywords: Citation, Cooperation, Databases, History, Networks, Patterns, Research, SCI, Science, Spain

? Blatt, E.M. (2009), Differentiating, describing, and visualizing scientific space: A novel approach to the analysis of published scientific abstracts. *Scientometrics*, **80** (2), 385-406.

Full Text: [2009\Scientometrics80, 385.pdf](2009/Scientometrics80,%20385.pdf)

Abstract: This paper will develop and demonstrate a novel method for analyzing scientific indexes called Latent Semantic Differentiation. Using two distinct datasets comprised of scientific abstracts, it will demonstrate the procedure’s ability to identify the dominant themes, cluster the articles accordingly, visualize the results, and provide a qualitative description of each cluster. Combined, the analyses will highlight the utility of the procedure for scientific document indexing, structuring university departments, facilitating grant administration, and augmenting ongoing research on scientific citation. Because the procedure is extensible to any textual domain, there are numerous avenues for continued research both within the sciences and beyond.

Keywords: Ability, Administration, Analysis, Citation, Cluster, Cocitation, Evolution, Information, Knowledge, Latent Semantic Analysis, Networks, Novel, Qualitative, Research, Science, Space, Topics, University, Word Analysis

? Aleixandre-Benavent, R., Gonzalez-Alcaide, G., Miguel-Dasit, A., Navarro-Molina, C. and Valderrama-Zurian, J.C. (2009), Full-text publications in peer-reviewed journals derived from presentations at three ISSI conferences. *Scientometrics*, **80** (2), 407-418.

Full Text: [2009\Scientometrics80, 407.pdf](2009/Scientometrics80,%20407.pdf)

Abstract: This study analyses the bibliometric characteristics of the presentations at the 5th, 8th and 10th Conferences of the International Society for Scientometrics and Informetrics, which were subsequently published in peer-reviewed journals covered by the Science Citation Index, Social Science Citation Index and LISA databases. 31.7% of all the papers presented at the three conferences were published. Scientometrics was the journal that published the highest proportions. A low rate of publication deprives researchers of potentially interesting results and points up the role of the ISSI Conference proceedings as a primary source of information.

Keywords: Abstracts, Bibliometric, Citation, Databases, Fate, Information, Journal, Journals, Meetings, Publish, Rates, Subsequent Publication

? Sooryamoorthy, R. (2009), Collaboration and publication: How collaborative are scientists in South Africa? *Scientometrics*, **80** (2), 419-439.

Full Text: [2009\Scientometrics80, 419.pdf](2009/Scientometrics80,%20419.pdf)

Abstract: Using bibliographic records from the Science Citation Index, the paper examines the publication of South African scientists. The analysis shows that collaboration research in South Africa has been growing steadily and the scientists are highly oriented towards collaborative rather than individualistic research. International collaboration is preferred to domestic collaboration while publication seems to be a decisive factor in collaboration. The paper also looks at the collaboration dimensions of partnering countries, sectors and disciplines, and examines how collaboration can be predicted by certain publication variables. Characteristic features are evident in both the degree and nature of collaboration which can be predicted by the number of countries involved, number of partners and the fractional count of papers.

Keywords: Academic Research, Africa, Analysis, Authorship, Collaboration, Countries, Disciplines, Indicators, International Research Collaboration, Networks, Partners, Patterns, Productivity, Profiles, Research, Science, South Africa

? Azagra-Caro, J.M., Fernandez-de-Lucio, I., Perruchas, F. and Mattsson, P. (2009), What do patent examiner inserted citations indicate for a region with low absorptive capacity? *Scientometrics*, **80** (2), 441-455.

Full Text: [2009\Scientometrics80, 441.pdf](2009/Scientometrics80,%20441.pdf)

Abstract: Most studies of patents citations focus on national or international contexts, especially contexts of high absorptive capacity, and employ examiner citations. We argue that results can vary if we take the region as the context of analysis, especially if it is a region with low absorptive capacity, and if we study applicant citations and examiner-inserted citations separately. Using a sample from the Valencian Community (Spain), we conclude that (i) the use of examiner-inserted citations as a proxy for applicant citations, (ii) the interpretation of non-patent references as indicators of science-industry links, and (iii) the traditional results for geographical localization are not generalizable to all regions with low absorptive capacity.

Keywords: Analysis, Capacity, Citations, Context, Flows, Indicators, Innovation Systems, International, Knowledge Spillovers, Localization, Region, Science, Spain, Technology

? Cantu, A.G. and Ausloos, M. (2009), Organizational and dynamical aspects of a small network with two distinct communities: Neo-creationists vs. Evolution Defenders. *Scientometrics*, **80** (2), 457-472.

Full Text: [2009\Scientometrics80, 457.pdf](2009/Scientometrics80,%20457.pdf)

Abstract: Social impacts and degrees of organization inherent to opinion formation for interacting agents on networks present interesting questions of general interest from physics to sociology. We present a quantitative analysis of a case implying an evolving small size network, i.e. that inherent to the ongoing debate between modern creationists (most are Intelligent Design (ID) proponents (IDP) and Darwin’s theory of Evolution Defenders (DED)). This study is carried out by analyzing the structural properties of the citation network unfolded in the recent decades by publishing works belonging to members of the two communities. With the aim of capturing the dynamical aspects of the interaction between the IDP and DED groups, we focus on two key quantities, namely, the degree of activity of each group and the corresponding degree of impact on the intellectual community at large. A representative measure of the former is provided by the rate of production of publications (RPP), whilst the latter can be assimilated to the rate of increase in citations (RIC). These quantities are determined, respectively, by the slope of the time series obtained for the number of publications accumulated per year and by the slope of a similar time series obtained for the corresponding citations. The results indicate that in this case, the dynamics can be seen as geared by triggered or damped competition. The network is a specific example of marked heterogeneity in exchange of information activity in and between the communities, particularly demonstrated through the nodes having a high connectivity degree, i.e. opinion leaders.

Keywords: Analysis, Belonging, Citation, Citations, Communities, Community, Competition, Connectivity, Dynamics, Exchange, Group, Heterogeneity, Impact, Information, Intelligent Design, Interaction, Key, Models, Modern, Networks, Organization, Population, Production, Quantitative, Theory

? Gupta, B. and Dhawan, S. (2009), Status of India in science and technology as reflected in its publication output in the Scopus international database, 1996-2006. *Scientometrics*, **80** (2), 473-490.

Full Text: [2009\Scientometrics80, 473.pdf](2009/Scientometrics80,%20473.pdf)

Abstract: This paper seeks to provide current indicators on Indian science and technology for measuring the country’s progress in research. The study uses for the purpose 11 years publications data on India and top 20 productive countries as drawn from the Scopus database for the period 1996 to 2006. The study examines country performance on several measures including country publication share in the world research output, country publication share in various subjects in the national context and in the global context, patterns of research communication in core Indian domestic and international journals, geographical distribution of publications, share of international collaborative papers at the national level as well as across subjects and characteristics of high productivity institutions, scientists and cited papers. The paper also compares the similarity of Indian research profile with top 20 productive countries. The findings of the study should be of special significance to the planners & policy-makers as they have implications for the long term S&T planning of the country.

Keywords: Citation-Index, Communication, Context, Current, Database, Decline, Distribution, India, Indicators, Institutions, International, Journals, Measures, Patterns, Performance, Planning, Productivity, Profile, Research, Science, Similarity, Technology

? Hengl, T., Minasny, B. and Gould, M. (2009), A geostatistical analysis of geostatistics. *Scientometrics*, **80** (2), 491-514.

Full Text: [2009\Scientometrics80, 491.pdf](2009/Scientometrics80,%20491.pdf)

Abstract: the bibliometric indices of the scientific field of geostatistics were analyzed using statistical and spatial data analysis. The publications and their citation statistics were obtained from the Web of Science (4000 most relevant), Scopus (2000 most relevant) and Google Scholar (5389). The focus was on the analysis of the citation rate (CR), i.e. number of citations an author or a library item receives on average per year. This was the main criterion used to analyze global trends in geostatistics and to extract the Top 25 most-cited lists of the research articles and books in geostatistics. It was discovered that the average citation rate for geostatisticians has stabilized since 1999, while the authors’ n-index seems to have declined ever since. One reason for this may be because there are more and more young authors with a lower n-index. We also found that the number of publications an author publishes explains only 60% of the variation in the citation statistics and that this number progressively declines for an author with a lower number of publications. Once the geographic location is attached to a selection of articles, an isotropic Gaussian kernel smoother weighted by the CR can be used to map scientific excellence around the world. This revealed clusters of scientific excellence around locations such as Wageningen, London, Utrecht, Hampshire, UK, Norwich, Paris, Louvain, Barcelona, and Zurich (Europe); Stanford, Ann Arbor, Tucson, Corvallis, Seattle, Boulder, Montreal, Baltimore, Durham, Santa Barbara and Los Angeles (North America); and Canberra, Melbourne, Sydney, Santiago (Chile), Taipei, and Beijing (other continents). Further correlation with socio-economic variables showed that the spatial distribution of CRs in geostatistics is independent of the night light image (which represents economic activity) and population density. This study demonstrates that the commercial scientific indexing companies could enhance their service by assigning the geographical location to library items to allow spatial exploration and analysis of bibliometric indices.

Keywords: Analysis, Bibliometric, Chile, Citation, Citations, Correlation, Data Analysis, Distribution, Economic, Europe, Geostatistics, Google Scholar, h-Index, Image, Indices, Melbourne, Population, Research, Selection, Series, Service, Socio-Economic, Socioeconomic, Spatial, Spatial Data, Spatial Distribution, Statistics, Trends, UK

? Andrade, A., Gonzalez-Jonte, R. and Campanario, J.M. (2009), Journals that increase their impact factor at least fourfold in a few years: the role of journal self-citations. *Scientometrics*, **80** (2), 515-528.

Full Text: [2009\Scientometrics80, 515.pdf](2009/Scientometrics80,%20515.pdf)

Abstract: the aim of this study was to ascertain the possible effect of journal self-citations on the increase in the impact factors of journals in which this scientometric indicator rose by a factor of at least four in only a few years. Forty-three journals were selected from the Thomson-Reuters (formerly ISI) Journal Citation Reports as meeting the above criterion. Eight journals in which the absolute number of citations was lower than 20 in at least two years were excluded, so the final sample consisted of 35 journals. We found no proof of widespread manipulation of the impact factor through the massive use of journal self-citations.

Keywords: Citations, Factors, Impact, Index, Journal, Journals, Labeled Editorial Material, Quality, Science

? Goncalves, R.R., Kieling, C., Bressan, R.A., Mari, J.J. and Rohde, L.A. (2009), The evaluation of scientific productivity in Brazil: An assessment of the mental health field. *Scientometrics*, **80** (2), 529-537.

Full Text: [2009\Scientometrics80, 529.pdf](2009/Scientometrics80,%20529.pdf)

Abstract: Brazilian scientific production has increased significantly over the last decade, and mental health has been a leading research field in the country, with a growing number of articles published in high quality international journals. This article analyses the scientific output of mental health research between 2004 and 2006 and estimates individual research performance based on four different strategies. A total of 106 mental health scientists were included in the analysis; together they published 1,209 articles indexed in MEDLINE or ISI, with over 65% of the production in journals with impact factor a parts per thoUSAnd yen1. Median impact factor of publications was 2. Spearman correlation coefficient showed a large positive correlation between all four different measures used to estimate individual research output. Ten investigators were together responsible for almost 30% of the articles published in the period, whereas 65% of the sample contributed with less than 10 articles.

Keywords: Analysis, Assessment, Brazil, Correlation, Correlation Coefficient, Evaluation, Health, Impact, Individual, International, International Visibility, Journals, Measures, Mental Health, Performance, Production, Productivity, Quality, Research, Science, Strategies, Universities

Notes: TTopic

? Danell, J.A.B. and Danell, R. (2009), Publication activity in complementary and alternative medicine. *Scientometrics*, **80** (2), 539-551.

Full Text: [2009\Scientometrics80, 539.pdf](2009/Scientometrics80,%20539.pdf)

Abstract: In this article we analyse how research on complementary and alternative medicine (CAM) break through into one established scientific arena, namely academic journals. With help from bibliometric methods we analyse publication of CAM articles, in the MEDLINE database, during the period 1966-2007. We also analyse the general content of the articles and in what journals they get published. We conclude that the publication activity of CAM articles increases rapidly, especially in the late 1990s, and that the changing growth rate is not due to the general expansion of MEDLINE. The character of CAM articles has changed towards more clinical oriented research, especially in subfields such as acupuncture and musculoskeletal manipulations. CAM articles are found both in core clinical journals and in specialized CAM journals. Even though a substantial part of the articles are published in CAM journals, we conclude that the increasing publication activity is not restricted to the expansion of these specialized journals.

Keywords: Academic, Acupuncture, Alternative Medicine, Australia, Bibliometric, Clinical, Complementary and Alternative Medicine, Database, Growth, Growth Rate, Journals, Methods, Population, Prevalence, Research, Science, United-States

? Schubert, A. and Schubert, M. (2009), Outperform your neighbors. *Scientometrics*, **80** (2), 553-558.

Full Text: [2009\Scientometrics80, 553.pdf](2009/Scientometrics80,%20553.pdf)

Abstract: A new framework of international comparisons is advised: each country is gauged against its bordering countries. This approach has several undeniable drawbacks, but by revealing some otherwise hidden patterns, advantageously supplements the customary comparison methods.

Keywords: Comparison, International, International Comparisons, Methods, Neighbors, Patterns

Notes: TTopic

? Kumari, G.L. (2009), Synthetic organic chemistry research: Analysis by scientometric indicators. *Scientometrics*, **80** (3), 559-570.

Full Text: [2009\Scientometrics80, 559.pdf](2009/Scientometrics80,%20559.pdf)

Abstract: Present study analyses the research output and impact in Synthetic Organic Chemistry (SOC) during 1998-2004 applying standardized scientometric indicators. Volume of research publications and their citations presented as percentage world share is illustrative of trending pattern against time. Adopting relative indicators - Absolute Citation Impact (ACI) and Relative Citation Impact (RCI), a cross national comparison is attempted at three levels of aggregations - global, Asian and Indian. Based on this analysis, it is concluded that G7 nations, being leaders for the volume of literature published and citations attracted are showing a decreasing trend over the years probably due to shifting and diversification of their research efforts to other emerging research fronts. In contrast smaller nations though publishing low volume but high quality research are represented by Netherlands. This country credited with only 1.12% world share of publications has recorded highest Absolute Citation Impact and recorded higher than world average Relative Citation Impact. In Asian region, between the two developing economies India and China, China out-performed India qualitatively by accounting higher citation share, higher Absolute Citation Impact (ACI) and higher Relative Citation Impact (RCI).

? He, T.W. (2009), International scientific collaboration of China with the G7 countries. *Scientometrics*, **80** (3), 571-582.

Full Text: [2009\Scientometrics80, 571.pdf](2009/Scientometrics80,%20571.pdf)

Abstract: Collaboration is one of the remarkable characteristics of contemporary basic research. Using bibliometric method, we quantitatively analyze international collaboration publication output between China and the G7 countries based on Science Citation Index. The results indicate that international collaboration publication output between China and the G7 countries has shown exponential growth aroused by the growth of science in China. USA is the most important collaboration country and the international collaboration between China and the G7 countries display differences at each research field.

Keywords: Co-Authorship, Impact, Nations, Patterns, Science, Subfields

? He, T.W. and Liu, W. (2009), The internationalization of Chinese scientific journals: A quantitative comparison of three chemical journals from China, England and Japan. *Scientometrics*, **80** (3), 583-593.

Full Text: [2009\Scientometrics80, 583.pdf](2009/Scientometrics80,%20583.pdf)

Abstract: Scientific journals play an important role in international academic information exchange. Their international performance can be evaluated through the comparison of the geographical distribution patterns of authors, citations and subscriptions. In this study we analyzed 3 journals, i.e., Chinese Chemical Letters (China), Chemical Communications (England) and Chemistry Letters (Japan), for their regional distribution patterns of the editorial board members, the authors database, and the citation regions, using the bibliometric method, on the basis of the Web of Science. The results show that, compared with international journals, the Chinese Chemical Letters lags behind in all aspects.

Keywords: Academic Journals, Communication, Science-Citation-Index

? Chung, Y.M., Yu, S.Y., Kim, Y.K. and Kim, S.Y. (2009), Characteristics and link structure of a national scholarly Web space: the case of South Korea. *Scientometrics*, **80** (3), 595-612.

Full Text: [2009\Scientometrics80, 595.pdf](2009/Scientometrics80,%20595.pdf)

Abstract: This study performs a webometric analysis to explore the communication characteristics of scientific knowledge in a national scholarly Web space comprising top ranking universities and government supported research institutions in South Korea. We found significant differences in scholarly communication activity as well as linking behavior among different subspaces in addition to institutional differences. We also found the usefulness of the ADM approach in analyzing the metric data containing extreme outliers and discovered the directory model as the most appropriate. Page counts were found significantly correlated with inlinks as well as with outlinks at the directory level in the whole scholarly Web space.

Keywords: Academic Subjects, Canadian Universities, Citations, Classification, Departments, Disciplinary, Impact Factors, Online Impact, Science, Site Interlinking

? Ruane, F.P. and Tol, R.S.J. (2009), A Hirsch measure for the quality of research supervision, and an illustration with trade economists. *Scientometrics*, **80** (3), 613-624.

Full Text: [2009\Scientometrics80, 613.pdf](2009/Scientometrics80,%20613.pdf)

Abstract: There is a growing literature measuring research excellence in economics. The h-Index is noteworthy in combining quantity and research quality in a single measure of researcher excellence, and its ability to be extended to measure the quantity and quality of the researchers in a department. We extend the use of the first successive h-Index further to measure the quality of graduate education, specifically excellence in research supervision, based on publication and citation data for individual researchers ascribed to their graduate supervisors.

Keywords: Indexes, Scientific-Research Output

? Hayati, Z. and Ebrahimy, S. (2009), Correlation between quality and quantity in scientific production: A case study of Iranian organizations from 1997 to 2006. *Scientometrics*, **80** (3), 625-636.

Full Text: [2009\Scientometrics80, 625.pdf](2009/Scientometrics80,%20625.pdf)

Abstract: In order to prevent the formation of a gap between the quality and quantity in Iranian scientific publications, this study makes an effort to analyze Iranian scientific publications indexed on the ISI Web of Science database using quantitative and qualitative scientometrics criteria over a ten year period. As a first step, all Iranian institutes were divided into three categories; universities, research institutes and other organizations. Then they were compared according to quantitative and qualitative criteria. Second, the correlation between the quality and quantity of the publications was measured. The research findings indicated that, according to qualitative criteria (citation, citation impact and percentage of cited documents) there are no meaningful differences among the three groups, while regarding quantitative criterion(number of papers), universities rank higher than the other two groups. The results also indicated that there is a positive and meaningful correlation among qualitative and quantitative criteria in the scholarly scientific publications conducted by Iranian organizations. In other words, in Iranian organizations the quality of publications increases as their quantity increases. The comparison of magnitude of correlation between these two criteria in the three categories reveals the fact that the correlation between number of papers and citations criterion in research institutes is stronger than the other two groups.

Keywords: Collaboration, Universities

? Chen, Y.S. and Chang, K.C. (2009), Using neural network to analyze the influence of the patent performance upon the market value of the US pharmaceutical companies. *Scientometrics*, **80** (3), 637-655.

Full Text: [2009\Scientometrics80, 637.pdf](2009/Scientometrics80,%20637.pdf)

Abstract: This study applies the artificial neural network technique to explore the influence of quantitative and qualitative patent indicators upon market value of the pharmaceutical companies in US. The results show that Herfindahl-Hirschman Index of patents influences negatively market value of the pharmaceutical companies in US, and their technological independence positively affects their market value. In addition, this study also finds out that patent citations of the American pharmaceutical companies have an inverse U-shaped effect upon their market value.

Keywords: Citations, Classification, Empirical-Analysis, Firms, Industry, Innovation, Portfolios, Predictions, Research-and-Development, Technology

? Neff, M.W. and Corley, E.A. (2009), 35 years and 160,000 articles: A bibliometric exploration of the evolution of ecology. *Scientometrics*, **80** (3), 657-682.

Full Text: [2009\Scientometrics80, 657.pdf](2009/Scientometrics80,%20657.pdf)

Abstract: We utilize the bibliometric tool of co-word analysis to identify trends in the methods and subjects of ecology during the period 1970-2005. Few previous co-word analyses have attempted to analyze fields as large as ecology. We utilize a method of isolating concepts and methods in large datasets that undergo the most significant upward and downward trends. Our analysis identifies policy-relevant trends in the field of ecology, a discipline that helps to identify and frame many contemporary policy problems. The results provide a new foundation for exploring the relations among public policies, technological change, and the evolution of science priorities.

Keywords: Co-Word Analysis, Field, Policy, Problem Choice, Program, Representations, Science Maps

? McMillan, G.S. (2009), Gender differences in patenting activity: An examination of the US biotechnology industry. *Scientometrics*, **80** (3), 683-691.

Full Text: [2009\Scientometrics80, 683.pdf](2009/Scientometrics80,%20683.pdf)

Abstract: the gender gap in science and technology has received considerable attention by both researchers and policy makers. In an effort to better understand the quantity, quality, and underlying characteristics of female research efforts, I integrate three existing databases to uncover how female patenting activities differ from men’s in the US biotechnology industry. Data on how much science the patents build upon, the author institutions of that science, and who funded the papers in which the science appears are all examined. In addition, using the NBER Patent Citation Data Files, I propose a possible gender-based life cycle model for patenting activity. The policy implications of my findings are also discussed.

Keywords: Market, Public Science

? Robert, C., Wilson, C.S., Donnadieu, S., Gaudy, J.F. and Arreto, C.D. (2009), Analysis of the medical and biological pain research literature in the European Union: A 2006 snapshot. *Scientometrics*, **80** (3), 693-716.

Full Text: [2009\Scientometrics80, 693.pdf](2009/Scientometrics80,%20693.pdf)

Abstract: This study analyzed 2443 papers published in 2006 by European Union authors on pain-related research. Five EU countries (the UK, Germany, Italy, the Netherlands and France) each published > 200 papers while three countries (Cyprus, Malta and Estonia) published none; socio-economic indicators were related to each country’s productivity. The 2443 papers were published in 592 journals and Cephalalgia, Pain and European Journal of Pain were the most prolific. Publications were also analyzed for intra- versus inter-EU/non-EU collaborations and subdisciplines profiles in Clinical Medicine and the Life Sciences for the World, USA, EU and the top-four EU countries were compared.

Keywords: Bibliometric Evaluation, Epidemiology, General-Population, Impact, Low-Back-Pain, Neurological Research, Primary-Care, Publications, Scientific Production, World

? Chu, H.T. and Xu, C. (2009), Web 2.0 and its dimensions in the scholarly world. *Scientometrics*, **80** (3), 717-729.

Full Text: [2009\Scientometrics80, 717.pdf](2009/Scientometrics80,%20717.pdf)

Abstract: A bibliometric analysis was performed on a set of 1718 documents relating to Web 2.0 to explore the dimensions and characteristics of this emerging field. It has been found that Web 2.0 has its root deep in social networks with medicine and sociology as the major contributing disciplines to the scholarly publications beyond its technology backbone - information and computer science. Terms germane to Web 2.0, extracted from the data collected in this study, were also visualized to reflect the very nature of this rising star on the Internet. Web 2.0, according to the current research, is of the user, by the user, and more importantly, for the user.

Keywords: Knowledge

? Daizadeh, I. (2009), An intellectual property-based corporate strategy: An R&D spend, patent, trademark, media communication, and market price innovation agenda. *Scientometrics*, **80** (3), 731-746.

Full Text: [2009\Scientometrics80, 731.pdf](2009/Scientometrics80,%20731.pdf)

Abstract: An intellectual property (IP)-centric, communication-based Innovation Agenda is proposed and investigated. The agenda, which is aligned with IP legal prescription, is defined as follows: the firm’s R&D expenditure is captured within products. The firm applies for a patent and files a trademark to protect its interests in the ‘patentable’ product, and issues a media communication, which may alter the perception of future cash flows, and thereby market price. Upon patent issuance and trademark registration, the firm will then seek another media communication. Spearman (partial) correlation analysis shows strong correlation among the various proxy metrics suggesting that the model basis may exist. The model proposes a novel link among national socioeconomic metrics, corporate strategy, and the technology based innovative firm. Finally, the model supports the inclusion of trademark and media communications data to be considered in socioeconomic modeling.

Keywords: Information, Statistics, Stock-Market

? Romero, A.G., Cortes, J.N., Escudero, C., Lopez, J.A.F. and Moreno, J.A.C. (2009), Measuring the influence of clinical trials citations on several bibliometric indicators. *Scientometrics*, **80** (3), 747-760.

Full Text: [2009\Scientometrics80, 747.pdf](2009/Scientometrics80,%20747.pdf)

Abstract: the practice of publishing clinical trials in scientific journals is common, although not without its critics. This study aims to measure the effect of clinical trials citations on several bibliometric indicators: citations per document (CD); journal impact factor (JIF); relative h-Index (RhI) and strike rate index (SRI). We select all the citable documents published in the NEJM, Lancet, JAMA, AIM and BMJ, for the period 2000-2004, and record the citations received by those papers from 2000 to 2005. Our results show that clinical trials have a CD significantly higher than those for conventional papers; JIF is lower when clinical trials are excluded, especially for NEJM, Lancet and JAMA. Finally, both RhI and SRI seem to be unaffected by clinical trials citations.

Keywords: Clinical Trials, Impact Factor, Index, Medical Journals, Pharmaceutical Companies, Self-Citations

? Torres-Salinas, D., Lopez-Cozar, E.D. and Jimenez-Contreras, E. (2009), Ranking of departments and researchers within a university using two different databases: Web of Science versus Scopus. *Scientometrics*, **80** (3), 761-774.

Full Text: [2009\Scientometrics80, 761.pdf](2009/Scientometrics80,%20761.pdf)

Abstract: In this work, we compare the difference in the number of citations compiled with Scopus as opposed to the Web of Science (WoS) with the aim of analysing the agreement among the citation rankings generated by these databases. for this, we analysed the area of Health Sciences of the University of Navarra (Spain), composed of a total of 50 departments and 864 researchers. The total number of published works reflected in the WoS during the period 1999-2005 was 2299. for each work, the number of citations in both databases was recorded. The results indicate that the works received 14.7% more citations in Scopus than in WoS. In the departments, the difference was greater in the clinical ones than in the basic ones. In the case of the rankings of citations, it was found that both databases generate similar results. The Spearman and Kendall-Tau coefficients were higher than 0.9. It was concluded that the difference in the number of citations found did not correspond to the difference of coverage of WoS and Scopus.

? Jonkers, K. (2009), Emerging ties: Factors underlying China’s co-publication patterns with Western European and North American research systems in three molecular life science subfields. *Scientometrics*, **80** (3), 775-795.

Full Text: [2009\Scientometrics80, 775.pdf](2009/Scientometrics80,%20775.pdf)

Abstract: This paper analyses the changing geographic balance in China’s international co-publications in general and in three molecular life science subfields in particular. No support is found for the expectation that intensive, designated institutional support for research collaboration in the form of joint laboratories has a positive impact on the number of co-publications at the systemic level. The size of partner research systems, and since the turn of the century the relative size of overseas Chinese scientific communities in various partner countries do help to explain the observed geographic variations in the share of China’s international co-publications. The paper concludes by discussing some of the potential factors underlying the perceived change in the dynamics of international co-publication behavior of mainland Chinese scientists since the turn of the century.

Keywords: Scientific Collaboration

Notes: TTopic

? Cervantes, V.H., Santana, A.C., Guilera, G. and Gomez-Benito, J. (2009), Hierarchical linear models in psychiatry: A bibliometric study. *Scientometrics*, **80** (3), 797-808.

Full Text: [2009\Scientometrics80, 797.pdf](2009/Scientometrics80,%20797.pdf)

Abstract: Development of research methods requires a systematic review of their status. This study focuses on the use of Hierarchical Linear Modeling methods in psychiatric research. Evaluation includes 207 documents published until 2007, included and indexed in the ISI Web of Knowledge databases; analyses focuses on the 194 articles in the sample. Bibliometric methods are used to describe the publications patterns. Results indicate a growing interest in applying the models and an establishment of methods after 2000. Both Lotka’s and Bradford’s distributions are adjusted to the data.

Keywords: Effects Regression-Models, Environment, Index, Journals, Lotka Law, Methodology, Neighborhood, Schizophrenia

? Randic, M. (2009), Citations versus limitations of citations: Beyond Hirsch Index. *Scientometrics*, **80** (3), 809-818.

Full Text: [2009\Scientometrics80, 809.pdf](2009/Scientometrics80,%20809.pdf)

Abstract: It appears popular, particularly among science administrators, to use citations and various citation measures for ranking scientists, as if such exercises would reflect the scientific potential of the persons considered. In recent time the Hirsch Index h in particular has obtained visibility in this respect in view of its simplicity. We consider a possible extension of the concept of selective citations, which in fact is innate to the h Index, and propose a simple generalization, indices h and Q, which to a degree supplement the information accompanying the evaluation of h. The h Index keeps record of the “history” of citations and the quotient Q = H/h is a measure for the quality of a scientist based on the history of his/her citations.

? Deineko, V.G. and Woeginger, G.J. (2009), A new family of scientific impact measures: the generalized Kosmulski-indices. *Scientometrics*, **80** (3), 819-826.

Full Text: [2009\Scientometrics80, 819.pdf](2009/Scientometrics80,%20819.pdf)

Abstract: This article introduces the generalized Kosmulski-indices as a new family of scientific impact measures for ranking the output of scientific researchers. As special cases, this family contains the well-known Hirsch-Index h and the Kosmulski-index h ((2)). The main contribution is an axiomatic characterization that characterizes every generalized Kosmulski-index in terms of three axioms.

Keywords: h-Index, Hirsch-Index, Ranking

? Castro-Martinez, E., Jimenez-Saez, F. and Ortega-Colomer, F.J. (2009), Science and technology policies: A tale of political use, misuse and abuse of traditional R&D indicators. *Scientometrics*, **80** (3), 827-844.

Full Text: [2009\Scientometrics80, 827.pdf](2009/Scientometrics80,%20827.pdf)

Abstract: Future political priorities for science and technology (S&T) policy formulation usually rest on a rather simplistic interpretation of past events. This can lead to serious errors and distortions and can negatively affect the innovation system. In this article we try to highlight the riskiness involved in policy making based on traditional R&D indicators and trends. We would emphasise that this approach does not take account of structural aspects crucial for the analysis of the innovation system. We examine the implications for science, technical and human resources policies of the political challenge of R&D convergence in a peripheral EU region. Three scenarios are developed based on application of the same criteria to the trends observed in traditional R&D input indicators.

Keywords: Economy, Innovation

? Lecocq, C. and Van Looy, B. (2009), The impact of collaboration on the technological performance of regions: time invariant or driven by life cycle dynamics? *Scientometrics*, **80** (3), 845-865.

Full Text: [2009\Scientometrics80, 845.pdf](2009/Scientometrics80,%20845.pdf)

Abstract: Increasingly, collaboration between firms as well as science-industry interactions are being considered as important for technology development. Yet, few attempts have been made to analyze the contribution of collaboration, taking into account different stages of the technology life cycle. Our analysis, based on a panel of 197 regions in the EU-15 and Switzerland (time period 1978-2001), provides evidence that, in the field of biotechnology, science-industry collaboration contributes to better technological performance of regions both during the emerging phases (1978-1990) and the growth stages (1991-1999) of the life cycle. Collaboration between industrial partners also contributes to the technological performance of regions during the first phase but is less pronounced during later phases of the technology life cycle. Moreover, the analysis reveals that, as technologies develop over time, the impact of local collaboration is mitigated in favor of collaboration that has an international dimension. This holds true for both science-industry interactions and for collaboration between firms. In consequence, our findings underscore the relevance of incorporating life cycle dynamics (of technologies) when studying the nature and impact of collaboration on the technological performance of regions.

Keywords: Academic Research, Cooperation, Innovation, Knowledge Spillovers, Patent Statistics, Research-and-Development, Science, Strategic Alliances, University-Research

? Glänzel, W. (2009), Peter Vinkler and Michel Zitt win the 2009 Derek John de Solla Price Medal. *Scientometrics*, **81** (1), 1-5.

Full Text: [2009\Scientometrics81, 1.pdf](2009/Scientometrics81,%201.pdf)

? Sotudeh, H. and Horri, A. (2009), Countries positioning in open access journals system: An investigation of citation distribution patterns. *Scientometrics*, **81** (1), 7-31.

Full Text: [2009\Scientometrics81, 7.pdf](2009/Scientometrics81,%207.pdf)

Abstract: By their widespread availability and dissemination through open access media, scholarly outputs witness an improved visibility supposed to cause a better citation performance. However, due to the existence of the Matthew effect in science system, which affects users’ perceptions of quality, ultimate effects of the enhanced visibility on different entities are obscure. Moreover, different attitudes towards open access give rise to a more strong quality dynamics in the open access world. Aiming to explore the consequence of the interaction between visibility and quality dynamics, this study investigates countries positioning in open access journals. The results show that the world’s countries welcome open access pattern whether by submitting to or publishing open access journals. A large proportion of the enduring, prestigious open access journals are published by scientifically proficient and developing nations, emphasizing their successful commitment to maintain the undertaken role. The results of the citation analysis highlight national inequalities regarding citation distributions among countries contributing to the journals within the system and within individual disciplines in the system. Well-performing countries mainly consist of advanced ones; however, some lessdeveloped nations are found to perform well in the journal system.

Keywords: Electronic Preprints, Impact, Life Sciences, Matthew Core Journals, National Performances, Newest Version, Publication Output, Scholarly Communication, Science Fields, World-Wide-Web

? Ma, R.M., Dai, Q.B., Ni, C.Q. and Li, X.L. (2009), An author co-citation analysis of information science in China with Chinese Google Scholar search engine, 2004-2006. *Scientometrics*, **81** (1), 33-46.

Full Text: [2009\Scientometrics81, 33.pdf](2009/Scientometrics81,%2033.pdf)

Abstract: Author co-citation analysis (ACA) is an important method for discovering the intellectual structure of a given scientific field. Since traditional ACA was confined to ISI Web of Knowledge (WoK), The co-citation counts of pairs of authors mainly depended on the data indexed in WoK. Fortunately, Google Scholar has integrated different academic databases from different publishers, providing an opportunity of conducting ACA in wider a range. In this paper, we conduct ACA of information science in China with the Chinese Google Scholar. Firstly, a brief introduction of Chinese Google Scholar is made, including retrieval principles and data formats. Secondly, the methods used in our paper are given. Thirdly, 31 most important authors of information science in China are selected as research objects. In the part of empirical study, factor analysis is used to find the main research directions of information science in China. Pajek, a powerful tool in social network analysis, is employed to visualize the author co-citation matrix as well. Finally, the resemblances and the differences between China and other countries in information science are pointed out.

Keywords: Pearsons-R

? Molatudi, M., Molotja, N. and Pouris, A. (2009), A bibliometric study of bioinformatics research in South Africa. *Scientometrics*, **81** (1), 47-59.

Full Text: [2009\Scientometrics81, 47.pdf](2009/Scientometrics81,%2047.pdf)

Abstract: This paper reports on the practises of bioinformatics research in South Africa using bibliometric techniques. The search strategy was designed to cover the common concepts in biological data organisation, retrieval and analysis; the development and application of tools and methodologies in biological computation; and related subjects in genomics and structural bioinformatics. The South African literature in bioinformatics has grown by 66.5% between 2001 and 2006. However, its share of world production is not on par with comparator countries, Brazil, India and Australia.

Keywords: Biotechnology, Impact

? Pereira, C.A. and Bazi, R.E.R. (2009), Flow and social relationships of knowledge in science, technology and innovation: A patentometric study of UNICAMP’s technological production. *Scientometrics*, **81** (1), 61-72.

Full Text: [2009\Scientometrics81, 61.pdf](2009/Scientometrics81,%2061.pdf)

Abstract: the object is to identify the flux of information and get to know the socio-spatial and socioinstitutional dimensions of knowledge in the process of innovation, and to be able to visualize the impact and cognitive relationships of the sources of information used in the production of patents, as well as interactions and social cooperation that exists between the local innovative agents of the State University of Campinas. The research is of an exploratory nature with a case study design, in order to find out, by means of patentometric indicators, the flow and social relations characterized by cognitive and institutional aspects of local and regional knowledge based on the production of the Institution’s patents.

Keywords: Indicators

? Tseng, Y.H., Lin, Y.I., Lee, Y.Y., Hung, W.C. and Lee, C.H. (2009), A comparison of methods for detecting hot topics. *Scientometrics*, **81** (1), 73-90.

Full Text: [2009\Scientometrics81, 73.pdf](2009/Scientometrics81,%2073.pdf)

Abstract: In scientometrics for trend analysis, parameter choices for observing trends are often made ad hoc in past studies. for examples, different year spans might be used to create the time sequence and different indices were chosen for trend observation. However, the effectiveness of these choices was hardly known, quantitatively and comparatively. This work provides clues to better interpret the results when a certain choice was made. Specifically, by sorting research topics in decreasing order of interest predicted by a trend index and then by evaluating this ordering based on information retrieval measures, we compare a number of trend indices (percentage of increase vs. regression slope), trend formulations (simple trend vs. eigen-trend), and options (various year spans and durations for prediction) in different domains (safety agriculture and information retrieval) with different collection scales (72500 papers vs. 853 papers) to know which one leads to better trend observation. Our results show that the slope of linear regression on the time series performs constantly better than the others. More interestingly, this index is robust under different conditions and is hardly affected even when the collection was split into arbitrary (e.g., only two) periods. Implications of these results are discussed. Our work does not only provide a method to evaluate trend prediction performance for scientometrics, but also provides insights and reflections for past and future trend observation studies.

Keywords: Scientometrics

? Sternitzke, C. (2009), Defining triadic patent families as a measure of technological strength. *Scientometrics*, **81** (1), 91-109.

Full Text: [2009\Scientometrics81, 91.pdf](2009/Scientometrics81,%2091.pdf)

Abstract: A frequently used indicator for assessing technological strengths of nations are patents registered in the triad region, i.e. in North America, Europe, and Asia. Currently these so-called triadic patents are defined as filed at the United States Patent and Trademark Office (USPTO), The European Patent Office (EPO), and the Japanese Patent Office (JPO). Recent developments suggested that this definition might lack adequacy regarding the offices in Europe and Asia. Our findings propose that in particular Germany and China should be added to this triad definition since in some technology fields patents registered in these countries show the same citation impact as patents registered at the EPO or JPO. Our results also underline that the number of triadic patent families per country is a function of technological specialization and (national) patenting strategies.

Keywords: Statistics

? Zuccala, A. and van den Besselaar, P. (2009), Mapping review networks: Exploring research community roles and contributions. *Scientometrics*, **81** (1), 111-122.

Full Text: [2009\Scientometrics81, 111.pdf](2009/Scientometrics81,%20111.pdf)

Abstract: In this paper we investigate the position of a review network within a research specialty; the network of scholars who write reviews of their colleagues’ work. This is one of the voluntary activities that researchers perform as a prerequisite for the functioning of the invisible college. We compare this network to other networks within the specialty, and this allows us to distinguish various roles: stars, influentials, members, reviewers and juniors. As scholars are characterized by different role-configurations, the invisible college becomes stratified. We discuss the implications for the development of a referee factor and review factor, norms for refereeing and reviewing, and the development of systems-based research evaluations.

Keywords: Author Cocitation, Collaboration

? Kao, C. (2009), The authorship and internationality of Industrial Engineering journals. *Scientometrics*, **81** (1), 123-136.

Full Text: [2009\Scientometrics81, 123.pdf](2009/Scientometrics81,%20123.pdf)

Abstract: This paper surveys 32 renowned Industrial Engineering (IE) journals with regard to authorship for the period of 1996-2005. The findings show that the USA was the top contributing country, accounting for approximately one-third of the total number of articles. The 80/20 rule and the entropy measure consistently identify Issues in Science and Technology (IST), Industrial Engineer (IE), and R&D Magazine (RDM) as journals of high country concentration, or journals of low internationality. Conversely, Journal of Materials Processing Technology (JMPT), Production Planning & Control (PPC), and Technovation (TNV) have the highest degree of country diversity, or internationality. The quality of a journal, as expressed by impact factors, its internationality, and its number of articles published, are found to be independent of each other.

Keywords: Citation Patterns, Information-Science, Operational-Research, Rankings, Scientific Journals, Scientometrics

? Abramo, G., D’Angelo, C.A. and Capraseccaa, A. (2009), The contribution of star scientists to overall sex differences in research productivity. *Scientometrics*, **81** (1), 137-156.

Full Text: [2009\Scientometrics81, 137.pdf](2009/Scientometrics81,%20137.pdf)

Abstract: the state of the art on the issue of sex differences in research efficiency agrees in recognizing higher performances for males, however there are divergences in explaining the possible causes. One of the causes advanced is that there are sex differences in the availability of aptitude at the “high end”. By comparing sex differences in concentration and performance of Italian academic star scientists to the case in the population complement, this work aims to verify if star, or “high-end”, scientists play a preponderant role in determining higher performance among males. The study reveals the existence of a greater relative concentration of males among star scientists, as well as a performance gap between male and female star scientists that is greater than for the rest of the population. In the latter subpopulation the performance gap between the two sexes is seen as truly marginal.

Keywords: Ability, Gender-Differences, Impact, Meta-Analysis, Metaanalysis, Patterns, Publication Productivity

? Park, H.W. and Leydesdorff, L. (2009), Knowledge linkage structures in communication studies using citation analysis among communication journals. *Scientometrics*, **81** (1), 157-175.

Full Text: [2009\Scientometrics81, 157.pdf](2009/Scientometrics81,%20157.pdf)

Abstract: This research analyzes a “who cites whom” matrix in terms of aggregated journal-journal citations to determine the location of communication studies on the academic spectrum. Using the Journal of Communication as the seed journal, the 2006 data in the Journal Citation Reports are used to map communication studies. The results show that social and experimental psychology journals are the most frequently used sources of information in this field. In addition, several journals devoted to the use and effects of media and advertising are weakly integrated into the larger communication research community, whereas communication studies are dominated by American journals.

Keywords: Index, Internet, Korea, Science, Scientific Journals, Social Network Analysis

? Sooryamoorthy, R. (2009), Do types of collaboration change citation? Collaboration and citation patterns of South African science publications. *Scientometrics*, **81** (1), 177-193.

Full Text: [2009\Scientometrics81, 177.pdf](2009/Scientometrics81,%20177.pdf)

Abstract: Bibliographic records are extensively used in the study of citations. Based on ISI data, this paper examines citation patterns of the publications of South African scientists in recent years. In particular, the focus of this paper is on citations as to the collaborative dimensions of South African scientists in their publications. The study reveals that the number of citations received by a publication varies not only according to the collaboration but also to the types of collaboration of the authors who are involved in its production. Furthermore, it emerges that the impact of citations on publications differs from discipline to discipline, and affiliating sector to sector, regardless of collaboration.

Keywords: Areas, Impact, Indicators, International Collaboration, Nations, Output, Periphery, Scientific Productivity

? Schmoch, U. and Schubert, T. (2009), Sustainability of incentives for excellent research - the German case. *Scientometrics*, **81** (1), 195-218.

Full Text: [2009\Scientometrics81, 195.pdf](2009/Scientometrics81,%20195.pdf)

Abstract: the state authorities in Germany used to fund public sector research without controlling the performance of the research units. This has changed during past decade, where the dominant mechanism by which formerly unconditional state funds are allocated nowadays is indicator-based performance measurement. The indicator sets used to measure the research-related performance in the German public science sector are usually very narrow, often consisting exclusively of finished doctoral theses and third-party funds. Using a unique dataset of 473 German research units from astrophysics, nanotechnology, economics and biotechnology, this paper outlines principles for the construction of sensible indicator sets for the performance measurement of scientific research groups. It is argued that scientific production is multidimensional. Thus one-sided indicator sets that fail to cover the relevant output dimensions give rise to incentives that will ultimately lower the performance of the science sector in total. Indicator sets should strive for sustainable incentives, which can be guaranteed if the sets are broad enough. As a starting point it is shown that the very common performance indicator ‘acquired third-party funds’ may affect research efficiency negatively, especially if the level of third-party funds is already very high. Therefore, we conclude that third-party funds should be used with great care, if at all.

Keywords: Data Envelopment Analysis, Efficiency, Higher-Education, Impact, Indicator, Research Performance, Science, System, Universities

? Valkimadi, P.E., Karageorgopoulos, D.E., Vliagoftis, H. and Falagas, M.E. (2009), Increasing dominance of English in publications archived by PubMed. *Scientometrics*, **81** (1), 219-223.

Full Text: [2009\Scientometrics81, 219.pdf](2009/Scientometrics81,%20219.pdf)

Abstract: English is becoming the international language in numerous fields of human civilization. We sought to evaluate the extent of use of English in the field of biomedical publications. We searched in PubMed for the number of articles written in the 57 indexed languages, during each one of the four past 10-year periods. The extent of use of English as the publication language of articles included in PubMed has gradually risen from 62.3% of the total number of indexed articles between 1967-1976, to 74.0% between 1977-1986, 83.4% between 1987-1996, and reached 89.3% in the period between 1997-2006. The percentage of articles written in each one of the other languages was less than 1.6% for the period of 1997-2006. Apart from English, only the percentage of articles written in Chinese has risen between 1967-1976 and 1997-2006 (from 0.05% to 1.49%). In conclusion, the dominance of English in biomedical publications archived by the most commonly used database is impressive and increasing. This fact may have several consequences, favourable or not, in various aspects of scientific production.

Keywords: Fields, Impact Factor, Journals, Language, Science

? Guerrero-Bote, V.P., Gomez-Crisostomo, R., Romo-Fernandez, L.M. and de Moya-Anegon, F. (2009), Visibility and responsibility of women in research papers through the order of signatures: the case of the University of Extremadura, 1990-2005. *Scientometrics*, **81** (1), 225-238.

Full Text: [2009\Scientometrics81, 225.pdf](2009/Scientometrics81,%20225.pdf)

Abstract: Though there are many and diverse opinions as to the order in which the authors appear in research papers, the most accepted is the one which gives more responsibility to the first and last author. In this work, a study is carried out of the order in which the authors appear in research papers, in which at least one author affiliated to the University of Extremadura (Spain) has collaborated in the 1990-2005 period. The objective is to determine the difference in the position of men and women, and the resulting responsibility and visibility of female authors as opposed to male authors. In the University of Extremadura these positions are principally occupied by men, since throughout the period studied, no more than 20% of the papers have women either in the first or last position, while the percentage obtained by men is around 50%, the remaining percentage being occupied by authors not belonging at present to the Uex. Nevertheless, the women of the University of Extremadura have both a higher percentage than expected and a positive evolution in the more relevant positions in recent years.

Keywords: Authorship, Scientists

? Duque, R.B., Shrum, W.M., Barriga, O. and Henriquez, G. (2009), Internet practice and professional networks in Chilean science: Dependency or progress? *Scientometrics*, **81** (1), 239-263.

Full Text: [2009\Scientometrics81, 239.pdf](2009/Scientometrics81,%20239.pdf)

Abstract: the conventional view depicts scientific communities in the developing world as globally isolated and dependent. Recent studies suggest that individual scientists tend to favor either local or international ties. Yet there are good reasons to believe that both kinds of ties are beneficial for knowledge production. Since they allow for the more efficient management of social networks, Internet technologies are expected to resolve this inverse relationship. They are also expected to decentralize access to resources within developing regions that have traditionally reflected an urban male bias. Elaborating upon science, development and social network perspectives, we examine the impact of the Internet in the Chilean scientific community, addressing the questions ‘to what extent is Internet use and experience associated with the size of foreign and domestic professional networks?’ and ‘are professional network resources equitably distributed across regional and demographical dimensions?’ We offer results from a communication network survey of 337 Chilean researchers working in both academic departments and research institutes. We introduce a new measure, ‘collaboration range’, to indicate the extent to which scientists engage in work with geographically dispersed contacts. Results suggest that larger foreign networks are associated with higher email use and diversity, but local networks are smaller with longer use of the Internet. Diversity of email use is also associated with diverse geographical networks. Moreover, Internet use may be reducing the significance of international meetings for scientific collaboration and networking. Finally, results also show that in the Internet age professional network resources are distributed symmetrically throughout the Chilean scientific community.

Keywords: Collaboration, Computer-Networks, Electronic Networks, Engineering Faculty, Information, Latin-America, Scholarly Communication, Small Institutions, Social-Sciences, Weak Ties

? Pinto, M., Guerrero, D., Fernandez-Ramos, A. and Doucet, A.V. (2009), Information provided by Spanish university websites on their assessment and quality processes. *Scientometrics*, **81** (1), 265-289.

Full Text: [2009\Scientometrics81, 265.pdf](2009/Scientometrics81,%20265.pdf)

Abstract: We analyze and evaluate the information provided by Spanish public universities on the web about their assessment and quality processes with the aim of detecting aspects for improvement and identifying best practices in universities that could act as a benchmark for the rest of the sector. A tested model/template incorporating a set of criteria and indicators is used to determine the quality of this information. The strengths and weaknesses of institutional websites are analyzed at both individual level and as a whole; the possible relation between website quality and the characteristics of the universities is also examined.

Keywords: Criteria, Health Information, Internet, Web Sites

? Koczy, L.A. and Strobel, M. (2009), The invariant method can be manipulated. *Scientometrics*, **81** (1), 291-293.

Full Text: [2009\Scientometrics81, 291.pdf](2009/Scientometrics81,%20291.pdf)

Abstract: We show that the invariant method [Pinski & Narin, 1976], recently axiomatised by Palacios-Huerta & Volij [2004], and used to quality-rank academic journals is subject to manipulation: a journal can boost its performance by making additional citations to other journals.

? Ortega, J.L., Cothey, V. and Aguillo, I.F. (2009), How old is the Web? Characterizing the age and the currency of the European scientific Web. *Scientometrics*, **81** (1), 295-309.

Full Text: [2009\Scientometrics81, 295.pdf](2009/Scientometrics81,%20295.pdf)

Abstract: the aim of this paper is to model and study the age of the Web using a sample of about four million of web pages from the 16 European Research Area countries obtained during 2004 and 2005. Web page time-stamp (date when the web pages were created or last changed for last time), format and size in bytes data have been analysed. Several indicators are introduced to measure longitudinal aspects of the Web. Half-age is proposed as a measure of the age distribution because this is found to be exponential. “Web Update Index” and “Lifespan Index” are introduced to measure the changing rate of a small sample over time. Results show that the British Web space has the youngest Web pages while the Greek and Belgian ones have the oldest. The study also compared Web pages topics and found that Biology pages are more stable than Physics pages.

Keywords: Academic Web, Decay, Life, Links, Obsolescence, Page, Persistence, References

? Rousseau, R. (2004), Comments on a paper of Garg. *Scientometrics*, **59** (2), 277-278.

Full Text: [2004\Scientometrics59, 277.pdf](2004/Scientometrics59,%20277.pdf)

Keywords: Nations, Scientific Wealth

? Garg, K.C. (2004), Comments on a paper of Garg - Reply. *Scientometrics*, **59** (2), 279.

Full Text: [2004\Scientometrics59, 279.pdf](2004/Scientometrics59,%20279.pdf)

? Glänzel, W. and Thijs, B. (2004), World flash on basic research - the influence of author self-citations on bibliometric macro indicators. *Scientometrics*, **59** (3), 281-310.

Full Text: [2004\Scientometrics59, 281.pdf](2004/Scientometrics59,%20281.pdf)

Abstract: In a recent paper the authors have studied the role of author self-citations within the process of documented scientific communication. Two important regularities such as the relative fast ageing of self-citations with respect to foreign citations and the “square-root law” characterising the conditional expectation of self-citations for given number of foreign citation have been found studying the phenomenon of author self-citations at the macro level. The goal of the present paper is to study the effect of author self-citations on macro indicators. The analysis of citation based indicators for 15 fields in the sciences, social sciences and humanities substantiates that at this level of aggregation there is no need for any revision of national indicators and the underlying journal citation measures in the context of excluding self-citations.

Keywords: Ageing, Basic Research, Bibliometric, Citation, Citations, Communication, Humanities, Indicators, Journal, Patterns, Research, Science Fields, Scientific Communication, Self-Citations, Social Sciences

? Egghe, L. (2009), Comparative study of h-Index sequences. *Scientometrics*, **81** (2), 311-320.

Full Text: [2009\Scientometrics81, 311.pdf](2009/Scientometrics81,%20311.pdf)

Abstract: This paper studies four different h-Index sequences (different in publication periods and/or citation periods). Lotkaian models for these h-Index sequences are presented by mutual comparison of one sequence with another one. We also give graphs of these h-sequences for this author on which a discussion is presented. The same is done for the g-index and the R-index.

Keywords: Hirsch-Index

? Hendrix, D. (2009), Institutional self-citation rates: A three year study of universities in the United States. *Scientometrics*, **81** (2), 321-331.

Full Text: [2009\Scientometrics81, 321.pdf](2009/Scientometrics81,%20321.pdf)

Abstract: Using Institute for Scientific Information (ISI) data, this paper calculated institutional self citations rates (ISCRs) for 96 of the top research universities in the United States from 2005-2007. Exhibiting similar temporal patterns of author and journal self-citations, the ISCR was 29% in the first year post-publication, and decreased significantly in the second year post-publication (19%). Modeling the data via power laws revealed total publications and citations did not correlate with the ISCR, but did correlate highly with ISCs. California Institute of Technology exhibited the highest ISCR at 31%. Academic and cultural factors are discussed in relation to ISCRs.

Keywords: Authors, h-Index, Indicators, Information-Science, Journal Impact Factors, Network

? Catling, J.C., Mason, V.L. and Upton, D. (2009), Quality is in the eye of the beholder? An evaluation of impact factors and perception of journal prestige in the UK. *Scientometrics*, **81** (2), 333-345.

Full Text: [2009\Scientometrics81, 333.pdf](2009/Scientometrics81,%20333.pdf)

Abstract: A number of proxy measures have been used as indicators of journal quality. The most recent and commonly employed are journal impact factors. These measures are somewhat controversial, although they are frequently referred to in establishing the impact of published journal articles. Within psychology, little is known about the relationship between the ‘objective’ impact factors of journals and the ‘subjective’ ratings of prestige and perceived publishing difficulty amongst academics. In order to address this, a cross-sectional web-based survey was conducted in the UK to investigate research activity and academics’ views of journals within three fields of psychology; cognitive, health and social. Impact factors for each journal were correlated with individual academic’s perceptions of prestige and publishing difficulty for each journal. A number of variables pertaining to the individual academic and their place of work were assessed as predictors of these correlation values, including age, gender, institution type, and a measure of departmental research activity. The implications of these findings are discussed in relation to perceptions of journal prestige and publishing difficulty, higher education in general and the assessment of research activity within academic institutions.

Keywords: Citation Impact

? Ardanuy, J., Urbano, C. and Quintana, L. (2009), A citation analysis of Catalan literary studies (1974-2003): Towards a bibliometrics of humanities studies in minority languages. *Scientometrics*, **81** (2), 347-366.

Full Text: [2009\Scientometrics81, 347.pdf](2009/Scientometrics81,%20347.pdf)

Abstract: A citation analysis was carried out on the most important research journals in the field of Catalan literature between 1974 and 2003. The indicators and qualitative parameters obtained show the value of performing citation analysis in cultural and linguistic areas that are poorly covered by the A&HCI. Catalan literature shows a similar pattern to that of humanities in general, but it could still be in a stage of consolidation because too little work has as yet been published.

Keywords: Arts-And-Humanities, Author Self-Citations, English, Fine-Arts, Information Needs, Monographs, Patterns, Philosophy, Scholarship, Science

? Yegros, A.Y. and Amat, C.B. (2009), Editorial delay of food research papers is influenced by authors’ experience but not by country of origin of the manuscripts. *Scientometrics*, **81** (2), 367-380.

Full Text: [2009\Scientometrics81, 367.pdf](2009/Scientometrics81,%20367.pdf)

Abstract: Editorial delay, the time between submission and acceptance of scientific manuscripts, was investigated for a set of 4,540 papers published in 13 leading food research journals. Groups of accelerated papers were defined as those that fell in the lower quartile of the distribution of the editorial delay for the journals investigated. Delayed papers are those in the upper quartile of the distribution. Editorial stage is related to the peer review process and two variables were investigated in search of any bias in editorial review that could influence publication delay: countries of origin of the manuscript and authors’ previous publishing experience in the same journal. A ranking of countries was established based on contributions to the leading food research journals in the period 1999-2004 and four categories comprising heavy, medium, light and occasional country producers was established. Chi square tests show significant differences in country provenance of manuscripts only for one journal. The results for influence on editorial delay of cross-national research and international collaboration, conducted by means of the Fisher statistic test, were similar. A two-tailed Student’s t test shows significant differences (p < 0.05) in the distribution of experienced and novel authors across the delayed and accelerated groups of papers. Although these results are time and discipline limited, it can be concluded that authors’ publishing experience causes a faster review and acceptance of their papers and that neither country of provenance nor cross-national research influence the time involved in editorial acceptance of the papers.

Keywords: Acceptance, Assessments, Impact, Journals, Publication Bias, Stands Today, Statistical Significance, Submissions, Time, Trials

? Ball, R., Mittermaier, B. and Tunger, D. (2009), Creation of journal-based publication profiles of scientific institutions - A methodology for the interdisciplinary comparison of scientific research based on the J-factor. *Scientometrics*, **81** (2), 381-392.

Full Text: [2009\Scientometrics81, 381.pdf](2009/Scientometrics81,%20381.pdf)

Abstract: A form of normalisation is presented for the evaluation of citation data on multidisciplinary research. This method is based on the existing classification according to the publishing journals and not on the classification of output according to ISI subject categories. A publication profile is created for each institution to be investigated. This profile accounts for the weight of publications in a journal, represented by the number of publications as a proportion of the total output of the institution. In accordance with this weight, the citation rate of each journal is compared to a qualified relative indicator. The final result is a relative citation rate J, which is the relative perception of the performance of an institution accounting for its publication and citation habits and makes a transdisciplinary comparison possible.

Keywords: Impact, Indicators, Output

? Sombatsompop, N., Markpin, T., Wimolmala, E., Ratchatahirun, P., Premkamolnetr, N., Boonradsamee, B. and Yochai, W. (2009), Relationship on research publications and productivity-export volumes for natural rubber. *Scientometrics*, **81** (2), 393-405.

Full Text: [2009\Scientometrics81, 393.pdf](2009/Scientometrics81,%20393.pdf)

Abstract: This article investigated contributions of natural rubber (NR) research through research articles and patents in Science Citation Index Expanded (SCI-Expanded) and SCOPUS databases and related the results with productivity-export volumes during 2002-2006. 1,771 research papers and 5,686 patents on “natural rubber” were retrieved from the databases. The results revealed that the top five countries produced the NR raw material by the order of productivity volumes were Thailand, Indonesia, Malaysia, Vietnam and China whereas those produced the synthetic rubber were the United States, China, Japan, Russia and Germany. Among the top three countries for NR production, Malaysia became a NR producer for its own use, whereas Thailand and Indonesia still had higher export volumes. Research articles and patents on natural rubber had contribution shares of about 20.9% and 47.5% of all rubber publications, respectively. The patents on natural rubber were found to increase with time while the research articles remained unchanged. Journal of Applied Polymer Science was the most preferable for publishing the research papers on rubbers. Eight countries ranked in the top countries for contributing the research articles on natural rubber were the United States, India, Malaysia, France, Germany, Thailand, Japan and China, similar country distributions being also found for research articles on synthetic styrene-butadiene rubber except for Thailand and Malaysia. No linear relationship between the productivity-export volume and research publication number was observed, but the results implied that the growth rate for commercializing the rubber was greater than that for research and development of natural rubber. Most NR research works focused on neat NR, which was contributed the most by USA while NR blend and NR composite papers were mainly published by Indian researchers.

? Bornmann, L., Mutz, R. and Daniel, H.D. (2009), The influence of the applicants’ gender on the modeling of a peer review process by using latent Markov models. *Scientometrics*, **81** (2), 407-411.

Full Text: [2009\Scientometrics81, 407.pdf](2009/Scientometrics81,%20407.pdf)

Abstract: In the grant peer review process we can distinguish various evaluation stages in which assessors judge applications on a rating scale. Bornmann & al. [2008] show that latent Markov models offer a fundamentally good opportunity to model statistically peer review processes. The main objective of this short communication is to test the influence of the applicants’ gender on the modeling of a peer review process by using latent Markov models. We found differences in transition probabilities from one stage to the other for applications for a doctoral fellowship submitted by male and female applicants.

Keywords: Committee, Reliability, Selection, Validity

? Boshoff, N. (2009), Neo-colonialism and research collaboration in Central Africa. *Scientometrics*, **81** (2), 413-434.

Full Text: [2009\Scientometrics81, 413.pdf](2009/Scientometrics81,%20413.pdf)

Abstract: the study examines aspects of both neo-colonial ties and neo-colonial science in research papers produced by Central African countries. The primary focus is on the extent and pattern of neo-colonial ties and other foreign participation in the co-authorship of Central African research papers. The analysis revealed that 80% of Central Africa’s research papers are produced in collaboration with a partner from outside the region. Moreover, 46% of papers are produced in collaboration with European countries as the only partner, and 35% in collaboration with past colonial rulers. The top collaborating countries are France (32%), The USA (14%), and the UK and Germany (both 12%). Foreign powers also facilitate the production of regionally and continentally co-authored papers in Central Africa, where European countries participate in 77% of regionally co-authored papers. The practice of neo-colonial science, on the other hand, features in a survey of reprint authors of Cameroonian papers. The survey investigated specific contributions made by Cameroon coauthors to the research processes underlying a paper. Cameroonian researchers contribute intellectually and conceptually to the production of research papers, irrespective of whether the collaboration involves partners from past colonial or non-colonial countries. Their most frequent role in collaborative research with foreign researchers remains the conduct of fieldwork.

Keywords: Developing-Countries, Globalization, Periphery, Science, World

? Gomez-Sancho, J.M. and Mancebon-Torrubia, M.J. (2009), The evaluation of scientific production: Towards a neutral impact factor. *Scientometrics*, **81** (2), 435-458.

Full Text: [2009\Scientometrics81, 435.pdf](2009/Scientometrics81,%20435.pdf)

Abstract: Measurement of research activity still remains a controversial question. The use of the impact factor from the Institute for Scientific Information (ISI) is quite widespread nowadays to carry out evaluations of all kinds; however, the calculation formula employed by ISI in order to construct its impact factors biases the results in favour of knowledge fields which are better represented in the sample, cite more in average and whose citations are concentrated in the early years of the articles. In the present work, we put forward a theoretical proposal regarding how aggregated normalization should be carried out with these biases, which allows comparing scientific production between fields, institutions and/or authors in a neutral manner. The technical complexity of such work, together with data limitations, lead us to propose some adjustments on the impact factor proposed by ISI which - although they do not completely solve the problem - reduce it and allow glimpsing the path towards more neutral evaluations. The proposal is empirically applied to three analysis levels: single journals, knowledge fields and the set of journals from the Journal Citation Report.

Keywords: Accuracy, Citation Analysis, Databases, Indicators, Informetrics, Journal Impact, Language, Performance, Publications, Quality

? Chen, C.F., Sun, K., Wu, G., Tang, Q., Qin, J., Chiu, K., Fu, Y.S., Wang, X.F. and Liu, J. (2009), The impact of internet resources on scholarly communication: A citation analysis. *Scientometrics*, **81** (2), 459-474.

Full Text: [2009\Scientometrics81, 459.pdf](2009/Scientometrics81,%20459.pdf)

Abstract: the quality and credibility of Internet resources has been a concern in scholarly communication. This paper reports a quantitative analysis of the use of Internet resources in journal articles and addresses the concerns for the use of Internet resources scholarly journals articles. We collected the references listed in 35,698 articles from 14 journals published during 1996 to 2005, which resulted in 1,000,724 citations. The citation data was divided into two groups: traditional citations and Web citations, and examined based on frequencies of occurrences by domain and type of Web citation sources. The findings included: (1) the number of Web citations in the journals investigated had been increasing steadily, though the quantity was too small to draw an inclusive conclusion on the data about their impact on scientific research; (2) A great disparity existed among different disciplines in terms of using information on the Web. Applied disciplines and interdisciplinary sciences tended to cite more information on the Web, while classical and experimental disciplines cited little of Web information; (3) the frequency of citations was related to the reputation of the author or the institution issuing the information, and not to the domain or webpage types; and (4) the researchers seemed to lack confidence in Internet resources, and Web information was not as frequently cited as reported in some publications before. The paper also discusses the need for developing a guideline system to evaluate Web resources regarding their authority and quality that lies in the core of credibility of Web information.

Keywords: Behavior, Electronic Resources, Journals, Web

Notes: CCountry

? Hu, X.J. and Rousseau, R. (2009), A comparative study of the difference in research performance in biomedical fields among selected Western and Asian countries. *Scientometrics*, **81** (2), 475-491.

Full Text: [2009\Scientometrics81, 475.pdf](2009/Scientometrics81,%20475.pdf)

Abstract: In this study, a series of relative indicators are used to compare the difference in research performance in biomedical fields between ten selected Western and Asian countries. Based on Thomson’s Essential Science Indicators (ESI) 1996-2006, the output of papers and their citations in ten biomedical fields are compared at multiple levels using relative indicators. Chart diagrams and hierarchical clustering are applied to represent the data. The results confirm that there are many differences in intra- and interdisciplinary scientific activities between the West and the East. In most biomedical fields Asian countries perform below world average.

Keywords: China, EU, Europe, Impact, Indicators, Innovation, Output, Science, Technology, World

? Ye, F.Y. (2009), An investigation on mathematical models of the h-Index. *Scientometrics*, **81** (2), 493-498.

Full Text: [2009\Scientometrics81, 493.pdf](2009/Scientometrics81,%20493.pdf)

Abstract: Based on two large data samples from ISI databases, the author evaluated the Hirsch model, the Egghe-Rousseau model, and the Glänzel-Schubert model of the h-Index. The results support the Glänzel-Schubert model as a better estimation of the h-Index at both journal and institution levels. If h (c), h (p) and h (pc) stand for the Hirsch estimation, Egghe-Rousseau estimation, and Glänzel-Schubert estimation, respectively, then an inequality h (p) < h similar to h (pc) < h (c) holds in most cases.

Keywords: Hirsch-Index

? Lu, H.Q. and Feng, Y.Q. (2009), A measure of authors’ centrality in co-authorship networks based on the distribution of collaborative relationships. *Scientometrics*, **81** (2), 499-511.

Full Text: [2009\Scientometrics81, 499.pdf](2009/Scientometrics81,%20499.pdf)

Abstract: Although there are many measures of centrality of individuals in social networks, and those centrality measures can be applied to the analysis of authors’ importance in co-authorship networks, the distribution of an author’s collaborative relationships among different communities has not been considered. This distribution or extensity is an important aspect of authors’ activity. In the present study, we will propose a new measure termed extensity centrality, taking into account the distribution of an author’s collaborative relationships. In computing the strength of collaborative ties, which is closely related to the extensity centrality, we choose Salton’s measure. We choose the ACM SIGKDD data as our testing data set, and analyze the result of authors’ importance from different points of view.

? Barcza, K. and Telcs, A. (2009), Paretian publication patterns imply Paretian Hirsch Index. *Scientometrics*, **81** (2), 513-519.

Full Text: [2009\Scientometrics81, 513.pdf](2009/Scientometrics81,%20513.pdf)

Abstract: the paper pursues the rigorous mathematical study of the Hirsch Index and shows that it has power law upper tail distribution and determines the exponent provided that the underlying publication and citation distributions have fat tails as well. The result is demonstrated on the distribution of the Hirsch Index of journals. The paper is concluded with some further remarks on the Hirsch Index.

Keywords: h-Index, Journals

? Wohlin, C. (2009), A new index for the citation curve of researchers. *Scientometrics*, **81** (2), 521-533.

Full Text: [2009\Scientometrics81, 521.pdf](2009/Scientometrics81,%20521.pdf)

Abstract: Internet has made it possible to move towards researcher and article impact instead of solely focusing on journal impact. To support citation measurement, several indexes have been proposed, including the h-Index. The h-Index provides a point estimate. To address this, a new index is proposed that takes the citation curve of a researcher into account. This article introduces the index, illustrates its use and compares it to rankings based on the h-Index as well as rankings based on publications. It is concluded that the new index provides an added value, since it balances citations and publications through the citation curve.

Keywords: Institutions, Scholars

? Wainer, J., Xavier, E.C. and Bezerra, F. (2009), Scientific production in Computer Science: A comparative study of Brazil and other countries. *Scientometrics*, **81** (2), 535-547.

Full Text: [2009\Scientometrics81, 535.pdf](2009/Scientometrics81,%20535.pdf)

Abstract: In this paper we present a study about scientific production in Computer Science in Brazil and several other countries, as measured by the number of articles in journals and conference proceedings indexed by ISI and by Scopus. We compare the Brazilian production from 2001 to 2005 with some Latin American, Latin European, BRIC (Brazil, Russia, India, China), and other relevant countries (South Korea, Australia and USA). We also classify and compare these countries according to the ratio of publications in journals and conferences (the ones indexed by the two services). The results show that Brazil has by far the largest production among Latin American countries, has a production about one third of Spain’s, one fourth of Italy’s, and about the same as India and Russia. The growth in Brazilian publications during the period places the country in the mid-range group and the distribution of Brazilian production according to impact factor is similar to most countries.

Keywords: Articles, Journals, Publications

? Campanario, J.M. (2009), Rejecting and resisting Nobel class discoveries: Accounts by Nobel Laureates. *Scientometrics*, **81** (2), 549-565.

Full Text: [2009\Scientometrics81, 549.pdf](2009/Scientometrics81,%20549.pdf)

Abstract: I review and discuss instances in which 19 future Nobel Laureates encountered resistance on the part of the scientific community towards their discoveries, and instances in which 24 future Nobel Laureates encountered resistance on the part of scientific journal editors or referees to manuscripts that dealt with discoveries that later would earn them the Nobel Prize.

Keywords: Articles, Delayed Recognition, Physics, Referees, Reflections, Resistance, Scientific Discovery

? Egghe, L. (2009), Performance and its relation with productivity in Lotkaian systems. *Scientometrics*, **81** (2), 567-585.

Full Text: [2009\Scientometrics81, 567.pdf](2009/Scientometrics81,%20567.pdf)

Abstract: In general information production processes (IPPs), we define productivity as the total number of sources but we present a choice of seven possible definitions of performance: the mean or median number of items per source, the fraction of sources with a certain minimum number of items, the h-, g-, R- and h(w)-index. We give an overview of the literature on different types of IPPs and each time we interpret “performance” in these concrete cases. Examples are found in informetrics (including webometrics and scientometrics), linguistics, econometrics and demography. In Lotkaian IPPs we study these interpretations of “performance” in function of the productivity in these IPPs. We show that the mean and median number of items per source as well as the fraction of sources with a certain minimum number of items are increasing functions of the productivity if and only if the Lotkaian exponent is decreasing in function of the productivity. We show that this property implies that the g-, R- and h(w)-indices are increasing functions of the productivity and, finally, we show that this property implies that the h-Index is an increasing function of productivity. We conclude that the h-Index is the indicator which shows best the increasing relation between productivity and performance.

Keywords: Authorship, Collaboration, Hirsch-Index, Internet, Random Networks, Scientific-Research Output, Successive h-Indexes, Topology, World-Wide-Web, Zipfs Law

? Vieira, E.S. and Gomes, J.A.N.F. (2009), A comparison of Scopus and Web of Science for a typical university. *Scientometrics*, **81** (2), 587-600.

Full Text: [2009\Scientometrics81, 587.pdf](2009/Scientometrics81,%20587.pdf)

Abstract: for many years, the ISI Web of Knowledge from Thomson Reuters was the sole publication and citation database covering all areas of science thus becoming an invaluable tool in bibliometric analysis. In 2004, Elsevier introduced Scopus and this is rapidly becoming a good alternative. Several attempts have been made at comparing these two instruments from the point of view of journal coverage for research or for bibliometric assessment of research output. This paper attempts to answer the question that all researchers ask, i.e., what is to be gained by searching both databases? Or, if you are forced to opt for one of them, which should you prefer? To answer this question, a detailed paper by paper study is presented of the coverage achieved by ISI Web of Science and by Scopus of the output of a typical university. After considering the set of Portuguese universities, the detailed analysis is made for two of them for 2006, the two being chosen for their comprehensiveness typical of most European universities. The general conclusion is that about 2/3 of the documents referenced in any of the two databases may be found in both databases while a fringe of 1/3 are only referenced in one or the other. The citation impact of the documents in the core present in both databases is higher, but the impact of the fringe that are present only in one of the databases should not be disregarded as some high impact documents may be found among them.

Keywords: Citation, Databases, Google-Scholar, h-Index, Of-Science

Notes: TTopic

? Qiu, H. and Chen, Y.F. (2009), Bibliometric analysis of biological invasions research during the period of 1991 to 2007. *Scientometrics*, **81** (3), 601-610.

Full Text: [2009\Scientometrics81, 601.pdf](2009/Scientometrics81,%20601.pdf)

Abstract: the objective of this study is to conduct a bibliometric analysis of all biological invasions-related publications in the Science Citation Index (SCI) from 1991 to 2007. The indicator citation per publication (CPP) was used to evaluate the impact of articles, journals, and institutions. In the 3323 articles published in 521 journals, 7261 authors from 1905 institutions of 100 countries participated. As the most productive country of biological invasions research, the US will benefit from more collaboration between institutions, countries, and continents. In addition, analysis of keywords was applied to reveal research trends.

Keywords: Bibliometric Analysis, Ecology, Impact, Publications, Research, SCI, Science Citation Index

? Calver, M.C. and Bradley, J.S. (2009), Should we use the mean citations per paper to summarise a journal’s impact or to rank journals in the same field? *Scientometrics*, **81** (3), 611-615.

Full Text: [2009\Scientometrics81, 611.pdf](2009/Scientometrics81,%20611.pdf)

Abstract: the mean citations per paper is used increasingly as a simple metric for indicating the impact of a journal or comparing journal rankings. While convenient, we suggest that it has limitations given the highly skewed distributions of citations per paper in a wide range of journals.

Keywords: Citations, Impact, Rankings

? Gagolewski, M. and Grzegorzewski, P. (2009), A geometric approach to the construction of scientific impact indices. *Scientometrics*, **81** (3), 617-634.

Full Text: [2009\Scientometrics81, 617.pdf](2009/Scientometrics81,%20617.pdf)

Abstract: Two broad classes of scientific impact indices are proposed and their properties - both theoretical and practical - are discussed. These new classes were obtained as a geometric generalization of the well-known tools applied in scientometric, like Hirsch’s h-Index, Woeginger’s w-index and the Kosmulski’s Maxprod. It is shown how to apply the suggested indices for estimation of the shape of the citation function or the total number of citations of an individual. Additionally, a new efficient and simple O(log n) algorithm for computing the h-Index is given.

Keywords: Citations, h Index, h-Index, Hirsch-Index, Impact, Ranking, Researchers

? Panaretos, J. and Malesios, C. (2009), Assessing scientific research performance and impact with single indices. *Scientometrics*, **81** (3), 635-670.

Full Text: [2009\Scientometrics81, 635.pdf](2009/Scientometrics81,%20635.pdf)

Abstract: We provide a comprehensive and critical review of the h-Index and its most important modifications proposed in the literature, as well as of other similar indicators measuring research output and impact. Extensions of some of these indices are presented and illustrated.

Keywords: Bibliometric Indicators, Citation Analysis, h Index, Hirsch-Type Indexes, Impact, Journals, Model, Publications, Ranking, Research, Research Output, Science, Successive h-Indexes

Notes: CCounrty

? Zou, F., Wu, M.X. and Wu, K.L. (2009), Outcomes associated with ophthalmology, optometry and visual science literature in the Science Citation Index from mainland China, 2000-2007. *Scientometrics*, **81** (3), 671-682.

Full Text: [2009\Scientometrics81, 671.pdf](2009/Scientometrics81,%20671.pdf)

Abstract: Bibliographic data on ophthalmology, optometry and visual science (OOVS) literature of China drawn from the SCI-Expanded database covering the period 2000-2007 (961 publications) were analyzed to create a comprehensive overview of research output. of 961 articles, 480 were published in 2006 and 2007. The majority of researchers worked in university hospitals (53%). 21% of the publications included one or more international co-authors. for each article, the average author number was 4.96 +/- 2.73, which increased from 3.96 in 2000 to 5.36 in 2007. The most cited references came from Investigative Ophthalmology & Visual Science and Ophthalmology. The greatest number of studies was focused on the retina.

Keywords: Authorship, Bibliometric Analysis, China, Fields, Medical Journals, Publications, Research, Research Output, Research Productivity, Science Citation Index, Vision Science

? Guan, J.C. and Ma, N. (2009), Structural equation model with PLS path modeling for an integrated system of publicly funded basic research. *Scientometrics*, **81** (3), 683-698.

Full Text: [2009\Scientometrics81, 683.pdf](2009/Scientometrics81,%20683.pdf)

Abstract: This study develops and tests an integrated conceptual model of basic research evaluation from a varying perspective. The main objective is to obtain a more complete understanding of the external factors affecting the publicly fund basic research in a country. Structural Equation Modeling (SEM) with Partial Least Squares (PLS) is used to test the conceptual model with empirical data collected from WCY (World Competitiveness Yearbook) and ESI (Essential Science Indicators) database. Interrelationships among the research output and outcome, together with three external factors (resource, impetus, accumulative advantage) have been successfully explored and the conceptual model of journal evaluation has been examined.

Keywords: Academic Research, Cumulative Advantage, Departments, Essential Science Indicators, Evaluation, Indicators, Industrial-Innovation, Knowledge, Modeling, Paradigm, Productivity Growth, Research, Research Output, Research-and-Development, Science, SEM

? Mojzes, I. and Farkas, Z.B. (2009), The speed of dissemination of information about the realization of the fourth passive electronic circuit element measured by Google hits. *Scientometrics*, **81** (3), 699-702.

Full Text: [2009\Scientometrics81, 699.pdf](2009/Scientometrics81,%20699.pdf)

Abstract: This paper aims to demonstrate briefly that major scientific achievements spread through the Internet according to an exponential expression until a saturation point.

Keywords: Memristor

? Hung, W.C., Lee, L.C. and Tsai, M.H. (2009), An international comparison of relative contributions to academic productivity. *Scientometrics*, **81** (3), 703-718.

Full Text: [2009\Scientometrics81, 703.pdf](2009/Scientometrics81,%20703.pdf)

Abstract: This paper presents a methodology for measuring the improvements in efficiency and adjustments in the scale of R&D (Research & Development) activities. for this purpose, this study decomposes academic productivity growth into components attributable to (1) world academic frontier change, (2) R&D efficiency change, (3) human capital accumulation, and (4) capital accumulation. The world academic frontier at each point in time is constructed using data envelopment analysis (DEA). This study calculates each of the above four components of academic productivity for 27 countries over 1990-2003, and finds that the components which contribute to academic productivity growth vary with the different countries’ characteristics and development stages. Human capital has more weight in terms of the quantity of academic research, and capital accumulation plays a more important role in the citation impact of academic research.

Keywords: Cross-Country, Data Envelopment Analysis, Efficiency Analysis, Growth, Impact, Indicators, Investment, Nations, R&D, Research, Research-and-Development, Scientific Wealth, Universities

? Porter, A.L. and Rafols, I. (2009), Is science becoming more interdisciplinary? Measuring and mapping six research fields over time. *Scientometrics*, **81** (3), 719-745.

Full Text: [2009\Scientometrics81, 719.pdf](2009/Scientometrics81,%20719.pdf)

Abstract: In the last two decades there have been studies claiming that science is becoming ever more interdisciplinary. However, the evidence has been anecdotal or partial. Here we investigate how the degree of interdisciplinarity has changed between 1975 and 2005 over six research domains. To do so, we compute well-established bibliometric indicators alongside a new index of interdisciplinarity (Integration score, aka Rao-Stirling diversity) and a science mapping visualization method. The results attest to notable changes in research practices over this 30 year period, namely major increases in number of cited disciplines and references per article (both show about 50% growth), and co-authors per article (about 75% growth). However, the new index of interdisciplinarity only shows a modest increase (mostly around 5% growth). Science maps hint that this is because the distribution of citations of an article remains mainly within neighboring disciplinary areas. These findings suggest that science is indeed becoming more interdisciplinary, but in small steps - drawing mainly from neighboring fields and only modestly increasing the connections to distant cognitive areas. The combination of metrics and overlay science maps provides general benchmarks for future studies of interdisciplinary research characteristics.

Keywords: Bibliometric Indicators, Bionanotechnology, Citations, Cocitation, Diversity, Mapping, Research, Strategies

? von Elm, E., Wandel, S. and Juni, P. (2009), The role of correspondence sections in post-publication peer review: A bibliometric study of general and internal medicine journals. *Scientometrics*, **81** (3), 747-755.

Full Text: [2009\Scientometrics81, 747.pdf](2009/Scientometrics81,%20747.pdf)

Abstract: Scientific journals claim that correspondence sections are for post-publication peer review. We compared the conditions for submission and the bibliometrics of letters-to-editors published in leading medical journals in 2002 and 2007 using journal-derived information and data from PubMed and Journal Citation Reports. The median time limit for letter submissions decreased from 6 to 3.5 weeks, the median word limit from 400 to 350. The median number of letters per published article was near one in both years. Only about half of the letters were followed by an author reply in either year. Electronic response systems were available for four journals in 2007.

Keywords: Audit, Bibliometric Study, Bibliometrics, Correspondence Columns, Impact Factor, Old Letters, Rules

? Wray, K.B. (2009), Did professionalization afford better opportunities for young scientists? *Scientometrics*, **81** (3), 757-764.

Full Text: [2009\Scientometrics81, 757.pdf](2009/Scientometrics81,%20757.pdf)

Abstract: I examine whether the professionalization of science, a process that unfolded between 1600 and 1899, afforded better opportunities for young scientists to make significant discoveries. My analysis suggests that the professionalization of the sciences did make it a little easier for scientists to make significant contributions at a younger age. But, I also argue that it is easy to exaggerate the effects of professionalization. Older and middle age scientists continued to play an important role in making significant discoveries throughout the history of modern science.

Keywords: Acceptance, Age, Productivity, Science

? Sierra-Flores, M.M., Guzman, M.V., Raga, A.C. and Perez, I. (2009), The productivity of Mexican astronomers in the field of outflows from young stars. *Scientometrics*, **81** (3), 765-777.

Full Text: [2009\Scientometrics81, 765.pdf](2009/Scientometrics81,%20765.pdf)

Abstract: We carry out a bibliometric study of the activity of astronomers in the field of Herbig-Haro (HH) objects. Through an appropriate choice of keywords, we recover the papers on HH objects from the ADS (Astrophysics Data Service) and ISI (“Web of Knowledge”) databases. From the two databases we recover number of papers and citations which differ by similar to 10%. We analyze an 11-year period, restricting ourselves to authors with at least 10 papers within the period. We analyze the number of papers and citations, as well as the h Index of this set of authors. Within this sample, we identify the authors belonging to Mexican institutions. We find that the Mexican researchers perform very well, having higher publication and citation rates than the ones of the full sample of authors active in the field of HH objects. The Mexicans have a degree of specialization (measured as ratios between the production in the chosen field and the total production of the individual authors) similar to the one of the full sample. They collaborate in somewhat larger groups than the authors of the full sample. Finally, we have carried out a study of the impact in the chosen field of different astronomical journals. We find that the Revista Mexicana de Astronomia y Astrofisica is well placed in the “second tier” of astronomical publications.

Keywords: Bibliometric Study, Citations, Impact, ISI, Publications

? Garcia-Perez, M.A. (2009), A multidimensional extension to Hirsch’s h-Index. *Scientometrics*, **81** (3), 779-785.

Full Text: [2009\Scientometrics81, 779.pdf](2009/Scientometrics81,%20779.pdf)

Abstract: the h-Index is becoming a reference tool for career assessment and it is starting to be considered by some agencies and institutions in promotion, allocation, and funding decisions. In areas where h indices tend to be low, individuals with different research accomplishments may end up with the same h. This paper proposes a multidimensional extension of the h Index in which the conventional h is only the first component. Additional components of the multidimensional index are obtained by computing the h-Index for the subset of papers not considered in the immediately preceding component. Computation of the multidimensional index for 204 faculty members in Departments of Methodology of the Behavioral Sciences in Spain shows that individuals with the same h can indeed be distinguished by their values in the remaining components, and that the strength of the correlation of the second and third components of the multidimensional index with alternative bibliometric indicators is similar to that of the first component (i.e., the original h).

Keywords: Assessment, Bibliometric Indicators, Citation, h Index, Indicators, Output, Research, Scientific-Research, Spain

? Hartley, J. (2009), On the need to distinguish between author and journal self-citations. *Scientometrics*, **81** (3), 787-788.

Full Text: Scientometrics81, 787.pdf

Keywords: Self-Citations

? Reinhart, M. (2009), Peer review of grant applications in biology and medicine. Reliability, fairness, and validity. *Scientometrics*, **81** (3), 789-809.

Full Text: [2009\Scientometrics81, 789.pdf](2009/Scientometrics81,%20789.pdf)

Abstract: This paper examines the peer review procedure of a national science funding organization (Swiss National Science Foundation) by means of the three most frequently studied criteria reliability, fairness, and validity. The analyzed data consists of 496 applications for project-based funding from biology and medicine from the year 1998. Overall reliability is found to be fair with an intraclass correlation coefficient of 0.41 with sizeable differences between biology (0.45) and medicine (0.20). Multiple logistic regression models reveal only scientific performance indicators as significant predictors of the funding decision while all potential sources of bias (gender, age, nationality, and academic status of the applicant, requested amount of funding, and institutional surrounding) are non-significant predictors. Bibliometric analysis provides evidence that the decisions of a public funding organization for basic project-based research are in line with the future publication success of applicants. The paper also argues for an expansion of approaches and methodologies in peer review research by increasingly focusing on process rather than outcome and by including a more diverse set of methods e.g. content analysis. Such an expansion will be necessary to advance peer review research beyond the abundantly treated questions of reliability, fairness, and validity.

Keywords: Bibliometric Analysis, Foundation, Manuscript, National Science, Originality, Predictive-Validity, Quality, Research, Sciences, Scientific Performance

? Park, H.W. and Kang, J. (2009), Patterns of scientific and technological knowledge flows based on scientific papers and patents. *Scientometrics*, **81** (3), 811-820.

Full Text: [2009\Scientometrics81, 811.pdf](2009/Scientometrics81,%20811.pdf)

Abstract: This paper examines how Korean technological development is linked with scientific activities and spreads to industrial fields through knowledge flows. It empirically assesses the linkages between scientific and technological knowledge flows and technological innovation by determining whether the quantity and quality of scientific papers cited by, and the knowledge being absorbed in, Korean patents filed in USPTO varied over time, and between technology fields. We conducted MANOVA and then canonical discriminate analysis. Our findings are: the patterns of both the absorption of scientific knowledge and the diffusion of technological knowledge differ by period and by field, and the speed of knowledge diffusion differs by technology field. This implies that the time required for Korean investment in basic and applied research to impact her industrial innovation differs by technology field.

Keywords: Absorption, Citations, Diffusion, Impact, Industrial Innovation, Linkage, Research, Science, Uspto

? Zhang, L., Glänzel, W. and Liang, L.M. (2009), Tracing the role of individual journals in a cross-citation network based on different indicators. *Scientometrics*, **81** (3), 821-838.

Full Text: [2009\Scientometrics81, 821.pdf](2009/Scientometrics81,%20821.pdf)

Abstract: This study aims at detecting the role of individual journals and uncovering structural patterns of information flow among scientific journals in a cross-citation network, using different bibliometric indicators and statistical methods of data analysis. Beyond measuring the individual journals’ position within the communication network, we shed light on their cognitive background as well. Language barrier and lacking internationality proved one of the main hindrances for integration into the communication network. Moreover, some document types hinder journals from establishing self-links. Against our expectations, we have found a clear divergence between strongly interlinked and high-entropy journals. Furthermore, the analysis of strong links among different fields allows the detection of high-interdisciplinary journals.

Keywords: Bibliometric Indicators, Generalized Waring Distribution, Scientific Journals

? Zhou, P., Thijs, B. and Glänzel, W. (2009), Regional analysis on Chinese scientific output. *Scientometrics*, **81** (3), 839-857.

Full Text: [2009\Scientometrics81, 839.pdf](2009/Scientometrics81,%20839.pdf)

Abstract: Based on data from the Science Citation Index Expanded (SCIE) and using scientometric methods, we conducted a systematic analysis of Chinese regional contributions and international collaboration in terms of scientific publications, publication activity, and citation impact. We found that regional contributions are highly skewed. The top positions measured by number of publications or citations, share of publications or citations are taken by almost the same set of regions. But this is not the case when indicators for relative citation impact are used. Comparison between regional scientific output and R&D expenditure shows that Spearman’s rank correlation coefficient between the two indicators is rather low among the leading publication regions.

Keywords: Citations, Impact, Indicators, Publications, R&D, Research Performance, Science Citation Index, Science Fields

? Campanario, J.M. and Molina, A. (2009), Surviving bad times: the role of citations, self-citations and numbers of citable items in recovery of the journal impact factor after at least four years of continuous decreases. *Scientometrics*, **81** (3), 859-864.

Full Text: [2009\Scientometrics81, 859.pdf](2009/Scientometrics81,%20859.pdf)

Abstract: We studied the influence of the number of citations, the number of citable items and the number of journal self-citations on increases in the impact factor (IF) in 123 journals from the Journal Citation Reports database in which this scientometric indicator had decreased during the previous four years. In general, we did not find evidence that abuse of journal self-citations contributed to the increase in the impact factor after several years of decreases.

Keywords: Citations, Impact, Index, Labeled Editorial Material, Recovery, Self-Citations

? Braun, T., Schubert, A. and Glänzel, W. (2010), Untitled. *Scientometrics*, **82** (1), 3.

Full Text: [2010\Scientometrics82, 3.pdf](2010/Scientometrics82,%203.pdf)

? Chang, P.L., Wu, C.C. and Leu, H.J. (2010), Using patent analyses to monitor the technological trends in an emerging field of technology: A case of carbon nanotube field emission display. *Scientometrics*, **82** (1), 5-19.

Full Text: [2010\Scientometrics82, 5.pdf](2010/Scientometrics82,%205.pdf)

Abstract: Carbon nanotube field emission display (CNT-FED) represents both emerging application of nanotechnology and revolutionary invention of display. Therefore, it is an important subject to monitor the states and trends of CNT-FED technology before the next stage of development. The present paper uses patent bibliometric analysis and patent network analysis to monitor the technological trends in the field of CNT-FED. These results firstly reveal the different aspects of patenting activities in the field of CNT-FED. Then, patent network analysis indicates the developing tendency of worldwide FED production based on the synthesis of CNT materials. Furthermore, key technologies of three clusters can be identified as the depositing CNT on substrate, coating phosphor on screen and assembling process for whole device. Finally, emitter material is taken for the key factor in R&D work to improve the efficacy in CNT-FED technology.

Keywords: Bibliometric, Bibliometric Analysis, Carbon, Carbon Nanotube Field Emission Display (CNT-FED), Citations, Indicators, Nanotechnology, Network Analysis, Patent, Patent Bibliometric Analysis, Patent Network Analysis, Patterns, R&D, Science-and-Technology, Technology

? Liu, C.Y. and Wang, J.C. (2010), Forecasting the development of the biped robot walking technique in Japan through S-curve model analysis. *Scientometrics*, **82** (1), 21-36.

Full Text: [2010\Scientometrics82, 21.pdf](2010/Scientometrics82,%2021.pdf)

Abstract: Patents contain much significant technical information which can serve as an indicator of technological and economical development. This study attempts to forecast the development of the biped robot walking technique in Japan by use of the patent data obtained from the Japan Patent Office. The study applies linear regression to the patent data using three S-curve models developed by Loglet Lab, Pearl, and Gompertz individually. Various parameters inherent to each model including the least sum of modulus error and the least mean of square error of the model are analyzed. The most appropriate model for measuring the inflection point, the growth and the saturation time of the technique is described. Based on the Gompertz model analysis, this study finds that the biped robot walking technique will continue to develop for several decades in Japan and the saturation period is estimated to be around the year 2079-2082. This finding can help related researchers and managers in the robot field to foresee the development trend of the biped robot walking technique in this century.

Keywords: Forecast, Linear Regression, Logistic Growth, Loglet Lab Software, Patent, Patent Growth Trend, Researchers, S Curve, Science, the Walking Technique of the Biped Robot

? Chiu, Y.C., Lai, H.C., Liaw, Y.C. and Lee, T.Y. (2010), Technological scope: Diversified or specialized. *Scientometrics*, **82** (1), 37-58.

Full Text: [2010\Scientometrics82, 37.pdf](2010/Scientometrics82,%2037.pdf)

Abstract: Although the topic of technological diversification has been a major source of research, only a few studies have explored the determinant variables of technological scope decisions. The present study enhances our understanding of the determinants of a firm’s technological scope strategy. After reviewing the related literatures, we proposed and empirically tested a conceptual model from the perspective of the firm’s environment, strategic orientation, and resources. The results suggest that the coherence between technological scope decisions and proposed model is significantly related to performance.

Keywords: Capabilities, CaUSAl Model, Dimensions, Firm Performance, Impact, Japanese Industry, Organization, Research, Research-And-Development, Strategy, Task Environments, Technological Diversification, Technological Scope, Technological Specialization, Topic

? Chadha, A. and Oriani, R. (2010), R&D market value under weak intellectual property rights protection: the case of India. *Scientometrics*, **82** (1), 59-74.

Full Text: [2010\Scientometrics82, 59.pdf](2010/Scientometrics82,%2059.pdf)

Abstract: the relationship between R&D and market value has attracted the interest of many scholars within different fields, but scant attention has been paid to the countries with weak protection of intellectual property rights (IPR). This is unfortunate, since this problem is potentially highly relevant for IPR policy in developing countries. In particular, several questions arise when the problem of R&D market value is analyzed in a country where IPR protection is weak. First, there are concerns regarding incentives (i.e., private returns) for firms to invest in R&D when IPR is only weakly protected. Second, significant differences could emerge in the market valuation of R&D investments of domestic and foreign firms, above all in those industries where spillovers are more likely. To examine these issues, this paper investigates the market valuation of R&D investments of a panel of 219 R&D-reporting domestic and foreign firms publicly traded in India with an empirical analysis. First, the market valuation of the R&D capital for the whole sample is positive and higher than those obtained in U.S. or European countries from similar analyses. Second, in the sub-samples of the domestic and foreign firms, the market value of R&D investments of foreign firms is not significantly different from zero, while the valuation coefficient of domestic firms is four times higher than that obtained on the whole sample. Third, in science-based industries the difference between domestic and foreign firms is smaller than in the other industries. The policy implications of these findings are discussed.

Keywords: Appropriability, Developing Countries, Foreign Direct-Investment, India, Innovation, Ipr Protection, Liberalization, Manufacturing Firms, Market Value, Multinational-Enterprises, Patents, Performance, Positive, R&D, Spillovers, Technology

? Chen, Y.S. and Chang, K.C. (2010), Analyzing the nonlinear effects of firm size, profitability, and employee productivity on patent citations of the US pharmaceutical companies by using artificial neural network. *Scientometrics*, **82** (1), 75-82.

Full Text: [2010\Scientometrics82, 75.pdf](2010/Scientometrics82,%2075.pdf)

Abstract: This study utilized artificial neural network (ANN) to explore the nonlinear influences of firm size, profitability, and employee productivity upon patent citations of the US pharmaceutical companies. The results showed that firm size, profitability, and employee productivity of the US pharmaceutical companies had the nonlinearly and monotonically positive influences upon their patent citations. Therefore, if US pharmaceutical companies want to enhance their innovation performance, they should pay attention on their firm size, profitability, and employee productivity.

Keywords: Citations, Competences, Employee Productivity, Firm Size, Innovation, Patent, Patent Citations, Performance, Positive, Profitability, Science, Technology

? Lee, Y.G. (2010), Sectoral strategic differences of technological development between electronics and chemistry: A historical view from analyses of Korean-invented US patents during the period of 1989-1992. *Scientometrics*, **82** (1), 83-92.

Full Text: [2010\Scientometrics82, 83.pdf](2010/Scientometrics82,%2083.pdf)

Abstract: Because R&D conducted in electronics and chemistry has made significant contributions to South Korean economic development, past strategies in technology developments in these fields are addressed. The possibility of capturing national technology strategy and policy characteristics from patent analyses is explored. for the analysis, data were analyzed from 557 US patents in electronics and 108 US patents in chemistry, registered by Korean inventors, between 1989 and 1992. Descriptive statistics of aggregated patent information were equivalently mapped to each strategy in the two fields. Industry-specific features and past technology strategies in electronics and chemistry are identified. Electronics was driven by the private sector, while chemistry was driven by the public sector. Inventors in both fields are seeking clustered innovation on which subsequent innovation can be accumulated and/or applied to numerous heterogeneous fields. Contrary to the stated assumption, many Korean electronic innovations were based on scientific outputs such as papers. of the knowledge strategy variables, size of invention and number of heterogeneous classifications are considered to be an important factor that affects patent citation counts in both fields.

Keywords: Citation, Citation Counts, Electronics and Chemistry, Intellectual Property, Knowledge, Model, Patent, Patent Analyses, Patent Citation Counts, Patents, R&D, Statistics, Strategic Differences, Technological Development, Technology, Technology Strategies

? Klitkou, A. and Gulbrandsen, M. (2010), The relationship between academic patenting and scientific publishing in Norway. *Scientometrics*, **82** (1), 93-108.

Full Text: [2010\Scientometrics82, 93.pdf](2010/Scientometrics82,%2093.pdf)

Abstract: This paper adds to the growing empirical evidence on the relationship between patenting and publishing among university employees. Data from all Norwegian universities and a broad set of disciplines is used, consisting of confirmed patent inventors and group of peers without patents matched to the inventors by controlling for gender, age, affiliation and position. In general, the findings support earlier investigations concluding that there is a positive relationship between patenting and publishing. There are, however, important differences among fields, universities and possibly types of academic entrepreneurs, underscoring the need to look at nuanced and contextual factors when investigating the effects of patenting.

Keywords: Academic Entrepreneurship, Academic Patenting, Commercialisation of Research, Commercialization, Entrepreneurial, Genetics, Industry, Knowledge, Patent, Patents, Performance, Positive, Publishing, Researchers, Science, Scientific Publishing, Technology, Universities

? Lo, S.C.S. (2010), Scientific linkage of science research and technology development: A case of genetic engineering research. *Scientometrics*, **82** (1), 109-120.

Full Text: [2010\Scientometrics82, 109.pdf](2010/Scientometrics82,%20109.pdf)

Abstract: In this study, the author tried to demonstrate the linkage between science research and technology development through non-patent citation analysis to reveal that the important knowledge resources from science research had significant impact on technology development. Genetic engineering technology was the field examined in this study. From the references listed in the patents, it was observed that the technology development in genetic engineering was influenced heavily by the research done by public sector. Over 90% of the citations were non-patent literatures, and the majority of non-patent citations were journal articles. Citing preferences, such as country preference and institute preference were observed from the data included in this study.

Keywords: Articles, Basic Science Research, Bibliometrics, Citation, Citation Analysis, Citations, Growth-Rates, Impact, Innovation, Non-Patent Citation, Patents, Public Science, Research, Science, Scientific Linkage, Technology, Technology Development

Notes: TTopic

? Hung, S.W. and Wang, A.P. (2010), Examining the small world phenomenon in the patent citation network: A case study of the radio frequency identification (RFID) network. *Scientometrics*, **82** (1), 121-134.

Full Text: [2010\Scientometrics82, 121.pdf](2010/Scientometrics82,%20121.pdf)

Abstract: Despite strategic research has been done in recent years to study how network topology shapes the evolution of competition in various industries, previous researches do not investigate the importance of high betweenness point on the connectivity of patent citation networks. The goal of this report is to examine and characterize the small world phenomenon in the patent citations network by analyzing the data of RFID patents. The results suggest that the patent citation network can indeed be characterized as “small world”. Additionally, the patent citation network resembles the power-law connectivity distribution and exhibits preferential connectivity behavior. In other words, a few key patents have a great many more connections than the majority of patents with few connections. Furthermore, the patents of high betweenness centrality were identified. It is found that 81% of the patent citation activities have relations with the patents of high betweenness centrality. The result of this analysis will provide a specific way for managers to identify key patents, to map their own patent deployment and to derive insight into the best ways to navigate within such networks.

Keywords: Behavior, Betweenness Centrality, Betweenness Centrality, Biotechnology Industry, Capabilities, Citation, Citation Network, Citations, Competition, Dynamics, Firms, Innovation, Knowledge Spillovers, Patent, Patent Citation, Patents, Radio Frequency Identification, Research, Sector, Small World Network

? Lee, Y.G. and Lee, J.H. (2010), Different characteristics between auctioned and non-auctioned patents. *Scientometrics*, **82** (1), 135-148.

Full Text: [2010\Scientometrics82, 135.pdf](2010/Scientometrics82,%20135.pdf)

Abstract: In recent years, firms have increased their use of internal and external knowledge through intermediaries. Knowledge brokers match buyers and sellers in the technology marketplace as well as connect and combine existing knowledge. We discuss how financial incentives in the technology marketplace can address challenges to open innovation, and how the marketplace could make individual inventors essential contributors. and then, we identify the key determinants of intellectual-property auction bids and different characteristics of auctioned and non-auctioned patents. Relevance, the scope of patents, and other factors suggested in the literature impact patent auctions, as mediated by knowledge brokers.

Keywords: Citations, Impact, Innovation, Intermediaries, Literature, Market, Marketplace for Technology, Open Innovation, Patent, Patent Auctions, Patent Characteristics, Patents, Technology

? Chen, D.Z., Lin, C.P., Huang, M.H. and Huang, C.Y. (2010), Constructing a new patent bibliometric performance measure by using modified citation rate analyses with dynamic backward citation windows. *Scientometrics*, **82** (1), 149-163.

Full Text: [2010\Scientometrics82, 149.pdf](2010/Scientometrics82,%20149.pdf)

Abstract: the objective of this research is to develop a new patent bibliometric performance measure by using modified citation rate analyses with dynamic backward citation windows. Cited half-life employed in bibliometrics was adopted in order to establish a model of annual patent backward citation windows. Based on the dynamic behavior of backward citation windows, the annual backward patent citation rates for each technology domain can be calculated to measure its bibliometric performance. It was found that the dynamic backward citation window represents more accurately the citation cycle time which is a key factor on technology assessment. Because different technology domain may have disparate attributes, a normalized backward citation rate was developed to measure the corresponding rank for each domain respect to the entire industry. Three technology domains were then chosen for demonstrative case studies which represent semiconductor, LCD, and drug industries.

Keywords: Assessment, Bibliometric, Bibliometrics, Case Studies, Citation, Citation Rate Analysis, Cited Half-Life, Dynamic Backward Citation Window, Impact Factors, Journals, Patent, Patent Bibliometric Performance Measure, Research, Science, Technology

? Guan, J.C. and Chen, K.H. (2010), Modeling macro-R&D production frontier performance: An application to Chinese province-level R&D. *Scientometrics*, **82** (1), 165-173.

Full Text: [2010\Scientometrics82, 165.pdf](2010/Scientometrics82,%20165.pdf)

Abstract: This paper proposes a novel methodological framework for effectively measuring the production frontier performance (PFP) of macro-scale (regional or national) R&D activities themselves associated with two improved models: a non-radial data envelopment analysis (DEA) model and a nonradial Malmquist index. In particular, the framework can provide multidimensional information to benchmark various R&D efficiency indexes (i.e., technical efficiency, pure technical efficiency and scale efficiency) as well as the total factor R&D productivity change (determined by three components: “catch-up” of R&D efficiency, “frontier shift” of R&D technology as well as “exploitation” of R&D scale economics effect) at a comparable production frontier. It can be used to not only investigate the potential and sustainable capacity of innovation but also screen and finance R&D projects at the regional or national level. We have applied the framework to a province-level panel dataset on R&D activities of 30 selected Chinese provinces.

Keywords: Capacity, Cross-Country, Data Envelopment Analysis, Development Efficiency, Growth, Industrialized Countries, Non-Radial Data Development Analysis, Non-Radial Malmquist Index, Patents, Production Frontier Performance, R&D, R&D Activities, Technical Progress, Technology

? Cheng, Y.H., Kuan, F.Y., Chuang, S.C. and Ken, Y. (2010), Profitability decided by patent quality? An empirical study of the US semiconductor industry. *Scientometrics*, **82** (1), 175-183.

Full Text: [2010\Scientometrics82, 175.pdf](2010/Scientometrics82,%20175.pdf)

Abstract: the investment in research and development (R&D) for semiconductor industry is never small as the technology cycle time (TCT) is relatively short comparing to other industries, thus a semiconductor company requires lots of technological innovations and capital offerings to maintain. The semiconductor industry contributes primarily part of the micro-electronic industries. Advancing technology and patent application are the centre of attention within the semiconductor sector. This research examines the relationship between patent quality and the profits a patent creates for a company in this selected field. This study distinguishes itself from prior research by including cross-sectional data, time series data to simultaneously collect and analyze. The study result shows that some indicators of patent quality are statistically significant to return on assets.

Keywords: Patent, Patent Citation, Patent Quality, Profitability, R&D, Research, Research and Development, Technology

? Frietsch, R. and Schmoch, U. (2010), Transnational patents and international markets. *Scientometrics*, **82** (1), 185-200.

Full Text: [2010\Scientometrics82, 185.pdf](2010/Scientometrics82,%20185.pdf)

Abstract: Patent statistics are a frequently used innovation indicator for the description and analysis of technological strengths and weaknesses, both on the macro and the micro level. Patent data has a broad coverage, high reliability, allows a very differentiated perspective and the data has become easier in availability and accessibility. Especially when cross country comparisons and comparative assessments are intended, a deep knowledge and understanding of patent systems is required. In the 1990s Triadic patents, which were able to balance the home advantage of domestic applicants/inventors. An increasing internationalisation and globalisation makes it also necessary to adapt the patent analyses to this new world order. In this paper the so called Transnational patents are suggested, which allows to grasp the new relations and relative positions between the industrialised, industrialising and emerging countries. The existing concepts are presented and discussed and contrasted against the concept of Transnational Patents.

Keywords: Coverage, Globalisation, Indicators, Innovative Activities, Patent, Patent Statistics, Patents, Statistics, Transnational Patents, Triadic Patents

? Chen, Y.S. and Chang, K.C. (2010), The nonlinear nature of the relationships between the patent traits and corporate performance. *Scientometrics*, **82** (1), 201-210.

Full Text: [2010\Scientometrics82, 201.pdf](2010/Scientometrics82,%20201.pdf)

Abstract: This study utilizes neural network to explore the nonlinear relationships between corporate performance and the patent traits measured from Herfindahl-Hirschman Index of patents (HHI of patents), patent citations, and relative patent position in the most important technological field (RPPMIT) in the US pharmaceutical industry. The results show that HHI of patents and RPPMIT have nonlinearly and monotonically positive influences upon corporate performance, while the influence of patent citations is nonlinearly U-shaped. Therefore, pharmaceutical companies should raise the degrees of the leading position in their most important technological fields and the centralization of their technological capabilities to enhance corporate performance.

Keywords: Citations, Corporate Performance, HHI of Patents, Patent, Patent Analysis, Patent Citations, Patents, Portfolios, Positive, Relative Patent Position (RPP), Research-and-Development, Science, Technology

Notes: UUniversity

? Lazaridis, T. (2010), Ranking university departments using the mean h-Index. *Scientometrics*, **82** (2), 211-216.

Full Text: [2010\Scientometrics82, 211.pdf](2010/Scientometrics82,%20211.pdf)

Abstract: Ranking of universities has lately received considerable attention. However, ranking of departments would give a higher resolution picture of the distribution of quality within each university. In this work the Hirsch (h) index of each faculty in Greek Chemistry, Chemical Engineering, Materials Science, and Physics departments was calculated using the Web of Science and the mean value was used to rank them. This ranking refers to the research performance of each department and thus is most relevant to its doctoral program. The results seem highly meaningful. If performed on a pan-European basis, such rankings could spur healthy competition and could provide a strong motive for meritocratic hiring practices. Technical difficulties and possible extension of this approach to social science and humanities departments are discussed.

Keywords: Author, Bibliometric Indicators, Chemical Engineering, Chemistry, Competition, Greece, h Index, h-Index, Hirsch-Index, Humanities, Journals, Materials Science, Physics, Ranking, Rankings, Research, Research Output, Research Performance, Science, Scientific-Research, Universities, Web of Science

? Bass, S.D. and Kurgan, L.A. (2010), Discovery of factors influencing patent value based on machine learning in patents in the field of nanotechnology. *Scientometrics*, **82** (2), 217-241.

Full Text: [2010\Scientometrics82, 217.pdf](2010/Scientometrics82,%20217.pdf)

Abstract: Patents represent the technological or inventive activity and output across different fields, regions, and time. The analysis of information from patents could be used to help focus efforts in research and the economy; however, the roles of the factors that can be extracted from patent records are still not entirely understood. To better understand the impact of these factors on patent value, machine learning techniques such as feature selection and classification are used to analyze patents in a sample industry, nanotechnology. Each nanotechnology patent was represented by a comprehensive set of numerical features that describe inventors, assignees, patent classification, and outgoing references. After careful design that included selection of the most relevant features, selection and optimization of the accuracy of classification models that aimed at finding most valuable (top-performing) patents, we used the generated models to analyze which factors allow to differentiate between the top-performing and the remaining nanotechnology patents. A few interesting findings surface as important such as the past performance of inventors and assignees, and the count of referenced patents.

Keywords: Citations, Classification, Evolution, Feature Selection, Impact, Indicators, Innovation, Machine Learning, Market Value, Measuring Progress, Models, Multiple Uses, Nanotechnology, Patent, Patent Value, Patents, Performance, Research, Science, Technology Field

? Egghe, L. (2010), A model showing the increase in time of the average and median reference age and the decrease in time of the Price Index. *Scientometrics*, **82** (2), 243-248.

Full Text: [2010\Scientometrics82, 243.pdf](2010/Scientometrics82,%20243.pdf)

Abstract: This paper proves two regularities that where found in the paper (LariviSre et al. (2007). Long-term patterns in the aging of the scientific literature, 1900-2004. In Proceedings of ISSI 2007. CSIC, Madrid, Spain, pp. 449-456.). The first is that the mean as well as the median reference age increases in time. The second is that the Price Index decreases in time. Using an exponential literature growth model we prove both regularities. Hence we show that the two results do not have a special informetric reason but that they are just a mathematical consequence of a widely accepted simple literature growth model.

Keywords: Aging, Exponential Growth, Growth, Literature, Mean Reference Time, Median Reference Time, Price Index, Scientific Literature, Spain

? Yu, G. and Li, Y.J. (2010), Identification of referencing and citation processes of scientific journals based on the citation distribution model. *Scientometrics*, **82** (2), 249-261.

Full Text: [2010\Scientometrics82, 249.pdf](2010/Scientometrics82,%20249.pdf)

Abstract: In this article, we firstly analyze the referencing process and the citation process of a scientific journal in theory, and find that the observed referencing or citation process includes the diffusing process and the aging process of cited literature and the publishing process of citing literature, thereby it is illuminated why the identified average publication delay ((T) over bar = T-s + tau) was longer than the observed value. Secondly, we compare the transfer function model of the observed citing process with other classical citation distribution models and find that the model is superior to others. Finally, using the model, we identify parameters of actual referencing and citation processes from data of age distributions of references and citations of 38 journals of neurology and applied mathematics in JCR, respectively; and then compare differences of identified parameters and obtain some interesting conclusions.

Keywords: Aging, Citation, Citation Distribution Model, Citations, Identification, Impact, Journals, Literature, Mathematics, Models, Publication, Publication Delay, Publication Delays, Publishing, Referencing, Referencing and Citation Processes, Scientific Journal, Scientific Journals, Theory

? Rafols, I. and Meyer, M. (2010), Diversity and network coherence as indicators of interdisciplinarity: Case studies in bionanoscience. *Scientometrics*, **82** (2), 263-287.

Full Text: [2010\Scientometrics82, 263.pdf](2010/Scientometrics82,%20263.pdf)

Abstract: the multidimensional character and inherent conflict with categorisation of interdisciplinarity makes its mapping and evaluation a challenging task. We propose a conceptual framework that aims to capture interdisciplinarity in the wider sense of knowledge integration, by exploring the concepts of diversity and coherence. Disciplinary diversity indicators are developed to describe the heterogeneity of a bibliometric set viewed from predefined categories, i.e. using a top-down approach that locates the set on the global map of science. Network coherence indicators are constructed to measure the intensity of similarity relations within a bibliometric set, i.e. using a bottom-up approach, which reveals the structural consistency of the publications network. We carry out case studies on individual articles in bionanoscience to illustrate how these two perspectives identify different aspects of interdisciplinarity: disciplinary diversity indicates the large-scale breadth of the knowledge base of a publication; network coherence reflects the novelty of its knowledge integration. We suggest that the combination of these two approaches may be useful for comparative studies of emergent scientific and technological fields, where new and controversial categorisations are accompanied by equally contested claims of novelty and interdisciplinarity.

Keywords: Articles, Bibliometric, Bionanotechnology, Case Studies, Categories, Citation, Cocitation, Collaboration, Cross-Disciplinary, Diversity, Evaluation, Heterogeneity, Indicators, Integration, Interdisciplinary Research, Mapping, Nanoscience, Nanotechnology, Nanotechnology, Network Analysis, Publication, Publications, Research Areas, Science, Strategies

? Magerman, T., Van Looy, B. and Song, X.Y. (2010), Exploring the feasibility and accuracy of Latent Semantic Analysis based text mining techniques to detect similarity between patent documents and scientific publications. *Scientometrics*, **82** (2), 289-306.

Full Text: [2010\Scientometrics82, 289.pdf](2010/Scientometrics82,%20289.pdf)

Abstract: In this study, we examine and validate the use of existing text mining techniques (based on the vector space model and latent semantic indexing) to detect similarities between patent documents and scientific publications. Clearly, experts involved in domain studies would benefit from techniques that allow similarity to be detected-and hence facilitate mapping, categorization and classification efforts. In addition, given current debates on the relevance and appropriateness of academic patenting, the ability to assess content-relatedness between sets of documents-in this case, patents and publications-might become relevant and useful. We list several options available to arrive at content based similarity measures. Different options of a vector space model and latent semantic indexing approach have been selected and applied to the publications and patents of a sample of academic inventors (n = 6). We also validated the outcomes by using independently obtained validation scores of human raters. While we conclude that text mining techniques can be valuable for detecting similarities between patents and publications, our findings also indicate that the various options available to arrive at similarity measures vary considerably in terms of accuracy: some generally accepted text mining options, like dimensionality reduction and LSA, do not yield the best results when working with smaller document sets. Implications and directions for further research are discussed.

Keywords: Author-Inventor Relationships, Classification, Combining Full-Text, Information-Retrieval, Knowledge, Latent Semantic Analysis, Mapping, Patent, Patent-Publication Pairs, Patents, Performance, Publications, Rank, Research, Researchers, Science, Science-Technology Linkages, Scientific Publications, Space, Technology, Text Mining

? Perianes-Rodriguez, A., Olmeda-Gomez, C. and Moya-Anegon, F. (2010), Detecting, identifying and visualizing research groups in co-authorship networks. *Scientometrics*, **82** (2), 307-319.

Full Text: [2010\Scientometrics82, 307.pdf](2010/Scientometrics82,%20307.pdf)

Abstract: the present paper proposes a method for detecting, identifying and visualizing research groups. The data used refer to nine Carlos III University of Madrid departments, while the findings for the Communication Technologies Department illustrate the method. Structural analysis was used to generate co-authorship networks. Research groups were identified on the basis of factorial analysis of the raw data matrix and similarities in the choice of co-authors. The resulting networks distinguished the researchers participating in the intra-departmental network from those not involved and identified the existing research groups. Fields of research were characterized by the Journal of Citation Report subject category assigned to the bibliographic references cited in the papers written by the author-factors. The results, i.e., the graphic displays of the structures of the socio-centric and co-authorship networks and the strategies underlying collaboration among researchers, were later discussed with the members of the departments analyzed. The paper constitutes a starting point for understanding and characterizing networking within research institutions.

Keywords: Citation, Co-Authorship, Coauthorship, Cocitation, Collaboration, Community Structure, Graphs, Groups, Information Visualization, Intellectual Space, Network Analysis, Productivity, Research, Research Collaboration, Research Groups, Research Institutions, Researchers, Scientific Collaboration, Size, Structural

? Mikki, S. (2010), Comparing Google Scholar and ISI Web of Science for Earth Sciences. *Scientometrics*, **82** (2), 321-331.

Full Text: [2010\Scientometrics82, 321.pdf](2010/Scientometrics82,%20321.pdf)

Abstract: In order to measure the degree to which Google Scholar can compete with bibliographical databases, search results from this database is compared with Thomson’s ISI WoS (Institute for Scientific Information, Web of Science). for earth science literature 85% of documents indexed by ISI WoS were recalled by Google Scholar. The rank of records displayed in Google Scholar and ISI WoS, is compared by means of Spearman’s footrule. for impact measures the h-Index is investigated. Similarities in measures were significant for the two sources.

Keywords: Citation Analysis, Citation Counts, Coverage, Database, Databases, Google Scholar, h Index, h-Index, Impact, Impact Measures, ISI, ISI Web, ISI Web of Science, Literature, Rankings, Science, Scopus, Similarity Measures, Web of Science

Notes: UUniversity

? Etxebarria, G. and Gomez-Uranga, M. (2010), Use of Scopus and Google Scholar to measure social sciences production in four major Spanish universities. *Scientometrics*, **82** (2), 333-349.

Full Text: [2010\Scientometrics82, 333.pdf](2010/Scientometrics82,%20333.pdf)

Abstract: A large part of Social Sciences and the Humanities do not adapt to international proceedings used in English for scientific output on databases such as the Web of Science and Scopus. The aim of this paper is to show the different results obtained in scientific work by comparing Social Sciences researchers with those of other sciences in four Spanish universities. The first finding is that some Social Sciences researchers are somewhat internationalised. However, the majority of individuals who are prestigious in their local academic-scientific community do not even appear on the information sources mentioned above.

Keywords: Citation, Databases, Google Scholar, Rankings, Researchers, Science, Scientific Output, Scopus, Social Sciences, Social Sciences Production, Spanish Universities, Universities, Visibility on International Databases, Web, Web of Science

Notes: CCountry

? Ben-David, D. (2010), Ranking Israel’s economists. *Scientometrics*, **82** (2), 351-364.

Full Text: [2010\Scientometrics82, 351.pdf](2010/Scientometrics82,%20351.pdf)

Abstract: One of the more important measures of a scholar’s research impact is the number of times that the scholar’s work is cited by other researchers as a source of knowledge. This paper conducts a first of its kind examination on Israel’s academic economists and economics departments, ranking them according to the number of citations on their work. It also provides a vista into one of the primary reasons given by junior Israeli economists for an unparalleled brain drain from the country-discrepancies between research impact and promotion. The type of examination carried out in this paper can now be easily replicated in other fields and in other countries utilizing freely available citations data and compilation software that have been made readily accessible in recent years.

Keywords: Academic Economists, Author, Citations, Impact, Israel, Journals, Primary, Ranking, Rankings, Research, Researchers, Software

? Baccini, A. and Barabesi, L. (2010), Interlocking editorship. A network analysis of the links between economic journals. *Scientometrics*, **82** (2), 365-389.

Full Text: [2010\Scientometrics82, 365.pdf](2010/Scientometrics82,%20365.pdf)

Abstract: the exploratory analysis developed in this paper relies on the hypothesis that each editor possesses some power in the definition of the editorial policy of her journal. Consequently if the same scholar sits on the board of editors of two journals, those journals could have some common elements in their editorial policies. The proximity of the editorial policies of two scientific journals can be assessed by the number of common editors sitting on their boards. A database of all editors of ECONLIT journals is used. The structure of the network generated by interlocking editorship is explored by applying the instruments of network analysis. Evidence has been found of a compact network containing different components. This is interpreted as the result of a plurality of perspectives about the appropriate methods for the investigation of problems and the construction of theories within the domain of economics.

Keywords: Database, Economic Journals, Editorial Boards, Editorial Policies, Editorial-Boards, Favoritism, Gatekeepers, Interlocking Editorship, Journal Gatekeepers, Journals, Network Analysis, Networks, Rankings, Referees, Representation, Science, Scientific Collaboration, Scientific Journals, World

Notes: MModel

? Alonso, S., Cabrerizo, F.J., Herrera-Viedma, E. and Herrera, F. (2010), hg-index: A new index to characterize the scientific output of researchers based on the h- and g-indices. *Scientometrics*, **82** (2), 391-400.

Full Text: [2010\Scientometrics82, 391.pdf](2010/Scientometrics82,%20391.pdf)

Abstract: To be able to measure the scientific output of researchers is an increasingly important task to support research assessment decisions. To do so, we can find several different measures and indices in the literature. Recently, the h-Index, introduced by Hirsch in 2005, has got a lot of attention from the scientific community for its good properties to measure the scientific production of researchers. Additionally, several different indicators, for example, the g-index, have been developed to try to improve the possible drawbacks of the h-Index. In this paper we present a new index, called hg-index, to characterize the scientific output of researchers which is based on both h-Index and g-index to try to keep the advantages of both measures as well as to minimize their disadvantages.

Keywords: Assessment, Bibliometric Indicators, G-Index, h Index, h-Index, Hg-Index, Hirsch-Index, Indicators, Literature, Ranking, Research, Research Evaluation, Researchers, Science, Scientific Output, Scientific Production

? Gingras, Y. and Wallace, M.L. (2010), Why it has become more difficult to predict Nobel Prize winners: A bibliometric analysis of nominees and winners of the chemistry and physics prizes (1901-2007). *Scientometrics*, **82** (2), 401-412.

Full Text: [2010\Scientometrics82, 401.pdf](2010/Scientometrics82,%20401.pdf)

Abstract: We propose a comprehensive bibliometric study of the profile of Nobel Prize winners in chemistry and physics from 1901 to 2007, based on citation data available over the same period. The data allows us to observe the evolution of the profiles of winners in the years leading up to-and following-nominations and awarding of the Nobel Prize. The degree centrality and citation rankings in these fields confirm that the Prize is awarded at the peak of the winners’ citation history, despite a brief Halo Effect observable in the years following the attribution of the Prize. Changes in the size and organization of the two fields result in a rapid decline of predictive power of bibliometric data over the century. This can be explained not only by the growing size and fragmentation of the two disciplines, but also, at least in the case of physics, by an implicit hierarchy in the most legitimate topics within the discipline, as well as among the scientists selected for the Nobel Prize. Furthermore, the lack of readily-identifiable dominant contemporary physicists suggests that there are few new paradigm shifts within the field, as perceived by the scientific community as a whole.

Keywords: Bibliometric, Bibliometric Analysis, Bibliometric Study, Centrality, Citation, History, Nobel Prize, Paradigm, Rankings, Scientific Disciplines, Topics

Notes: MModel

? Quesada, A. (2010), More axiomatics for the Hirsch Index. *Scientometrics*, **82** (2), 413-418.

Full Text: [2010\Scientometrics82, 413.pdf](2010/Scientometrics82,%20413.pdf)

Abstract: the Hirsch Index is a number that synthesizes a researcher’s output. It is defined as the maximum number h such that the researcher has h papers with at least h citations each. Woeginger (Math Soc Sci 56: 224-232, 2008a; J Informetr 2: 298-303, 2008b) suggests two axiomatic characterizations of the Hirsch Index using monotonicity as one of the axioms. This note suggests three characterizations without adopting the monotonicity axiom.

Keywords: Axiomatic Characterization, Citations, Hirsch Index, Publications, Research Quality

Notes: UUniversity

? Puuska, H.M. (2010), Effects of scholar’s gender and professional position on publishing productivity in different publication types. Analysis of a Finnish university. *Scientometrics*, **82** (2), 419-437.

Full Text: [2010\Scientometrics82, 419.pdf](2010/Scientometrics82,%20419.pdf)

Abstract: This paper examines the effects of a scholar’s position and gender on publishing productivity in several types of scientific publications: monographs, articles in journals, articles in edited books, and articles in conference proceedings. The data consist of 1,367 scholars who worked at the University of Helsinki, Finland, during the period 2002-2004. The analysis shows that professors are the most productive, PhDs publish more than non-PhDs, and men perform better than women, also when other scholarly characteristics are controlled for. These differences are greater for monographs and articles in edited books than for articles in journals. In terms of conference proceedings, no remarkable productivity differences were found.

Keywords: Academic Position, Age, Articles, Books, Collaboration, Faculty, Faculty Rank, Fields, Gender, Journals, Performance, Publication, Publications, Publishing, Publishing Productivity, Science, Scientific Productivity, Scientific Publications, Women

? Veugelers, R. (2010), Towards a multipolar science world: Trends and impact. *Scientometrics*, **82** (2), 439-456.

Full Text: [2010\Scientometrics82, 439.pdf](2010/Scientometrics82,%20439.pdf)

Abstract: This paper brings together recent statistical evidence on international (co-)publications and (foreign) PhD-students and scholars to document shifts in geographic sources of scientific production and the impact this has on flows of scientific talent and partnering for scientific collaboration. The evidence demonstrates that despite the continued dominance of the US and the increasing importance of the EU, the TRIAD is in relative decline. Other geographic sources of science outside the TRIAD are rising, both in quantity, but also, although still to a lesser extent, in quality. Especially China drives this non-TRIAD growth. This catching-up of non-TRIAD countries drives a slow but real process of global convergence. It nevertheless leaves a less equal non-TRIAD science community, as the growth of China, is not matched by other non-TRIAD countries. Despite the rise of China’s own scientific production, and the increasing return flows of overseas students and scholars, the outward flows of Asian talents have not diminished over time. The data suggest a high correlation between the patterns of international mobility of scientists and the patterns of international collaborations. The large and stable flow of Chinese human capital into the US forms the basis on which stable international US-Chinese scientific networks are built. With the EU lacking this Chinese human capital circulation, it is more difficult to build up similar strong and stable networks.

Keywords: China, Co-Authorship, Collaboration, Convergence, EU, Globalisation, Impact, International Co-Publications, International Mobility, Non-Triad, Science, Scientific Networks, Scientific Production, Trends

? Gorraiz, J., Moed, H. and Schiebel, E. (2010), Preface. *Scientometrics*, **82** (3), 459-460.

Full Text: [2010\Scientometrics82, 459.pdf](2010/Scientometrics82,%20459.pdf)

Notes: MModel

? Vinkler, P. (2010), The pi(v)-index: A new indicator to characterize the impact of journals. *Scientometrics*, **82** (3), 461-475.

Full Text: [2010\Scientometrics82, 461.pdf](2010/Scientometrics82,%20461.pdf)

Abstract: for determining the eminence of scientific journals, a new indicator stressing the importance of papers in the “elite set” (i.e., highly cited papers) is suggested. The number of papers in the elite set (P (pi v)) is calculated with the equation: (10 log P) - 10, where P is the total number of papers in the set. The one-hundredth of citations (C) obtained by P (pi v) papers is regarded as the pi(v)-index which is field and time dependent. The pi(v)-index is closely correlated with the citedness (C/P) of P (pi v) papers, and it is also correlated with the Hirsch-Index. Three types of Hirsch-sets are distinguished, depending on the relation of the number of citations received by the Hirsch-paper (ranked as h) and the paper next in rank (h + 1) by citation. The h-Index of an Anomalous Hirsch-set (AH) may be increased by a single citation to a paper outside the Hirsch-core. (A set of papers may be regarded as AH, where the number of citations to the Hirsch-paper is higher than the h-Index and the next paper in rank shows as many citations as the value of the h-Index.).

Keywords: Citation, Citations, Elite Set, Eminence of Journals, h Index, h-Index, Highly Cited Papers, Hirsch Index, Hirsch-Index, Impact, Index, Information, Journals, Performance, Pi-Index, Science, Scientific Journals, Scientometric Indicators, Scientometric Indicators

Notes: MModel

? Aguillo, I.F., Ortega, J.L., Fernandez, M. and Utrilla, A.M. (2010), Indicators for a webometric ranking of open access repositories. *Scientometrics*, **82** (3), 477-486.

Full Text: [2010\Scientometrics82, 477.pdf](2010/Scientometrics82,%20477.pdf)

Abstract: the Ranking Web of World Repositories (http://repositories.webometrics.info) is introduced. The objective is to promote Open access initiatives (OAI) supporting the use of repositories for scientific evaluation purposes. A set of metrics based on web presence, impact and Usage is discussed. The Ranking is built on indicators obtained from web search engines following a model close to the Impact Factor one. The activity accounts for a 50% of the index, including number of pages, pdf files and items in Google Scholar database, while the visibility takes into account the external inlinks received by the repository (the other 50%). The Ranking provides the Top 300 repositories from a total of 592 worldwide, with a strong presence of US, German and British institutional repositories and the leadership of the large subject repositories. Results suggest the need to take into consideration other file formats and the Usage information, an option is not feasible today.

Keywords: Articles, Citation Advantage, Communication, Database, Evaluation, Google Scholar, Impact, Impact Factor, Indicators, Information, Institutional Repositories, Leadership, Metrics, Model, Open Access, Ranking, Repositories, Science, US, Usage, Visibility, Web, Webometrics

? Asemi, A. (2010), A citation analysis of Iranian journals to open access (OA) articles and journals. *Scientometrics*, **82** (3), 487-494.

Full Text: [2010\Scientometrics82, 487.pdf](2010/Scientometrics82,%20487.pdf)

Abstract: This study was survey on citation research of Open Access (OA) journals in English papers of Iranian universities journals during year 2007. The main purposes of this paper were: to examine the state of English papers in Iranian journals in Thomson Scientific Master Journal List (TSMJL); and to analyze their visibility through citations to OA journals in DOAJ database. In fact, the researcher has used of citation analysis technique of bibliometric and large-scale sociometric analyses on about 16,219 citations. The method followed in the first part of this study is obtaining data from e-journal articles which Indexed in TSMJL, conducting descriptive analyses, and reporting the findings in tables and figures. In the second part of the study, DOAJ database is used to behaviour cited reference searches and other citation analyses. It found that there are 960 Iranian print-based journals and only 37 Iranian Journals was indexed in TSMJL. Sixteen English Journals in TSMJL of eight Iranian universities. Throughout sixteen journals only one journal didn’t publish during 2007 and there were 704 articles all over the fifteen journals. Using large-scale sociometric analyses on about 16,219 citations all over 15 journals, it is notable that number of journals without citation to DOAJ was 3,101 (99.7%) and the number of journals with citation to DOAJ was 9 (0.3%). It shows that there was huge difference between the journals which had citing to DOAJ and without citing to DOAJ.

Keywords: Age, Articles, Bibliometric, Citation, Citation Analysis, Citations, Database, DOAJ, Free Access, Iran, Journal, Journals, Open Access (OA) Journals, Referred Journals, Research, Sociometric Analysis, State, Thomson Scientific, Universities, Visibility

? Bar-Ilan, J. (2010), Citations to the “Introduction to informetrics” indexed by WOS, Scopus and Google Scholar. *Scientometrics*, **82** (3), 495-506.

Full Text: [2010\Scientometrics82, 495.pdf](2010/Scientometrics82,%20495.pdf)

Abstract: Google Scholar and Scopus are recent rivals to Web of Science. In this paper we examined these three citation databases through the citations of the book “Introduction to informetrics” by Leo Egghe and Ronald Rousseau. Scopus citations are comparable to Web of Science citations when limiting the citation period to 1996 and onwards (the citation coverage of Scopus)-each database covered about 90% of the citations located by the other. Google Scholar missed about 30% of the citations covered by Scopus and Web of Science (90 citations), but another 108 citations located by Google Scholar were not covered either by Scopus or by Web of Science. Google Scholar performed considerably better than reported in previous studies, however Google Scholar is not very “user-friendly” as a bibliometric data collection tool at this point in time. Such “microscopic” analysis of the citing documents retrieved by each of the citation databases allows us a deeper understanding of the similarities and the differences between the databases.

Keywords: Bibliometric, Bibliometric Data, Citation, Citations, Counts, Coverage, Data Collection, Database, Databases, Google Scholar, h-Index, Impact, Introduction to Informetrics, Science, Scopus, Web of Science, Web-of-Science

? Basu, A. (2010), Does a country’s scientific ‘productivity’ depend critically on the number of country journals indexed? *Scientometrics*, **82** (3), 507-516.

Full Text: [2010\Scientometrics82, 507.pdf](2010/Scientometrics82,%20507.pdf)

Abstract: In this paper, we examine the question whether it is meaningful to talk about the scientific productivity of nations based on indexes like the Science Citation Index or Scopus, when the journal set covered by them keeps changing with time. We hypothesize from the illustrative case of India’s declining productivity in the 1980s which correlated with a fall in its journals indexed, that an apparent increase/decrease in productivity for any country, based on observed change in its share of papers could, in fact, be an effect resulting from the inclusion of more/less journals from the country. To verify our hypothesis we have used SCIMAGO data. We found that for a set of 90 countries, the share of journals regressed on the share of papers gave a linear relationship that explained 80% of the variance. However, we also show that in the case of China’s unusual rise in world scientific productivity (to second rank crossing several other countries), There is yet another factor that needs to be taken into account. We define a new indicator-the JOURNAL PACKING DENSITY (JPD) or average number of papers in journals from a given country. We show that the packing density of Chinese journals has steadily increased over the last few years. Currently, Chinese journals have the highest ‘packing density’ in the world, almost twice the world average which is about 100 papers per journal per annum. The deviation of the JPD from the world average is another indicator which will affect so called ‘national productivities’ in addition to the number of national journals indexed. We conclude that in the context of a five fold increase in the number of journals indexed over 20 years, the simplistic notion of ‘scientific productivity’ as equivalent to papers indexed needs to be re-examined.

Keywords: Bibliometrics, China, China, Chinese Journals, Citation, Country Share, Density, India, India, Journal, Journals, Productivity, Publications, Science, Science Citation Index, Scientific Productivity, SCIMAGO, Scopus, Web of Science

? Costas, R., van Leeuwen, T.N. and Bordons, M. (2010), Self-citations at the meso and individual levels: Effects of different calculation methods. *Scientometrics*, **82** (3), 517-537.

Full Text: [2010\Scientometrics82, 517.pdf](2010/Scientometrics82,%20517.pdf)

Abstract: This paper focuses on the study of self-citations at the meso and micro (individual) levels, on the basis of an analysis of the production (1994-2004) of individual researchers working at the Spanish CSIC in the areas of Biology and Biomedicine and Material Sciences. Two different types of self-citations are described: author self-citations (citations received from the author him/herself) and co-author self-citations (citations received from the researchers’ co-authors but without his/her participation). Self-citations do not play a decisive role in the high citation scores of documents either at the individual or at the meso level, which are mainly due to external citations. At micro-level, the percentage of self-citations does not change by professional rank or age, but differences in the relative weight of author and co-author self-citations have been found. The percentage of co-author self-citations tends to decrease with age and professional rank while the percentage of author self-citations shows the opposite trend. Suppressing author self-citations from citation counts to prevent overblown self-citation practices may result in a higher reduction of citation numbers of old scientists and, particularly, of those in the highest categories. Author and co-author self-citations provide valuable information on the scientific communication process, but external citations are the most relevant for evaluative purposes. As a final recommendation, studies considering self-citations at the individual level should make clear whether author or total self-citations are used as these can affect researchers differently.

Keywords: Bibliometric Indicators, Bibliometric Tools, Citation, Citation Analysis, Citation Counts, Citations, Co-Author, Collaboration, Disciplines, Impact, Index, Indicators, Individual Scientists, Macro, Meso-Level, Methods, Micro-Level, Output, Pay, Professional, Reduction, Researchers, Science Policy, Scientific Communication, Self-Citation, Self-Citations

? Klavans, R. and Boyack, K.W. (2010), Toward an objective, reliable and accurate method for measuring research leadership. *Scientometrics*, **82** (3), 539-553.

Full Text: [2010\Scientometrics82, 539.pdf](2010/Scientometrics82,%20539.pdf)

Abstract: We compare a new method for measuring research leadership with the traditional method. Both methods are objective and reliable, utilize standard citation databases, and are easily replicated. The traditional method uses partitions of science based on journal categories, and has been extensively used to measure national leadership patterns in science, including those appearing in the NSF Science & Engineering Indicators Reports and in prominent journals such as Science and Nature. Our new method is based on co-citation techniques at the paper level. It was developed with the specific intent of measuring research leadership at a university, and was then extended to examine national patterns of research leadership. A comparison of these two methods provides compelling evidence that the traditional method grossly underestimates research leadership in most countries. The new method more accurately portrays the actual patterns of research leadership at the national level.

Keywords: Accuracy, Citation, Classification, Co-Citation, Co-Citation Analysis, Comparison, Competencies, Databases, Indicators, Journal, Journals, Leadership, Map of Science, Maps, Methods, National Leadership, Nations, Paradigms, Research, Research Leadership, Science, Science Map, Techniques, University, World

? Wan, J.K., Hua, P.H., Rousseau, R. and Sun, X.K. (2010), The journal download immediacy index (DII): experiences using a Chinese full-text database. *Scientometrics*, **82** (3), 555-566.

Full Text: [2010\Scientometrics82, 555.pdf](2010/Scientometrics82,%20555.pdf)

Abstract: Relationships between the journal download immediacy index (DII) and some citation indicators are studied. The Chinese full-text database CNKI is used for data collection. Results suggest that the DII can be considered as an independent indicator, but that it also has predictive value for other indicators, such as a journal’s h-Index. In case a journal cannot yet have an impact factor-because its citation history within the database is too short-the DII can be used for a preliminary evaluation. The article provides results related to the CNKI database as a whole and additionally, some detailed information about agricultural and forestry journals.

Keywords: Agricultural and Forestry Journals, Citation, Data Collection, Database, Download Immediacy Index, Evaluation, Full-Text Databases, h Index, h-Index, History, Impact, Impact Factor, Indicators, Journal, Journal Evaluation Indicators, Journal Immediacy Index, Journals

Notes: MModel

? Schloegl, C. and Gorraiz, J. (2010), Comparison of citation and Usage indicators: the case of oncology journals. *Scientometrics*, **82** (3), 567-580.

Full Text: [2010\Scientometrics82, 567.pdf](2010/Scientometrics82,%20567.pdf)

Abstract: It is the objective of this article to examine in which aspects journal Usage data differ from citation data. This comparison is conducted both at journal level and on a paper by paper basis. At journal level, we define a so-called Usage impact factor and a Usage half-life in analogy to the corresponding Thomson’s citation indicators. The Usage data were provided from Science Direct, subject category “oncology”. Citation indicators were obtained from JCR, article citations were retrieved from SCI and Scopus. Our study shows that downloads and citations have different obsolescence patterns. While the average cited half-life was 5.6 years, we computed a mean Usage half-life of 1.7 years for the year 2006. We identified a strong correlation between the citation frequencies and the number of downloads for our journal sample. The relationship was lower when performing the analysis on a paper by paper basis because of existing variances in the citation-download-ratio among articles. Also the correlation between the Usage impact factor and Thomson’s journal impact factor was “only” moderate because of different obsolescence patterns between downloads and citations.

Keywords: Articles, Citation, Citations, Cited Half-Life, Comparison, Impact, Impact Factor, Indicators, Journal, Journal Impact, Journal Impact Factor, Journal Metrics, Journals, Metrics, Obsolescence, Oncology, SCI, Science, Scopus, Usage Half-Life, Usage Impact Factor

? van Eck, N.J., Waltman, L., Noyons, E.C.M. and Buter, R.K. (2010), Automatic term identification for bibliometric mapping. *Scientometrics*, **82** (3), 581-596.

Full Text: [2010\Scientometrics82, 581.pdf](2010/Scientometrics82,%20581.pdf)

Abstract: A term map is a map that visualizes the structure of a scientific field by showing the relations between important terms in the field. The terms shown in a term map are usually selected manually with the help of domain experts. Manual term selection has the disadvantages of being subjective and labor-intensive. To overcome these disadvantages, we propose a methodology for automatic term identification and we use this methodology to select the terms to be included in a term map. To evaluate the proposed methodology, we use it to construct a term map of the field of operations research. The quality of the map is assessed by a number of operations research experts. It turns out that in general the proposed methodology performs quite well.

Keywords: Authorship, Automatic Term Identification, Bibliometric, Bibliometric Mapping, Citation Patterns, Mapping, Maps, Operational-Research, Operations Research, Probabilistic Latent Semantic Analysis, Research, Science, Term Map

Notes: CCountry

? Zhou, P. and Glänzel, W. (2010), In-depth analysis on China’s international cooperation in science. *Scientometrics*, **82** (3), 597-612.

Full Text: [2010\Scientometrics82, 597.pdf](2010/Scientometrics82,%20597.pdf)

Abstract: It has been about 30 years since China adopted an open-up and reform policy for global competition and collaboration. This opening-up policy is accompanied by a spectacular growth of the country’s economy as well as visibility in the world’s scientific literature. Also China’ competitiveness in scientific research has grown, and is mirroring the development of the country’s economy. On the other hand, international collaboration of most countries dramatically increased during the last two decades and accompanied the growth of science in emerging economies. Thus the question arises of whether growth of competitiveness in research is accompanied by an intensification of collaboration in China as well. In the present study we analyse the dynamics and the national characteristics of China’s co-operation in a global context. We also study research profile and citation impact of international collaboration with respect to the corresponding domestic ‘standards’.

Keywords: Brazil, Characteristics, China, Citation, Citation Impact, Co-Authorship, Collaboration, Competition, Global, Growth, Impact, International Collaboration, International Cooperation, Literature, Research, Research Profile, Science, Scientific Literature, Scientific Research, Standards, Subject Normalisation, Subject Profiles, Visibility, World

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Full Text: [2010\Scientometrics82, 613.pdf](2010/Scientometrics82,%20613.pdf)

Abstract: This article introduces the Impact Factor squared or IF2-index, an h-like indicator of research performance. This indicator reflects the degree to which large entities such as countries and/or their states participate in top-level research in a field or subfield. The IF2-index uses the Journal Impact Factor (JIF) of research publications instead of the number of citations. This concept is applied to other h-type indexes and their results compared to the IF2-index. These JIF-based indexes are then used to assess the overall performance of cancer research in Australia and its states over 8 years from 1999 to 2006. The IF2-index has three advantages when evaluating larger research units: firstly, it provides a stable value that does not change over time, reflecting the degree to which a research unit participated in top-level research in a given year; secondly, it can be calculated closely approximating the publication date of yearly datasets; and finally, it provides an additional dimension when a full article-based citation analysis is not feasible. As the index reflects the degree of participation in top-level research it may favor larger units when units of different sizes are compared.

Keywords: A-Index, Australia, Bibliometric Indicators, Cancer, Cancer Research, Citation, Citation Analysis, Citations, h-Index, h-Like Indexes, H-Type Indexes, Hirsch-Type Indexes, IF2-Index, Impact, Impact Factor, Indicators, Journal Impact Factor, Level, Publication, Publications, Quality, R-Index, Research, Research Evaluation, Research Performance, Researchers, Scientific Performance, Scientometrics

? Jovanovic, M.M., John, M. and Reschke, S. (2010), Effects of civil war: Scientific cooperation in the republics of the former Yugoslavia and the province of Kosovo. *Scientometrics*, **82** (3), 627-645.

Full Text: [2010\Scientometrics82, 627.pdf](2010/Scientometrics82,%20627.pdf)

Abstract: In this study we investigate the scientific output of Yugoslavia and its successor republics viz. Serbia, Croatia, Slovenia, Bosnia & Herzegovina, Macedonia and Montenegro. Additionally, Kosovo was included as a separate entity, since it recently declared its independence. The publications and cooperation between the republics are analyzed for the years from 1970 until 2007. In contrast to similar studies, we examine a larger time window and take into consideration not only the three big republics (Serbia, Croatia, and Slovenia) but also include the smaller ones, namely Bosnia & Herzegovina, Macedonia and Montenegro. for our analysis we introduce two new indicators: the normalized cooperation score (R-i((cs)))and the dominance factor (D-i((c))), a measure of dominance within a weighted network. Furthermore, we develop and assess the reliability of various techniques for visualizing our findings. We found that the civil wars had a severe impact on the inner-Yugoslav cooperation network. Additionally it seems, as if with the ending of the conflicts a process of recovery started.

Keywords: Bibliometrics, Cooperation Analysis, Croatia, Dominance Factor, Impact, Impact of Social Crises, Indicators, Journals, Network Analysis, Publications, Recovery, Reliability, Science, Scientific Cooperation, Scientific Output, Techniques, Yugoslavia

? Laurens, P., Zitt, M. and Bassecoulard, E. (2010), Delineation of the genomics field by hybrid citation-lexical methods: interaction with experts and validation process. *Scientometrics*, **82** (3), 647-662.

Full Text: [2010\Scientometrics82, 647.pdf](2010/Scientometrics82,%20647.pdf)

Abstract: In advanced methods of delineation and mapping of scientific fields, hybrid methods open a promising path to the capitalisation of advantages of approaches based on words and citations. One way to validate the hybrid approaches is to work in cooperation with experts of the fields under scrutiny. We report here an experiment in the field of genomics, where a corpus of documents has been built by a hybrid citation-lexical method, and then clustered into research themes. Experts of the field were associated in the various stages of the process: lexical queries for building the initial set of documents, the seed; citation-based extension aiming at reducing silence; final clustering to identify noise and allow discussion on border areas. The analysis of experts’ advices show a high level of validation of the process, which combines a high-precision and low-recall seed, obtained by journal and lexical queries, and a citation-based extension enhancing the recall. This findings on the genomics field suggest that hybrid methods can efficiently retrieve a corpus of relevant literature, even in complex and emerging fields.

Keywords: Bibliographic Coupling, Bibliometrics, Citation Methods, Citations, Clustering, Complex, Delimitation, Field Delineation, Genomics, Information Retrieval, Interaction, Journal, Literature, Mapping, Methods, Nanosciences, Noise, Recall, Research, Science Mapping, Validation

Notes: FField

? Roche, I., Besagni, D., Francois, C., Horlesberger, M. and Schiebel, E. (2010), Identification and characterisation of technological topics in the field of molecular biology. *Scientometrics*, **82** (3), 663-676.

Full Text: [2010\Scientometrics82, 663.pdf](2010/Scientometrics82,%20663.pdf)

Abstract: Following up the European project PromTech the aim of which was to detect emerging technologies by studying the scientific literature, we chose one field, Molecular Biology, to identify and characterize emerging topics within that domain. We combined two analytical approaches: the first one introduces a model of the terminological evolution of the field based on bibliometric indicators and the second one operates a diachronic clustering analysis. Our objective is to bring answers to questions such as: Which technological aspects can be detected? Which of them are already established and which of them are new? How are the topics linked to each other?

Keywords: Bibliometric, Bibliometric Indicators, Characterisation, Clustering, Diachronic Cluster Analysis, Diffusion Model, Emerging Technologies, Evolution, Identification, Indicators, Literature, Model, Scientific Literature, Terminology Evolution, Topics

? Sun, Y. and Negishi, M. (2010), Measuring the relationships among university, industry and other sectors in Japan’s national innovation system: A comparison of new approaches with mutual information indicators. *Scientometrics*, **82** (3), 677-685.

Full Text: [2010\Scientometrics82, 677.pdf](2010/Scientometrics82,%20677.pdf)

Abstract: Co-authored publications across sectors have been used as indicators of the triple helix model and more generally for the study of science-technology relations. However, how to measure the relationships among the three or more sectors is a technically difficult issue. Using mutual information as an indicator has proved to be effective, but it is not widely used. In this paper, we introduced phi coefficients and partial correlation as conventional indicators to measure the relationships among sectors on the basis of Japanese publication data in the ISI-databases. We also proposed a new approach of graphical modeling based on partial correlation for studying university-industry-government relationships and relationships with other sectors. The conventional indicators give results that are consistent with mutual information, which shows that collaborations among the three national sectors (U, I, G) are getting weaker and that members of these sectors tend to collaborate much more with foreign researchers. It is also shown that universities used to play the central role in the national publication system and acted as a bridge between national sectors and foreign researchers. However, since 2000, the situation has been changing. The center of the Japanese research network is becoming more “foreign” oriented.

Keywords: Co-Authorship, Comparison, Dynamics, Government Relations, Graphical Modeling, Indicators, Innovation, Innovation System, Model, Modeling, Mutual Information, Partial Correlation Coefficient, Publication, Publications, Research, Researchers, System, Triple Helix, Triple-Helix, Universities, University

? Zhang, L., Janssens, F., Liang, L.M. and Glänzel, W. (2010), Journal cross-citation analysis for validation and improvement of journal-based subject classification in bibliometric research. *Scientometrics*, **82** (3), 687-706.

Full Text: [2010\Scientometrics82, 687.pdf](2010/Scientometrics82,%20687.pdf)

Abstract: the objective of this study is to use a clustering algorithm based on journal cross-citation to validate and to improve the journal-based subject classification schemes. The cognitive structure based on the clustering is visualized by the journal cross-citation network and three kinds of representative journals in each cluster among the communication network have been detected and analyzed. As an existing reference system the 15-field subject classification by Glänzel and Schubert (Scientometrics 56:55-73, 2003) has been compared with the clustering structure.

Keywords: Bibliometric, Bibliometric Research, Classification, Cluster, Cluster Analysis, Clustering, Cocitation Analysis, Journal, Journal Cross-Citation, Journals, Mapping of Science, Networks, Research, Science, Scientific Journals, Scientometrics, Subject Classification, System, Validation

Notes: MModle

? Abbasi, A., Altmann, J. and Hwang, J. (2010), Evaluating scholars based on their academic collaboration activities: Two indices, the RC-index and the CC-index, for quantifying collaboration activities of researchers and scientific communities. *Scientometrics*, **83** (1), 1-13.

Full Text: [2010\Scientometrics83, 1.pdf](2010/Scientometrics83,%201.pdf)

Abstract: Although there are many studies for quantifying the academic performance of researchers, such as measuring the scientific performance based on the number of publications, there are no studies about quantifying the collaboration activities of researchers. This study addresses this shortcoming. Based on three measures, namely the collaboration network structure of researchers, the number of collaborations with other researchers, and the productivity index of co-authors, two new indices, the RC-Index and CC-Index, are proposed for quantifying the collaboration activities of researchers and scientific communities. After applying these indices on a data set generated from publication lists of five schools of information systems, this study concludes with a discussion of the shortcomings and advantages of these indices.

Keywords: Co-Authorships, Collaboration, Collaboration Activities, Collaboration Evaluation, Collaboration Measures, Collaborative Networks, Economics, Empirical Data Analysis, Indices, Individual and Community Productivity, Information Systems, Ireland, Networks, Number of Publications, Productivity, Productivity Index, Publication, Publications, Research Output, Researchers, Scientific Performance, Social Network Analysis, Successive h-Indexes

? Upham, S.P. and Small, H. (2010), Emerging research fronts in science and technology: Patterns of new knowledge development. *Scientometrics*, **83** (1), 15-38.

Full Text: [2010\Scientometrics83, 15.pdf](2010/Scientometrics83,%2015.pdf)

Abstract: Research fronts represent the most dynamic areas of science and technology and the areas that attract the most scientific interest. We construct a methodology to identify these fronts, and we use quantitative and qualitative methodology to analyze and describe them. Our methodology is able to identify these fronts as they form-with potential use by firms, venture capitalists, researchers, and governments looking to identify emerging high-impact technologies. We also examine how science and technology absorbs the knowledge developed in these fronts and find that fronts which maximize impact have very different characteristics than fronts which maximize growth, with consequences for the way science develops over time.

Keywords: Building-Blocks, Characteristics, Clusters, Co-Citation, Cocitation Analysis, Emerging Science, Field-Effect Transistors, Gamma-Secretase, Growth, Impact, Innovation, Intellectual Structure, Interdisciplinary Research, Knowledge, Organic Electronics, Quantitative, Research, Research Fronts, Researchers, Science, Science and Technology, Structural Aspects, Technology, Thin-Film Transistors

? Sotudeh, H. (2010), Are Iranian scientists recognized as their productivity enhances? A comparison of Iran’s impact to global norms in different subfields of Science Citation Index during 2002-2005. *Scientometrics*, **83** (1), 39-54.

Full Text: [2010\Scientometrics83, 39.pdf](2010/Scientometrics83,%2039.pdf)

Abstract: Witnessing a substantial growth rate in its scientific production, Iran is considered as one of the recently rising stars in scientific contribution scene. However, its impact in science progress is widely unknown, especially at global level. Studying Iran’s scholarly publications and recognition in SCI, the present communication tries to clarify the country’s science system performance using regression analyses and then to compare its performance to that of the world, using Relative Citation Rate (RCR) and Relative Subfield Citedness (RW). The results of the regression analyses reveal that although Iran displays considerable weaknesses in its performance, it is increasingly recognized as its outputs grow. According to the RCR values, Iran performed at/above the global level in 21 subfields. However, the RW values show that the country’s performance is above the global level in only two subfields. Although Iran is very far from an ideal situation; these evidences can be considered as heralds of a successful movement towards a wealthy scientific future.

Keywords: Citation, Citation Analysis, Citation Performance, Comparison, Contribution, Global, Growth, Impact, Iran, Output, Productivity, Publications, Regression, Scholarly Publications, SCI, Science, Science Citation Index, Scientific Production, System

? Ribeiro, L.C., Ruiz, R.M., Bernardes, A.T. and Albuquerque, E.M. (2010), Matrices of science and technology interactions and patterns of structured growth: Implications for development. *Scientometrics*, **83** (1), 55-75.

Full Text: [2010\Scientometrics83, 55.pdf](2010/Scientometrics83,%2055.pdf)

Abstract: Scientific and other non-patent references (NPRs) in patents are important tools to analyze interactions between science and technology. This paper organizes a database with 514,894 USPTO patents granted globally in 1974, 1982, 1990, 1998 and 2006. There are 165,762 patents with at least one reference to science and engineering (S&E) literature, from a total of 1,375,503 references. Through a lexical analysis, 71.1% of this S&E literature is classified by S&E fields. These data serve as the basis for the elaboration of global and national 3-dimensional matrices (technological domains, S&E fields and number of references). Three indicators are proposed to analyze these matrices, allowing us to identify patterns of structured growth that differentiate developed and non-developed countries. This differentiation informs suggestions for public policies for development, emphasizing the need for an articulation between the industrial and technological dimension and scientific side. The intertwinement of these two dimensions is a key component of developmental policies for the twenty-first century.

Keywords: Database, Global, Growth, Indicators, Innovation, Linkages, Literature, Patents, Public Research, Science, Science and Technology, Science and Technology Linkages, Stages of Economic Development, Systems of Innovation, Technology, Tools, USPTO

? Yang, C.H., Park, H.W. and Heo, J. (2010), A network analysis of interdisciplinary research relationships: the Korean government’s R&D grant program. *Scientometrics*, **83** (1), 77-92.

Full Text: [2010\Scientometrics83, 77.pdf](2010/Scientometrics83,%2077.pdf)

Abstract: This study examines network topologies of interdisciplinary research relationships in science and technology (S&T) and investigates the relational linkages between the interdisciplinary relations and the quality of research performance. A network analysis was performed to evaluate the General Research Grant (GRG) program, an interdisciplinary research funding program of the Korea Science and Engineering Foundation (KOSEF); the dataset covered the 2002-2004 period. The analytical results reveal the hidden network structure of interdisciplinary research relationships and demonstrate that the quality of research performance might be enhanced not only by interdependent pressures placed on various research fields but also by accumulated research capabilities that are relatively difficult to access and reproduce by other research fields.

Keywords: Centrality, Citation Analysis, Coauthorship, Collaboration, Disciplinary, Funding, Government’S R&D Grant Program, Impact Factor, Indicators, Interdisciplinary, Interdisciplinary Research, Interdisciplinary Research Relationships, Korea, Network Analysis, Network Topology, Patterns, Pressures, R&D, Research, Research Funding, Research Performance, Science, Science and Technology, Scientific Journals, Technology

? Borrego, A., Barrios, M., Villarroya, A. and Olle, C. (2010), Scientific output and impact of postdoctoral scientists: A gender perspective. *Scientometrics*, **83** (1), 93-101.

Full Text: [2010\Scientometrics83, 93.pdf](2010/Scientometrics83,%2093.pdf)

Abstract: This paper analyses the scientific output and impact of 731 Ph.D. holders who were awarded their doctorate at Spanish universities between 1990 and 2002. The aim was to identify any differences in the amount of scientific output and the impact of publications, in terms of citations, according to gender. The analysis revealed no significant differences in the amount of scientific output between males and females. However, the proportion of female Ph.D. holders with no postdoctoral output was significantly higher than that of their male counterparts, and the median number of papers published after Ph.D. completion was also lower among women. As regards pre- and postdoctoral research, the data showed that early scientific output may be a good predictor of subsequent productivity in both gender groups. The results also indicated that articles by female Ph.D. holders were cited significantly more often, even when self-citations were excluded.

Keywords: Articles, Citations, Family, Gender Equality, Groups, Impact, Ph.D. Holders, Productivity, Publications, Research, Research Productivity, Science, Scientific Impact, Scientific Output, Self-Citations, Sex-Differences, Spain, Spanish Universities, Universities

Notes: CCountry

? Vaněček, J., Fatun, M. and Albrecht, V. (2010), Bibliometric evaluation of the FP-5 and FP-6 results in the Czech Republic. *Scientometrics*, **83** (1), 103-114.

Full Text: [2010\Scientometrics83, 103.pdf](2010/Scientometrics83,%20103.pdf)

Abstract: Our study evaluates results and impacts of the Framework Programs (FP) 5 and 6 in the Czech Republic. Publications resulting from the FP projects had 42% higher mean citation rate and 77% more EU-25 collaborations than the Czech standards. Teams participating in the FP are better-than-average, because citation rate of all their papers is 21% higher than the Czech standards. The most striking finding is the marked influence of FP on research direction. After the project start, the participating teams published papers in ten new fields in which they did not publish before the project. In 45 other fields, more than 200% increase of papers was observed.

Keywords: Bibliometric, Bibliometric Evaluation, Citation, Citation Rate, EU Framework Program, Evaluation, Fields, International Collaborations, Publications, Research, Science, Standards

? Yan, E.J., Ding, Y. and Zhu, Q.H. (2010), Mapping library and information science in China: A coauthorship network analysis. *Scientometrics*, **83** (1), 115-131.

Full Text: [2010\Scientometrics83, 115.pdf](2010/Scientometrics83,%20115.pdf)

Abstract: This paper aims to identify the collaboration pattern and network structure of the coauthorship network of library and information science (LIS) in China. Using data from 18 core source LIS journals in China covering 6 years, we construct the LIS coauthorship network. We analyze the network from both macro and micro perspectives and identify some key features of this network: this network is a small-world network, and follows the scale-free character. In the micro-level, we calculate each author’s centrality values and compare them with citation counts. We find that centrality rankings are highly correlated with citation rankings. We also discuss the limitation of current centrality measures for coauthorship network analysis.

Keywords: Betweenness Centrality, China, Citation, Citation Counts, Citations, Co-Authorship Networks, Coauthorship Network, Collaboration, Community, Complex Network, Complex Networks, Core, Graph, Information Science, Journals, Library and Information Science, LIS, Network Analysis, Rankings, Science, Scientific Collaboration, Scientific Collaboration Networks, Social Network

? Martins, W.S., Goncalves, M.A., Laender, A.H.F. and Ziviani, N. (2010), Assessing the quality of scientific conferences based on bibliographic citations. *Scientometrics*, **83** (1), 133-155.

Full Text: [2010\Scientometrics83, 133.pdf](2010/Scientometrics83,%20133.pdf)

Abstract: Assessing the quality of scientific conferences is an important and useful service that can be provided by digital libraries and similar systems. This is specially true for fields such as Computer Science and Electric Engineering, where conference publications are crucial. However, the majority of the existing quality metrics, particularly those relying on bibliographic citations, has been proposed for measuring the quality of journals. In this article we conduct a study about the relative performance of existing journal metrics in assessing the quality of scientific conferences. More importantly, departing from a deep analysis of the deficiencies of these metrics, we propose a new set of quality metrics especially designed to capture intrinsic and important aspects related to conferences, such as longevity, popularity, prestige, and periodicity. To demonstrate the effectiveness of the proposed metrics, we have conducted two sets of experiments that contrast their results against a “gold standard” produced by a large group of specialists. Our metrics obtained gains of more than 12% when compared to the most consistent journal quality metric and up to 58% when compared to standard metrics such as Thomson’s Impact Factor.

Keywords: Bibliometrics, Citation Analysis, Citations, Classification, Digital Libraries, Impact, Impact Factor, Journal, Journals, Metrics, Publications, Ranking, Science

? Lang, P., Gouveia, F.C. and Leta, J. (2010), Site co-link analysis applied to small networks: A new methodological approach. *Scientometrics*, **83** (1), 157-166.

Full Text: [2010\Scientometrics83, 157.pdf](2010/Scientometrics83,%20157.pdf)

Abstract: the method of co-link was proposed in 1996 and since then it has been applied in many Webometric studies. Its definition refers to “page co-link analysis”, as links are provided by URLs or pages. This paper presents a new methodological approach, a “site co-link analysis”, to investigate relations in small networks. The Oswaldo Cruz Foundation institutes were used as a case study. The results indicate that the number of co-links provided by sites led to an increase of 133% in the sample analyzed. In a cluster analysis, three clusters were formed mainly for thematic reasons and four institutes remained isolated.

Keywords: Academic Web, Cluster, Cluster Analysis, Clustering Analysis, Co-Link Analysis, Framework, Internet, Networks, Oswaldo Cruz Foundation, Webometrics

? Jonkers, K. (2010), Models and orphans; concentration of the plant molecular life science research agenda. *Scientometrics*, **83** (1), 167-179.

Full Text: [2010\Scientometrics83, 167.pdf](2010/Scientometrics83,%20167.pdf)

Abstract: This article explores the concentration in the global plant molecular life science research output. In the past 15 years, especially the share of articles which refer to the model organism A. thaliana has increased rapidly. Citation analyses show an even greater rise in the importance of this organism. Attempts are discussed to come to a scientometric definition of model organisms. for this purpose a comparison is made with applied microbiology. However, few shared scientometric characteristics were found which could help characterise model organisms. A distinction between major economic organisms and model organisms will therefore continue to rely on qualitative data.

Keywords: Arabidopsis-Thaliana, Articles, Biotechnology, Characteristics, Citation, Comparison, Concentration, Crops, Economic, Genomics, Global, Model, Model Organism, Models, Orphan Crops, Plant Science, Research, Research Output, Science

? Schubert, T. and Sooryamoorthy, R. (2010), Can the centre-periphery model explain patterns of international scientific collaboration among threshold and industrialised countries? the case of South Africa and Germany. *Scientometrics*, **83** (1), 181-203.

Full Text: [2010\Scientometrics83, 181.pdf](2010/Scientometrics83,%20181.pdf)

Abstract: As scientific collaboration is a phenomenon that is becoming increasingly important, studies on scientific collaboration are numerous. Despite the proliferation of studies on various dimensions of collaboration, there is still a dearth of analyses on the effects, motives and modes of collaboration in the context of developing countries. Adopting Wallerstein’s world-system theory, this paper makes use of bibliometric data in an attempt to understand the pattern of collaboration that emerges between South Africa and Germany. The key argument is that we can expect the collaborative relationship between South Africa and Germany to be one that is shaped by a centre-periphery pattern. The analyses show that a theory of scientific collaboration building on the notion of marginality and centre-periphery can explain many facets of South African-German collaboration, where South Africa is a semi-peripheral region, a centre for the periphery, and a periphery for the centre.

Keywords: Africa, Bibliometric, Bibliometric Data, Centre-Periphery, Co-Authorship, Collaboration, Developing Countries, Germany, Marginality, Model, Publication Patterns, Science, Scientific Collaboration, South Africa, Theory

? Anastasiadis, A.D., de Albuquerque, M.P., de Albuquerque, M.P. and Mussi, D.B. (2010), Tsallis q-exponential describes the distribution of scientific citations-a new characterization of the impact. *Scientometrics*, **83** (1), 205-218.

Full Text: [2010\Scientometrics83, 205.pdf](2010/Scientometrics83,%20205.pdf)

Abstract: In this work we have studied the research activity for countries of Europe, Latin America and Africa for all sciences between 1945 and November 2008. All the data are captured from the Web of Science database during this period. The analysis of the experimental data shows that, within a nonextensive thermostatistical formalism, the Tsallis q-exponential distribution N(c) satisfactorily describes Institute of Scientific Information citations. The data which are examined in the present survey can be fitted successfully as a first approach by applying a single curve (namely, N(c) proportional to 1/[1 + (q - 1)c/T](1/q-1) with q similar or equal to 4/3 for all the available citations c, T being an “effective temperature”. The present analysis ultimately suggests that the phenomenon might essentially be one and the same along the entire range of the citation number. Finally, this manuscript provides a new ranking index, via the “effective temperature” T, for the impact level of the research activity in these countries, taking into account the number of the publications and their citations.

Keywords: Africa, Citation, Citations, Complex Systems, Database, Entropic Index, Europe, Impact, Initial Conditions, Journals, Latin America, Model, Nonextensive Entropy, Nonextensive Statistical-Mechanics, Productivity, Publications, Ranking, Research, Research Activity, Science, Sensitivity, System, Web of Science

? Jansen, D., von Gortz, R. and Heidler, R. (2010), Knowledge production and the structure of collaboration networks in two scientific fields. *Scientometrics*, **83** (1), 219-241.

Full Text: [2010\Scientometrics83, 219.pdf](2010/Scientometrics83,%20219.pdf)

Abstract: In this paper the relationship between knowledge production and the structure of research networks in two scientific fields is assessed. We investigate whether knowledge production corresponds positively or negatively with different types of social network structure. We show that academic fields generate knowledge in different ways and that within the fields, different types of networks act as a stimulant for knowledge generation.

Keywords: Astronomy, Astrophysics, Collaboration, Dynamics, Holes, Innovation, Knowledge, Knowledge Production, Multidisciplinarity, Nanoscience, Nanoscience, Nanotechnology, Networks, New Sciences, Perspective, Research, Research Collaboration, Science, Social Network Analysis

? Franceschet, M. (2010), A comparison of bibliometric indicators for computer science scholars and journals on Web of Science and Google Scholar. *Scientometrics*, **83** (1), 243-258.

Full Text: [2010\Scientometrics83, 243.pdf](2010/Scientometrics83,%20243.pdf)

Abstract: Given the current availability of different bibliometric indicators and of production and citation data sources, the following two questions immediately arise: do the indicators’ scores differ when computed on different data sources? More importantly, do the indicator-based rankings significantly change when computed on different data sources? We provide a case study for computer science scholars and journals evaluated on Web of Science and Google Scholar databases. The study concludes that Google scholar computes significantly higher indicators’ scores than Web of Science. Nevertheless, citation-based rankings of both scholars and journals do not significantly change when compiled on the two data sources, while rankings based on the h Index show a moderate degree of variation.

Keywords: Bibliometric, Bibliometric Indicators, Citation, Citation Analysis, Comparison, Computer, Correlation Analysis, Databases, Google Scholar, h Index, h-Index, Impact, Indicators, Journals, LIS, of-Science, Output, Publication and Citation Data Sources, Rankings, Researchers, Science, Scopus, Search, Web of Science

? Yu, G., Yang, D.H. and Liang, W. (2010), Reliability-based citation impact factor and the manipulation of impact factor. *Scientometrics*, **83** (1), 259-270.

Full Text: [2010\Scientometrics83, 259.pdf](2010/Scientometrics83,%20259.pdf)

Abstract: According to the definition of reliability-based citation impact factor (R-impact factor) proposed by KUO & RUPE and the cumulative citation age distribution model, a mathematical expression of the relationship between R-impact factor and impact factor is established in this paper. By simulation of the change processes of the R-impact factor and impact factor in the manipulation process of the impact factor, it is found that the effect of manipulation can be partly corrected by the R-impact factor in some cases. Based on the Journal Citation Report database, impact factors of 4 normal journals and 4 manipulated journals were collected. The journals’ R-impact factors and self-cited rates in the previous two years were calculated for each year during the period 2000 to 2007, and various characteristics influenced by the manipulation were analyzed. We find that the R-impact factor has greater fairness than the impact factor for journals with relatively short cited half-lives. Finally, some issues about using the R-impact factor as a measure for evaluating scientific journals are discussed.

Keywords: Characteristics, Citation, Citation Impact, Database, Editors, Impact, Impact Factor, Impact Factors, Journals, Manipulation, Model, Publication Delays, R-Impact Factor, Scientific Journals, Self-Cited Rate, Simulation

? Wong, P.K. and Singh, A. (2010), University patenting activities and their link to the quantity and quality of scientific publications. *Scientometrics*, **83** (1), 271-294.

Full Text: [2010\Scientometrics83, 271.pdf](2010/Scientometrics83,%20271.pdf)

Abstract: Integrating data from three independent data sources--USPTO patenting data, Shanghai Jiao Tong University’s Academic Ranking of World Universities (ARWU) and the Times Higher Education Supplement’s World University Ranking (WUR), we examine the possible link between patenting output and the quantity and quality of scientific publications among 281 leading universities world-wide. We found that patenting by these universities, as measured by patents granted by the USPTO, has grown consistently faster than overall US patenting over 1977-2000, although it has grown more slowly over the last 5 years (2000-2005). Moreover, since the mid-1990s, patenting growth has been faster among universities outside North America than among those within North America. We also found that the patenting output of the universities over 2003-2005 is significantly correlated with the quantity and quality of their scientific publications. However, significant regional variations are found: for universities in North America, both the quantity and quality of scientific publications matter, but for European and Australian/NZ universities, only the quantity of publications matter, while for other universities outside North America and Europe/Australia/NZ, only quality of publications matter. We found similar findings when using EPO patenting data instead of USPTO data. Additionally, for USPTO data only, the degree of internationalization of faculty members is found to reduce patenting performance among North American universities, but to increase that of universities outside North America. Plausible explanations for these empirical observations and implications for future research are discussed.

Keywords: Academic Research, Bayh-Dole Act, Citations, Growth, Innovation, Intellectual Property-Rights, Life Sciences, Patents, Performance, Publication Quantity & Quality, Publications, Ranking, Research, Scientific Publications, Technology Commercialization, Technology-Transfer, United-States, Universities, University, University Patenting, US, US Universities, USPTO

? Jarneving, B. (2010), Regional research and foreign collaboration. *Scientometrics*, **83** (1), 295-320.

Full Text: [2010\Scientometrics83, 295.pdf](2010/Scientometrics83,%20295.pdf)

Abstract: Motivated by the merging of four Swedish counties to a larger administrative and political unit with increased responsibilities, a comprehensive study of regional-foreign research collaboration was carried out. Various multivariate methods were applied for the depiction of collaborative networks of various compositions and at various levels of aggregation. Other aspects investigated concerned the influence of institutions and countries on regional-foreign collaboration and the relation between collaboration and research fields. Findings showed that foreign research collaboration was concentrated to three major regional institutions, each with a characteristic collaborative context. The influence of domestic collaboration was notable with regard to medical research while collaboration within the field of physics and astronomy was characteristic for pure regional-foreign collaboration, which was the dominating type of research collaboration throughout the period of observation (1998-2006).

Keywords: Authors, Collaboration, Cooperation, Medical, Methods, Networks, Publications, Region, Research, Research Collaboration, Science, Sweden

? Franzoni, C., Simpkins, C.L., Li, B.L. and Ram, A. (2010), Using content analysis to investigate the research paths chosen by scientists over time. *Scientometrics*, **83** (1), 321-335.

Full Text: [2010\Scientometrics83, 321.pdf](2010/Scientometrics83,%20321.pdf)

Abstract: We present an application of a clustering technique to a large original dataset of SCI publications which is capable at disentangling the different research lines followed by a scientist, their duration over time and the intensity of effort devoted to each of them. Information is obtained by means of software-assisted content analysis, based on the co-occurrence of words in the full abstract and title of a set of SCI publications authored by 650 American star-physicists across 17 years. We estimated that scientists in our dataset over the time span contributed on average to 16 different research lines lasting on average 3.5 years and published nearly 5 publications in each single line of research. The technique is potentially useful for scholars studying science and the research community, as well as for research agencies, to evaluate if the scientist is new to the topic and for librarians, to collect timely biographic information.

Keywords: Abstract, Academic Scientists, Clustering, Co-Occurrence, Content Analysis, Indicators, Knowledge, Knowledge Development, Performance, Productivity, Publication, Publications, Research, Research Trajectories, SCI, Science, Semantic Search, Statistics, Topic

? Linmans, A.J.M. (2010), Why with bibliometrics the Humanities does not need to be the weakest link Indicators for research evaluation based on citations, library holdings, and productivity measures. *Scientometrics*, **83** (2), 337-354.

Full Text: [2010\Scientometrics83, 337.pdf](2010/Scientometrics83,%20337.pdf)

Abstract: In this study an attempt is made to establish new bibliometric indicators for the assessment of research in the Humanities. Data from a Dutch Faculty of Humanities was used to provide the investigation a sound empirical basis. for several reasons (particularly related to coverage) the standard citation indicators, developed for the sciences, are unsatisfactory. Target expanded citation analysis and the use of oeuvre (lifetime) citation data, as well as the addition of library holdings and productivity indicators enable a more representative and fair assessment. Given the skew distribution of population data, individual rankings can best be determined based on log transformed data. for group rankings this is less urgent because of the central limit theorem. Lifetime citation data is corrected for professional age by means of exponential regression.

Keywords: Assessment, Bibliometric, Bibliometric Indicators, Bibliometrics, Citation, Citation Analysis, Citations, Coverage, Evaluation, Humanities, Indicators, Library Holding Analysis, Productivity, Professional, Rankings, Regression, Research, Research Evaluation, Social-Sciences, Sociology

? Leydesdorff, L. and Meyer, M. (2010), The decline of university patenting and the end of the Bayh-Dole effect. *Scientometrics*, **83** (2), 355-362.

Full Text: [2010\Scientometrics83, 355.pdf](2010/Scientometrics83,%20355.pdf)

Abstract: University patenting has been heralded as a symbol of changing relations between universities and their social environments. The Bayh-Dole Act of 1980 in the USA was eagerly promoted by the OECD as a recipe for the commercialization of university research, and the law was imitated by a number of national governments. However, since the 2000s university patenting in the most advanced economies has been on the decline both as a percentage and in absolute terms. In addition to possible saturation effects and institutional learning, we suggest that the institutional incentives for university patenting have disappeared with the new regime of university ranking. Patents and spin-offs are not counted in university rankings. In the new arrangements of university-industry-government relations, universities have become very responsive to changes in their relevant environments.

Keywords: Commercialization, Entrepreneurial University, Indicator, Indicators, Industry-Government, Japan, Knowledge, Legislation, Mode-2, Patents, Rankings, Research, Technology, Triple Helix, Triple-Helix, Universities, University, University Patenting, University Research, USA

? Nederhof, A.J., van Leeuwen, T.N. and van Raan, A.F.J. (2010), Highly cited non-journal publications in political science, economics and psychology: A first exploration. *Scientometrics*, **83** (2), 363-374.

Full Text: [2010\Scientometrics83, 363.pdf](2010/Scientometrics83,%20363.pdf)

Abstract: In this study we show that it is possible to identify top-cited publications other than Web of Science (WoS) publications, particularly non-journal publications, within fields in the social and behavioral sciences. We analyzed references in publications that were themselves highly cited, with at least one European address. Books represent between 62 (psychology) and 81% (political science) of the non-WoS references, journal articles 15-24%. Books (economics, political science) and manuals (psychology) account for the most highly cited publications. Between 50 (psychology, political science) and 71% (economics) of the top-ranked most cited publications originated from the US versus between 18 (economics) and 38% (psychology) from Europe. Finally, it is discussed how the methods and procedures of the study can be optimized.

Keywords: Articles, Books, Books, Citation, Citation Analysis, Economics, Europe, Highly Cited Publications, Humanities, Journal, Methods, Non-Journal Publications, Political Science, Psychology, Publications, Rankings, Science, Social and Behavioral Sciences, Sociology, US, Web of Science

? Jokic, M., Zauder, K. and Letina, S. (2010), Croatian scholarly productivity 1991-2005 measured by journals indexed in Web of Science. *Scientometrics*, **83** (2), 375-395.

Full Text: [2010\Scientometrics83, 375.pdf](2010/Scientometrics83,%20375.pdf)

Abstract: the purpose of the research was to establish and inform about the features of productivity across all scholarly fields measured through journals indexed in WoS in which Croatian authors working in Croatian institutions published since independence (1991) to 2005. Total 19,929 papers in 2,946 journals were found. of these, 17,875 papers were published in 2,690 science, technology and medicine (STM) journals, 1,869 papers were published in 178 social science journals, and 185 were published in 78 A&H journals according to custom classification used in the research. Special attention was given to publishing features of specific scholarly fields. The number of different journals in which the papers were published per year has doubled in the period (from 404 in 1991 to 894 in 2005). To support additional insight, a distinction between national and international journals was made and top 10% journals according to JCR 2005 categories were identified by IF. National journals accounted for 15.9% of STM papers, 77.6% of social science papers and 25.9% of A&H papers. Top 10% journals accounted for a total of 368 journals and 2,336 papers with significant variations across the subfields.

Keywords: Classification, Croatia, Databases, Humanities, Information, Journal Evaluation, Journals, Medicine, Philosophy, Productivity, Publications, Publishing, Research, Research Performance, Scholarly Productivity, Science, Scientific Productivity, Social-Sciences, Stm, Technology, Web of Science, WOS

? Persson, O. (2010), Are highly cited papers more international? *Scientometrics*, **83** (2), 397-401.

Full Text: [2010\Scientometrics83, 397.pdf](2010/Scientometrics83,%20397.pdf)

Abstract: Several bibliometric studies have shown that international or multicountry papers are generally more cited than domestic or single country papers. Does this also hold for the most cited papers? In this study, the citation impact of domestic versus international papers is analyzed by comparing the share of international papers among the hundred most cited papers in four research specialities, from three universities, four cities and two countries. It is concluded that international papers are not well represented among high impact papers in research specialities, but dominate highly cited papers from small countries, and from cities and institutions within them. The share of international papers among highly cited papers is considerably higher during 2001-2008 compared to earlier years for institutions, cities and countries, but somewhat less for two of the research fields and slightly higher for the other two. Above all, domestic papers from the USA comprise about half of the highly cited papers in the research specialities.

Keywords: Bibliometric, Bibliometric Studies, Citation, Citation Impact, Co-Authorship, Highly Cited Papers, Impact, International Co-Authorships, Research, Scientific Collaboration, Universities, USA

? Yang, P.Y. and Chang, Y.C. (2010), Academic research commercialization and knowledge production and diffusion: the moderating effects of entrepreneurial commitment. *Scientometrics*, **83** (2), 403-421.

Full Text: [2010\Scientometrics83, 403.pdf](2010/Scientometrics83,%20403.pdf)

Abstract: This paper empirically examines the relationship between research commercialization, entrepreneurial commitment, and knowledge production and diffusion in academia. Through a dataset of 229 academic patent inventors, this paper reveals that the effects of research commercialization on publication quantity, application-oriented research, and disclosure delay are moderated by the entrepreneurial commitment of faculty members. This paper concludes that encouraging entrepreneurial commitment of faculty members may possibly drive academics away from their traditional approaches in producing and diffusing knowledge.

Keywords: Academic Routine, Bayh-Dole Act, Commercialization, Diffusion, Entrepreneurial Commitment, Firms, Innovation, Knowledge, Knowledge Production, Nano-Science, Non-Inventing Peers, Of-Technology, Patent, Patenting and Licensing, Patents, Property-Rights, Publication, Research, Research Commercialization, United-States, University Technology-Transfer

Notes: MModel

? Saad, G. (2010), Applying the h-Index in exploring bibliometric properties of elite marketing scholars. *Scientometrics*, **83** (2), 423-433.

Full Text: [2010\Scientometrics83, 423.pdf](2010/Scientometrics83,%20423.pdf)

Abstract: the h-Index is a recent metric that captures a scholar’s influence. In the current work, it is used to: (1) obtain the h-Index scores of the most productive scholars in the Journal of Consumer Research (JCR), and compare these to other elite scholars (including those of the other three premier marketing journals); (2) demonstrate the relationship between the h-indices and total number of citations of the top JCR producers; (3) examine the h-indices of Ferber winners (best interdisciplinary paper based on a doctoral dissertation published in JCR in a given year) and those having received honorable mentions; (4) explore the relationship between a marketing journal’s prestige and the corresponding hindex score of its editor. These varied analyses demonstrate the multitudinous ways in which the h-Index can be used when investigating bibliometric phenomena within a given discipline.

Keywords: Bibliometric, Citation Analysis, Citations, Consumer-Research, Google Scholar, h Index, h-Index, Impact, Interdisciplinary, Journals, Level, Marketing Editors, Marketing Journals, Marketing Scholars, Performance, Perspective, Reference Diversity, Research, Scientists

? Joo, S.H. and Kim, Y. (2010), Measuring relatedness between technological fields. *Scientometrics*, **83** (2), 435-454.

Full Text: [2010\Scientometrics83, 435.pdf](2010/Scientometrics83,%20435.pdf)

Abstract: Intensified technology convergence, increasing relatedness between technological fields, is a mega-trend in 21st century science and technology. However, scientometrics has been unsuccessful in identifying this techno-economic paradigm change. To address the limitations and validity problems of conventional measures of technology convergence, we introduce a multi-dimensional contingency table representation of technological field co-occurrence and a relatedness measure based on the Mantel-Haenszel common log odds ratio. We used Korean patent data to compare previous and proposed methods. Results show that the proposed method can increase understanding of the techno-economic paradigm change because it reveals significant changes in technological relatedness over time.

Keywords: Co-Classification Analysis, Co-Occurrence, Coherence, Contingency Tables, Convergence, Incomplete Multi-Dimensional Contingency Table, Indicators, IPC Co-Occurrence, Mantel-Haenszel Common Odds Ratio, Methods, Paradigm, Patent, Patent Statistics, Relatedness, Science, Science and Technology, Scientometric Transaction Matrices, Scientometrics, Technology

? Egghe, L. (2010), Characteristic scores and scales in a Lotkaian framework. *Scientometrics*, **83** (2), 455-462.

Full Text: [2010\Scientometrics83, 455.pdf](2010/Scientometrics83,%20455.pdf)

Abstract: the characteristic scores and scales (CSS), introduced by Glänzel and Schubert (J Inform Sci 14: 123-127, 1988) and further studied in subsequent papers of Glänzel, can be calculated exactly in a Lotkaian framework. We prove that these CSS are simple exponents of the average number of items per source in general IPPs. The proofs are given using size-frequency functions as well as using rank-frequency functions. We note that CSS do not necessarily have to be defined as averages but that medians can be used as well. Also for these CSS we present exact formulae in the Lotkaian framework and both types of CSS are compared. We also link these formulae with the h-Index.

Keywords: Average, Characteristic Scores and Scales, CSS, h Index, h-Index, Index, Lotka, Median

? Vilibic, I. (2010), How much the shared ocean or lake basins connect the researchers in neighbouring countries? *Scientometrics*, **83** (2), 463-470.

Full Text: [2010\Scientometrics83, 463.pdf](2010/Scientometrics83,%20463.pdf)

Abstract: This paper evaluates the importance of jointly conducted research versus national, when neighbouring countries are trying to study a topic of their mutual interest. The chosen topic was the shared ocean or lake basin. The number of non-mutual and mutual articles in the period 1999-2008 for seven pairs of neighbouring countries was analysed by extracting published articles and citations from the Web of Science database. It was found that mutual articles have generally better visibility than the non-mutual articles, valid even for large and developed countries. Also, the percentage of self-citations in the mutual articles is much lower than in the non-mutual ones. However, the citations of the non-mutual articles are influenced by the development of the country or, in some cases, by the development of the countries in which researchers from a certain country are presently working (this applies strongly to the Eastern Europe countries).

Keywords: Articles, Citations, Collaborative Research, Connecting Topic, Database, Europe, Index, Neighbouring Countries, Research, Researchers, Science, Scientific Co-Authorship, Self-Citations, Topic, Visibility, Web of Science

? Wray, K.B. (2010), Rethinking the size of scientific specialties: Correcting Price’s estimate. *Scientometrics*, **83** (2), 471-476.

Full Text: [2010\Scientometrics83, 471.pdf](2010/Scientometrics83,%20471.pdf)

Abstract: I aim to advance our understanding of the size of scientific specialties. Derek Price’s groundbreaking work has provided us with valuable conceptual tools and data for making progress on this issue. But, I argue that his estimate of 100 scientists per specialty is flawed. He fails to take into account the fact that the average publishing scientist publishes only 3.5 articles throughout her career. Hence, rather than consisting of 100 scientists, I have suggested that specialties are probably somewhat larger, perhaps somewhere between 250 and 600 scientists.

Keywords: Articles, Price, Publishing, Scientific Specialty, Size, Specialization, Tools

Notes: TTopic

? Zhang, G.F., Xie, S.D. and Ho, Y.S. (2010), A bibliometric analysis of world volatile organic compounds research trends. *Scientometrics*, **83** (2), 477-492.

Full Text: [2009\Scientometrics-1.pdf](2009/Scientometrics-1.pdf); [2009\Scientometrics2009-1.pdf](2009/Scientometrics2009-1.pdf); [2010\Scientometrics83, 477.pdf](2010/Scientometrics83,%20477.pdf)

Abstract: This study explores a bibliometric approach to quantitatively assessing current research trends on volatile organic compounds, by using the related literature in the Science Citation Index (SCI) database from 1992 to 2007. The articles acquired from such literature were concentrated on the general analysis by scientific output, the research performances by countries, institutes, and collaborations, and the research trends by the frequency of author keywords, words in title, words in abstract, and keywords plus. Over the past years, there had been a notable growth trend in publication outputs, along with more participation and collaboration of countries and institutes. Research collaborative papers had shifted from the national inter-institutional to the international collaboration. Benzene, toluene, and formaldehyde were the three kinds of VOCs concerned mostly. Detection and removing, especially by adsorption and oxidation, of VOCs were to be the orientation of all VOCs research in the next few years.

Keywords: Abstract, Adsorption, Articles, Author Keywords, Benzene, Bibliometric, Bibliometric Analysis, Citation, Collaboration, Database, Exposure, Frequency, Growth, Hydrocarbons, Indoor Air, International, International Collaboration, Literature, Medicine, Organic, Organic Compounds, Oxidation, Publication, Quality, Removal, Research, Research Trend, Research Trends, SCI, Science, Science Citation Index, Scientific Output, Scientometrics, Toluene, Trend, Trends, VOCs, Volatile Organic Compounds, Water

? Bornmann, L., Weymuth, C. and Daniel, H.D. (2010), A content analysis of referees’ comments: How do comments on manuscripts rejected by a high-impact journal and later published in either a low- or high-impact journal differ? *Scientometrics*, **83** (2), 493-506.

Full Text: [2010\Scientometrics83, 493.pdf](2010/Scientometrics83,%20493.pdf)

Abstract: Using the data of a comprehensive evaluation study on the peer review process of Angewandte Chemie International Edition (AC-IE), we examined in this study the way in which referees’ comments differ on manuscripts rejected at AC-IE and later published in either a low-impact journal (Tetrahedron Letters, n = 54) or a high-impact journal (Journal of the American Chemical Society, n = 42). for this purpose, a content analysis was performed of comments which led to the rejection of the manuscripts at AC-IE. for the content analysis, a classification scheme with thematic areas developed by Bornmann et al. (2008) was used. As the results of the analysis demonstrate, a large number of negative comments from referees in the areas “Relevance of contribution” and “Design/Conception” are clear signs that a manuscript rejected at AC-IE will not be published later in a high-impact journal. The number of negative statements in the areas “Writing/Presentation,” “Discussion of results,” “Method/Statistics,” and “Reference to the literature and documentation,” on the other hand, had no statistically significant influence on the probability that a rejected manuscript would later be published in a low-or high-impact journal. The results of this study have various implications for authors, journal editors and referees.

Keywords: Angewandte-Chemie, Classification, Content Analysis, Editors, Evaluation, Fate of Rejected Manuscripts, International, Journal, Journal Peer Review, Literature, Manuscripts, Peer Review, Peer-Review, Publication, Rejection, Review, Thematic Areas for Manuscript Review

? Krampen, G. (2010), Acceleration of citing behavior after the millennium? Exemplary bibliometric reference analyses for psychology journals. *Scientometrics*, **83** (2), 507-513.

Full Text: [2010\Scientometrics83, 507.pdf](2010/Scientometrics83,%20507.pdf)

Abstract: With reference to social constructivist approaches on citing behavior in the sciences, the hypothesis of acceleration of citing behavior after the millennium was empirically tested for a stratified random sample of exemplary psychology journal articles. The sample consists of 45 English and 45 German articles published in the years 1985 versus 1995 versus 2005 in high impact journals on developmental psychology, psychological diagnosis and assessment, and social psychology. Content analyses of the reference lists refer to the total number of references cited in the articles and the publication years of all references. In addition, the number of self-references, the number of pages, and the number of authors were determined for each article. Results show that there is no acceleration of citing behavior; rather, on the contrary, a significant trend is revealed for an increase in authors’ citing somewhat older references in the newer journal articles. Significant main effects point also at more citations of somewhat older references in the English (vs. German) journal articles as well as in articles on social psychology and psychological diagnosis (vs. on developmental psychology). Complementary analyses show that multiple authorships and the number of pages as well as the total number of references and the number of self-references increase significantly with time. However, percentage of self-references remains quite stable at about 10%. Some methodological and statistical traps in bibliometric testing the starting hypothesis are considered. Thus, the talk that has been circulating among psychology colleagues and students on the potential millennium effects on citing behavior in the sciences (which can, however, become a self-fulfilling prophecy) are not confirmed-at least for psychology journals.

Keywords: Articles, Assessment, Bibliometric, Bibliometrics, Citation, Citations, Citing Behavior, Content Analysis, Diagnosis, Impact, Journal, Journals, Literature References, Millennium, Psychology, Publication, Science, Scientometry, Self-Fulfilling Prophecy, Sociology

? Dehon, C., McCathie, A. and Verardi, V. (2010), Uncovering excellence in academic rankings: A closer look at the Shanghai ranking. *Scientometrics*, **83** (2), 515-524.

Full Text: [2010\Scientometrics83, 515.pdf](2010/Scientometrics83,%20515.pdf)

Abstract: In this paper, we examine whether the quality of academic research can be accurately captured by a single aggregated measure such as a ranking. With Shanghai University’s Academic Ranking of World Universities as the basis for our study, we use robust principal component analysis to uncover the underlying factors measured by this ranking. Based on a sample containing the top 150 ranked universities, we find evidence that, for the majority of these institutions, the Shanghai rankings reflect not one but in fact two different and uncorrelated aspects of academic research: overall research output and top-notch researchers. Consequently, the relative weight placed upon these two factors determines to a large extent the final ranking.

Keywords: PCA, Ranking, Rankings, Research, Research Output, Researchers, RMCD, Robustness, Shanghai, Universities, University

? Upham, S.P., Rosenkopf, L. and Ungar, L.H. (2010), Innovating knowledge communities: An analysis of group collaboration and competition in science and technology. *Scientometrics*, **83** (2), 525-554.

Full Text: [2010\Scientometrics83, 525.pdf](2010/Scientometrics83,%20525.pdf)

Abstract: A useful level of analysis for the study of innovation may be what we call “knowledge communities”-intellectually cohesive, organic inter-organizational forms. Formal organizations like firms are excellent at promoting cooperation, but knowledge communities are superior at fostering collaboration-the most important process in innovation. Rather than focusing on what encourages performance in formal organizations, we study what characteristics encourage aggregate superior performance in informal knowledge communities in computer science. Specifically, we explore the way knowledge communities both draw on past knowledge, as seen in citations, and use rhetoric, as found in writing, to seek a basis for differential success. We find that when using knowledge successful knowledge communities draw from a broad range of sources and are extremely flexible in changing and adapting. In marked contrast, when using rhetoric successful knowledge communities tend to use very similar vocabularies and language that does not move or adapt over time and is not unique or esoteric compared to the vocabulary of other communities. A better understanding of how inter-organizational collaborative network structures encourage innovation is important to understanding what drives innovation and how to promote it.

Keywords: Biotechnology, Characteristics, Citation Patterns, Citations, Collaboration, Combined Cocitation, Competition, Computer, Construction, Dynamic Clustering, Innovation, Isomorphism, Knowledge, Knowledge Communities, Market Orientation, Networks, Resource-Based View, Science, Science and Technology, Search, Technology, Word Analysis

? Upham, S.P., Rosenkopf, L. and Ungar, L.H. (2010), Positioning knowledge: Schools of thought and new knowledge creation. *Scientometrics*, **83** (2), 555-581.

Full Text: [2010\Scientometrics83, 555.pdf](2010/Scientometrics83,%20555.pdf)

Abstract: Cohesive intellectual communities called “schools of thought” can provide powerful benefits to those developing new knowledge, but can also constrain them. We examine how developers of new knowledge position themselves within and between schools of thought, and how this affects their impact. Looking at the micro and macro fields of management publications from 1956 to 2002 with an extensive dataset of 113,000+ articles from 41 top journals, we explore the dynamics of knowledge positioning for management scholars. We find that it is significantly beneficial for new knowledge to be a part of a school of thought, and that within a school of thought new knowledge has more impact if it is in the intellectual semi-periphery of the school.

Keywords: Articles, Citation Patterns, Clustering, Cocitation Analysis, Exploration, History, Impact, Innovation, Intellectual Structure, Journals, Knowledge, Management, Management Journals, Old, Publications, Schools of Thought, Science, Search, Specialties

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Full Text: [2010\Scientometrics83, 583.pdf](2010/Scientometrics83,%20583.pdf)

Abstract: In 538 randomly selected Swedish biomedical PhDs from 2008, 50% of the external examiners came from abroad, most commonly USA and UK. The sex distribution between candidates was equal, while 17% of the external examiners were women. Twice as many women candidates as men had women examiners. Swedish PhDs are based on work published in international peer-reviewed journals; the median number of works per thesis was 4. The Swedish thesis examination system offers a model for international cross-fertilisation.

Keywords: Common Doctorate, Cross-Border Collaboration, Electronic Theses Dissertations (ETD), Europe, International Thesis Line, Internationalisation of Science, Journals, Model, Scientific Communication, System, Thesis, UK, USA

Notes: JJournal

? Schubert, A. and Soos, S. (2010), Mapping of science journals based on h-similarity. *Scientometrics*, **83** (2), 589-600.

Full Text: [2010\Scientometrics83, 589.pdf](2010/Scientometrics83,%20589.pdf)

Abstract: Journals covered by the 2006 Science Citation Index Journal Citation Reports database have been subjected to a clustering procedure utilizing h-similarity as the underlying similarity measure. Clustering complemented with a prototyping routine provided well-conceivable results that are both compatible with and further refine existing taxonomies of science.

Keywords: Citation, Clustering, Community Structure, Database, h-Index, h-Similarity, Journal Citation Reports, Journals, Mapping, Mapping of Science, Networks, Science, Science Citation Index, Taxonomies

? Gorraiz, J., Gumpenberger, C., Hornbostel, S., Hinze, S., Glänzel, W. and Debackere, K. (2010), European Summer School for Scientometrics (ESSS) to be launched. *Scientometrics*, **83** (2), 601-602.

Full Text: [2010\Scientometrics83, 601.pdf](2010/Scientometrics83,%20601.pdf)

Keywords: Scientometrics

? Leta, J., Larsen, B., Rousseau, R. and Glänzel, W. (2010), The 12th International conference on scientometrics and informetrics. *Scientometrics*, **83** (3), 603-604

Full Text: [2010\Scientometrics83, 603.pdf](2010/Scientometrics83,%20603.pdf)

Keywords: Informetrics, International, Scientometrics

? Mauleon, E. and Bordons, M. (2010), Male and female involvement in patenting activity in Spain. *Scientometrics*, **83** (3), 605-621.

Full Text: [2010\Scientometrics83, 605.pdf](2010/Scientometrics83,%20605.pdf)

Abstract: the involvement of male and female scientists in the technological activity developed in Spain is analysed through the study of patent applications filed with the Spanish OEPM database during the period 1990-2005. Comparative analyses based on participation, contribution and inventors by gender are presented and discussed. The study reveals a low female involvement in technology, which tends to concentrate in specific institutional sectors (public research institutions) and technological sections (A/Human Necessities and C/Chemistry). Over the 16-year period analysed the involvement of female scientists rose at a higher rate than that of men in most of the institutional sectors and technological fields. The highest relative increase corresponds to University and Spanish National Research Council, and our data suggest that it is enhanced by collaboration. To make the production of sex-disaggregated technology indicators easier the inclusion of the sex of the inventors as an additional field in patent databases would be desirable, as well as a higher normalisation of inventor names, applicant names (full names) and institutional affiliations.

Keywords: Academia, Applications, Collaboration, Contribution, Database, Databases, Gender, Gender, Indicators, Inventors, Patent, Patenting Activity, Public Research, Research, Research Institutions, Science, Spain, Spanish, Technological Activity, Technology, University

? Ajiferuke, I. and Wolfram, D. (2010), Citer analysis as a measure of research impact: Library and information science as a case study. *Scientometrics*, **83** (3), 623-638.

Full Text: [2010\Scientometrics83, 623.pdf](2010/Scientometrics83,%20623.pdf)

Abstract: the investigators studied author research impact using the number of citers per publication an author’s research has been able to attract, as opposed to the more traditional measure of citations. A focus on citers provides a complementary measure of an author’s reach or influence in a field, whereas citations, although possibly numerous, may not reflect this reach, particularly if many citations are received from a small number of citers. In this exploratory study, Web of Science was used to tally citer and citation-based counts for 25 highly cited researchers in information studies in the United States and 26 highly cited researchers from the United Kingdom. Outcomes of the tallies based on several measures, including an introduced ch-Index, were used to determine whether differences arise in author rankings when using citer-based versus citation-based counts. The findings indicate a strong correlation between some citation and citer-based measures, but not with others. The findings of the study have implications for the way authors’ research impact may be assessed.

Keywords: Authors, Citation, Citation Analysis, Citation Analysis, Citations, Citer Analysis, Correlation, h-Index, Ideas, Impact, Information Science, Information Studies, Publication, Publications, Rankings, Research, Research Impact, Researchers, Science, United Kingdom, United States, Web of Science

? Yuan, J.P., Yue, W.P., Su, C., Wu, Z., Ma, Z., Pan, Y.T., Ma, N., Hu, Z.Y., Shi, F., Yu, Z.L. and Wu, Y.S. (2010), Patent activity on water pollution and treatment in China: A scientometric perspective. *Scientometrics*, **83** (3), 639-651.

Full Text: [2010\Scientometrics83, 639.pdf](2010/Scientometrics83,%20639.pdf)

Abstract: This research intends to investigate the patent activity on water pollution and treatment in China (1985-2007), and then compares the results with patents data about Triadic patents, South Korea, Brazil and India over the same periods, patents data were collected from Derwent World Patents Index between 1985 and May 2008. for this study, 169,312 patents were chosen and examined. Total volume of patents, technology focus, assignee sector, priority date and the comparison with other countries are analyzed. It is found that patents on water pollution and treatment filed at China have experienced a remarkable increase and the increase rate of patents filed at China change simultaneous with the percentage of domestic applications. However, the number of high quality Triadic patents with priority country as China remains small. Furthermore, in addition to individual patent assignees, both Chinese universities and enterprises also play important roles in patent activity of water pollution and treatment. In addition, the pattern of South Korea’s development can provide short-term implications for China and the regularity in Triadic patents’ development can provide some guidance to China’s long-term development. In contrast, the development pattern of Brazil and India is less influential to China’s development. Furthermore, China’s technology focuses on water pollution and treatment seem to parallel global and triadic patent trends. This research provides a comprehensive picture of China’s innovation capability in the area of water pollution and treatment. It will help China’s local governments to improve their regional S&T capability and will provide support the National Water Pollution Control and Treatment Project in China.

Keywords: Applications, Asia, Change, China, Comparison, Development, Development Efficiency, DWPI Database, Genetic-Engineering Research, Global, India, Indicators, Industry, Information, Innovation, Korea, Local, Patent, Patent Analysis, Patents, Play, Pollution, Research, Scientometrics, Statistics, Taiwan, Technologies, Technology, Treatment, Trends, Triadic Patents, Universities, Water, Water Pollution and Treatment in China

? White, H.D. (2010), Some new tests of relevance theory in information science. *Scientometrics*, **83** (3), 653-667.

Full Text: [2010\Scientometrics83, 653.pdf](2010/Scientometrics83,%20653.pdf)

Abstract: A central idea in Dan Sperber and Deirdre Wilson’s relevance theory is that an individual’s sense of the relevance of an input varies directly with the cognitive effects, and inversely with the processing effort, of the input in a context. I argue that this idea has an objective analog in information science-the tf\*idf (term frequency, inverse document frequency) formula used to weight indexing terms in document retrieval. Here, tf\*idf is used to weight terms from five bibliometric distributions in the context of the seed terms that generated them. The distributions include the descriptors co-assigned with a descriptor, the descriptors and identifiers assigned to an author, two examples of cited authors and their co-citees, and the books and journals cited with a famous book, the Structure of Scientific Revolutions. In each case, the highest-ranked terms are contrasted with lowest-ranked terms. In two cases, pennant diagrams, a new way of displaying bibliometric data, augment the tabular results. Clear qualitative differences between the sets of terms are intuitively well-explained by relevance theory.

Keywords: Bibliometric, Bibliometric Data, Bibliometrics, Books, Combining Bibliometrics, Information Science, Journals, Pennant Diagrams, Processing, Relevance Theory, Retrieval, Science, Tf\*Idf, Theory

? Chen, C.M., Zhang, J. and Vogeley, M.S. (2010), Making sense of the evolution of a scientific domain: a visual analytic study of the Sloan Digital Sky Survey research. *Scientometrics*, **83** (3), 669-688.

Full Text: [2010\Scientometrics83, 669.pdf](2010/Scientometrics83,%20669.pdf)

Abstract: We introduce a new visual analytic approach to the study of scientific discoveries and knowledge diffusion. Our approach enhances contemporary co-citation network analysis by enabling analysts to identify co-citation clusters of cited references intuitively, synthesize thematic contexts in which these clusters are cited, and trace how research focus evolves over time. The new approach integrates and streamlines a few previously isolated techniques such as spectral clustering and feature selection algorithms. The integrative procedure is expected to empower and strengthen analytical and sense making capabilities of scientists, learners, and researchers to understand the dynamics of the evolution of scientific domains in a wide range of scientific fields, science studies, and science policy evaluation and planning. We demonstrate the potential of our approach through a visual analysis of the evolution of astronomical research associated with the Sloan Digital Sky Survey (SDSS) using bibliographic data between 1994 and 2008. In addition, we also demonstrate that the approach can be consistently applied to a set of heterogeneous data sources such as e-prints on arXiv, publications on ADS, and NSF awards related to the same topic of SDSS.

Keywords: AD, ADS, Clustering, Co-Citation, Co-Citation Network Analysis, Cocitation, Diffusion, Evaluation, Evolution, Knowledge, Network Analysis, Networks, Policy Evaluation, Publications, Research, Researchers, Science, Science Policy, SDSS, Selection, Techniques, Topic, Visual Analytics, Visualization

? Egghe, L. (2010), The distribution of the uncitedness factor and its functional relation with the impact factor. *Scientometrics*, **83** (3), 689-695.

Full Text: [2010\Scientometrics83, 689.pdf](2010/Scientometrics83,%20689.pdf)

Abstract: the uncitedness factor of a journal is its fraction of uncited articles. Given a set of journals (e.g. in a field) we can determine the rank-order distribution of these uncitedness factors. Hereby we use the Central Limit Theorem which is valid for uncitedness factors since it are fractions, hence averages. A similar result was proved earlier for the impact factors of a set of journals. Here we combine the two rank-order distributions, hereby eliminating the rank, yielding the functional relation between the impact factor and the uncitedness factor. It is proved that the decreasing relation has an S-shape: first convex, then concave and that the inflection point is in the point (mu’, mu) where mu is the average of the impact factors and mu’ is the average of the uncitedness factors.

Keywords: Articles, Central Limit Theorem, Impact, Impact Factor, Impact Factors, Journal, Journals, Rank Distribution, Rank-Order Distribution, S-Shape, Uncitedness Factor

Notes: MModel

? Glänzel, W. (2010), The role of the h-Index and the characteristic scores and scales in testing the tail properties of scientometric distributions. *Scientometrics*, **83** (3), 697-709.

Full Text: [2010\Scientometrics83, 697.pdf](2010/Scientometrics83,%20697.pdf)

Abstract: the tail properties of scientometric distributions are studied in the light of the h-Index and the characteristic scores and scales. A statistical test for the h-core is presented and illustrated using the example of four selected authors. Finally, the mathematical relationship between the h-Index and characteristic scores and scales is analysed. The results give new insights into important properties of rank-frequency and extreme-value statistics derived from scientometric and informetric processes.

Keywords: Characteristic Scores and Scales, Citation Impact, h Index, h-Index, Indicators, Journals, Lomax Distribution, Ordered Statistics, Paretian Distribution, Renyi Presentation, Statistics

? Ruiz, C.F., Bonilla, R., Chavarro, D., Orozco, L.A., Zarama, R. and Polanco, X. (2010), Efficiency measurement of research groups using Data Envelopment Analysis and Bayesian networks. *Scientometrics*, **83** (3), 711-721.

Full Text: [2010\Scientometrics83, 711.pdf](2010/Scientometrics83,%20711.pdf)

Abstract: Applications of non-parametric frontier production methods such as Data Envelopment Analysis (DEA) have gained popularity and recognition in scientometrics. DEA seems to be a useful method to assess the efficiency of research units in different fields and disciplines. However, DEA results give only a synthetic measurement that does not expose the multiple relationships between scientific production variables by discipline. Although some papers mention the need for studies by discipline, they do not show how to take those differences into account in the analysis. Some studies tend to homogenize the behaviour of different practice communities. In this paper we propose a framework to make inferences about DEA efficiencies, recognizing the underlying relationships between production variables and efficiency by discipline, using Bayesian Network (BN) analysis. Two different DEA extensions are applied to calculate the efficiency of research groups: one called CCRO and the other Cross Efficiency (CE). A BN model is proposed as a method to analyze the results obtained from DEA. BNs allow us to recognize peculiarities of each discipline in terms of scientific production and the efficiency frontier. Besides, BNs provide the possibility for a manager to propose what-if scenarios based on the relations found.

Keywords: Bayesian Networks, Data Envelopment Analysis, DEA, Efficiency, Efficiency Measurement, Groups, Impact, Indicators, Measurement, Methods, Model, Networks, Performance, Research, Research Groups, Research-And-Development, Scientific Production, Scientometrics

Notes: CCountry

? Arencibia-Jorge, R. and de Moya-Anegón, F. (2010), Challenges in the study of Cuban scientific output. *Scientometrics*, **83** (3), 723-737.

Full Text: [2010\Scientometrics83, 723.pdf](2010/Scientometrics83,%20723.pdf)

Abstract: Cuban scientific output at macro level has not been frequently studied in the literature on scientometrics. The current paper explores the different metric approaches to the Cuban scientific activity carried out by national and international authors. Also, the article develops a scientometric study of the Cuban scientific production as included in Scopus during the period 1996-2007, using socio-economic indicators combined with bibliometric indicators supported by the SCImago Journal & Country Rank. Web of Science and Scopus are compared as information sources. Results confirm the possibility to use Scopus to obtain an objective picture of the Cuban science behaviour during the end of the 1990s and the beginning of the XXI century. The SCImago Journal & Country Rank, in this case, offers an important set of indicators. The combination of these indicators with those related to socio-economic aspects of activities in Science and Technology, allow the authors to show a perspective of the Cuban science system evolution during the period analyzed. The inclusion in Scopus of less-cited journals published in Spanish language and its impact on productivity and citation-based indicators is also discussed. Our investigation found an increasing growth of the Cuban scientific production during the whole period, which is in correspondence to the country efforts and expenditures in Research and Development activities.

Keywords: Bibliometric, Bibliometric Indicators, Citation, Countries, Cuba, Databases, Development, Evolution, GDP, Growth, Impact, Indicators, International, Journals, Language, Literature, Productivity, Research, Science, Scientific Output, Scientific Production, Scientometrics, Scimago, Scopus, Socio-Economic Indicators, Spanish, System, Technology, Web of Science

? Pislyakov, V. and Dyachenko, E. (2010), Citation expectations: Are they realized? Study of the Matthew index for Russian papers published abroad. *Scientometrics*, **83** (3), 739-749.

Full Text: [2010\Scientometrics83, 739.pdf](2010/Scientometrics83,%20739.pdf)

Abstract: We consider the “Matthew effect” in the citation process which leads to reallocation (or misallocation) of the citations received by scientific papers within the same journals. The case when such reallocation correlates with a country where an author works is investigated. Russian papers in chemistry and physics published abroad were examined. We found that in both disciplines in about 60% of journals Russian papers are cited less than average ones. However, if we consider each discipline as a whole, citedness of a Russian paper in physics will be on the average level, while chemistry publications receive about 16% citations less than one may expect from the citedness of the journals where they appear. Moreover, Russian chemistry papers mostly become undercited in the leading journals of the field. Characteristics of a “Matthew index” indicator and its significance for scientometric studies are also discussed.

Keywords: Chemistry, Citation, Citations, Citedness, Competition, Core Journals, Correlates, Countries, Impact, Indicators, International Comparison, Journals, Matthew Index, Physics, Publications, Science

? Bruer, J.T. (2010), Can we talk? How the cognitive neuroscience of attention emerged from neurobiology and psychology, 1980-2005. *Scientometrics*, **83** (3), 751-764.

Full Text: [2010\Scientometrics83, 751.pdf](2010/Scientometrics83,%20751.pdf)

Abstract: This study uses author co-citation analysis to trace prospectively the development of the cognitive neuroscience of attention between 1980 and 2005 from its precursor disciplines: cognitive psychology, single cell neurophysiology, neuropsychology, and evoked potential research. The author set consists of 28 authors highly active in attentional research in the mid-1980s. PFNETS are used to present the co-citation networks. Authors are clustered via the single-link clustering intrinsic to the PFNET algorithm. By 1990 a distinct cognitive neuroscience specialty cluster emerges, dominated by authors engaged in brain imaging research.

Keywords: Attention, Author Co-Citation Analysis, Author Cocitation Analysis, Authors, Brain, Brain Imaging, Cluster, Clustering, Co-Citation, Co-Citation Analysis, Cocitation Analysis, Cognitive Neuroscience, Development, Knowledge Domains, Networks, Neuropsychology, Neuroscience, PFNET, Research

? Schiebel, E., Horlesberger, M., Roche, I., Francois, C. and Besagni, D. (2010), An advanced diffusion model to identify emergent research issues: the case of optoelectronic devices. *Scientometrics*, **83** (3), 765-781.

Full Text: [2010\Scientometrics83, 765.pdf](2010/Scientometrics83,%20765.pdf)

Abstract: Scientific progress in technology oriented research fields is made by incremental or fundamental inventions concerning natural science effects, materials, methods, tools and applications. Therefore our approach focuses on research activities of such technological elements on the basis of keywords in published articles. In this paper we show how emerging topics in the field of optoelectronic devices based on scientific literature data from the PASCAL-database can be identified. We use Results from PROMTECH project, whose principal objective was to produce a methodology allowing the identification of promising emerging technologies. In this project, the study of the intersection of Applied Sciences as well as Life (Biological & Medical) Sciences domains and Physics with bibliometric methods produced 45 candidate technological fields and the validation by expert panels led to a final selection of 10 most promising ones. These 45 technologies were used as reference fields. In order to detect the emerging research, we combine two methodological approaches. The first one introduces a new modelling of field terminology evolution based on bibliometric indicators: the diffusion model and the second one is a diachronic cluster analysis. With the diffusion model we identified single keywords that represent a high dynamic of the mentioned technology elements. The cluster analysis was used to recombine articles, where the identified keywords were used to technological topics in the field of optoelectronic devices. This methodology allows us to answer the following questions: Which technological aspects within our considered field can be detected? Which of them are already established and which of them are new? How are the topics linked to each other?

Keywords: Applications, Articles, Bibliometric, Bibliometric Indicators, Cluster, Cluster Analysis, Diachronic Cluster Analysis, Diffusion, Diffusion Model, Diffusion Stages, Emerging Research Issues, Emerging Technologies, Emerging Technologies, Evolution, Evolution of a Technological Field, Identification, Indicators, Literature, Methodology, Methods, Migration of Terms, Model, Modelling, Optoelectronic Devices, Physics, Research, Research Issues, Science, Science Dynamics, Scientific Literature, Selection, Technology, Tools, Topics, Tracking, Validation

? Takeda, Y. and Kajikawa, Y. (2010), Tracking modularity in citation networks. *Scientometrics*, **83** (3), 783-792.

Full Text: [2010\Scientometrics83, 783.pdf](2010/Scientometrics83,%20783.pdf)

Abstract: Citation network analysis is an effective tool to analyze the structure of scientific research. Clustering is often used to visualize scientific domain and to detect emerging research front there. While we often set arbitrarily clustering threshold, there is few guide to set appropriate threshold. This study analyzed basic process how clustering of citation network proceeds by tracking size and modularity change during clustering. We found that there are three stages in clustering of citation networks and it is universal across our case studies. In the first stage, core clusters in the domain are formed. In the second stage, peripheral clusters are formed, while core clusters continue to grow. In the third stage, core clusters grow again. We found the minimum corpus size around one hundred assuring the clustering. When the corpus size is less than one hundred, clustered network structure tends to be more random. In addition even for the corpus whose size is larger than it, the clustering quality for some clusters formed in the later stage is low. These results give a fundamental guidance to the user of citation network analysis.

Keywords: Bibliometrics, Case Studies, Change, Citation, Citation Network, Citation Network Analysis, Clustering, Clustering Quality, Core, Domain Visualization, Growth, Modularity, Network Analysis, Networks, Research, Research Front, Science, Scientific Research

Notes: MModel

? Tonta, Y. and Unal, Y. (2010), Does Urquhart’s Law hold for consortial use of electronic journals? *Scientometrics*, **83** (3), 793-808.

Full Text: [2010\Scientometrics83, 793.pdf](2010/Scientometrics83,%20793.pdf)

Abstract: This paper tests the validity of Urquhart’s Law (“the inter-library loan demand for a periodical is as a rule a measure of its total use”). It compares the use of print journals at the Turkish Academic Network and Information Center (ULAKBIM) with the consortial use of the same journals in their electronic form by the individual libraries making up the Consortium of Turkish University Libraries (ANKOS). It also compares the on-site use of electronic journals at ULAKBIM with their consortial use at ANKOS. About 700 thoUSAnd document delivery, in-house and on-site use data and close to 28 million consortial use data representing seven years’ worth of downloads of full-text journal articles were used. Findings validate Urquhart’s Law in that a positive correlation was observed between the use of print journals at ULAKBIM and the consortial use of their electronic copies at ANKOS. The on-site and consortial use of electronic journals was also highly correlated. Both print and electronic journals that were used most often at ULAKBIM tend to get used heavily by the member libraries of ANKOS consortium, too. Findings can be used in developing consortial collection management policies and negotiate better consortial licence agreements.

Keywords: Articles, Collections, Consortial Use, Correlation, Document Delivery, E-Journals, Electronic Journals, Formulation, Impact, Interlibrary Use, Intralibrary Use, Journal, Journals, Library, Log Analysis, Management, Periodical, Positive, Probability, Science, Serials, Supralibrary Use, University, Urquhart’s Law, Validity

? Bar-Ilan, J. (2010), Web of Science with the Conference Proceedings Citation Indexes: the case of computer science. *Scientometrics*, **83** (3), 809-824.

Full Text: [2010\Scientometrics83, 809.pdf](2010/Scientometrics83,%20809.pdf)

Abstract: In September 2008 Thomson Reuters added to the ISI Web of Science (WOS) the Conference Proceedings Citation Indexes for Science and for the Social Sciences and Humanities. This paper examines how this change affects the publication and citation counts of highly cited computer scientists. Computer science is a field where proceedings are a major publication venue. The results show that most of the highly cited publications of the sampled researchers are journal publications, but these highly cited items receive more than 40% of their citations from proceedings papers. The paper also discusses issues related to double-counting, i.e., when a given work is published both in a proceedings and later on as a journal paper.

Keywords: Change, Citation, Citation Counts, Citations, Computer, Computer Science, Conference Proceedings Citation Indexes, h-Index, Humanities, ISI, ISI Web, ISI Web of Science, Journal, Publication, Publication Counts, Publications, Re-Publishing, Researchers, Scholarly Communication, Science, Thomson Reuters, Web of Science

Notes: CCountry

? Hayashi, M.C.P.I., Rothberg, D. and Hayashi, C.R.M. (2010), Scientific knowledge and digital democracy in Brazil: How to assess public health policy debate with applied Scientometrics. *Scientometrics*, **83** (3), 825-833.

Full Text: [2010\Scientometrics83, 825.pdf](2010/Scientometrics83,%20825.pdf)

Abstract: We proposed an original research design based on applied Scientometrics and frame analysis to assess how a citation was made to sustain arguments in documents on public health policies subjected to online public consultation from 2003 to 2008 in Brazil. So we built on citation studies to create a new scale to estimate why a scientific work was mentioned in our sample of 278 citations. We found that government branches make citations mainly to value their arguments, not to explain them, and that contributors mainly make citations in such a way that could discourage others from engaging in digital democracy.

Keywords: Applied Scientometrics, Citation, Citation Studies, Citations, Deliberation, Digital Democracy, Health, Knowledge, Opinion, Public Health, Research, Scale, Scientometrics

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Full Text: [2010\Scientometrics83, 835.pdf](2010/Scientometrics83,%20835.pdf)

Abstract: Interdisciplinarity can be manifest in many forms: through collaboration or communication between scientists working in different fields or through the work of individual scientists who employ concepts or methods across disciplines. This latter form of interdisciplinarity is addressed here with the goal of understanding how ideas in different fields come together to create new opportunities for discovery. Maps of science are used to suggest possible interdisciplinary links which are then analyzed by co-citation context analysis. Interdisciplinary links are identified by juxtaposing a clustering and mapping of documents against a journal-based categorization of the same document clusters. Links between clusters are characterized as interdisciplinary based on the dissonance of their category assignments. To verify and probe more deeply into the meaning of interdisciplinary links, co-citation contexts for selected links from five separate cases are analyzed in terms of prominent cue words. This analysis reveals that interdisciplinary connections are often based on authors’ perceptions of analogous problems across scientific domains. Cue words drawn from the citation contexts also suggest that these connections are viewed as important and ripe with both opportunity and risk.

Keywords: Analogy, Citation, Clustering, Clusters, Co-Citation, Co-Citation Contexts, Collaboration, Communication, Cue Word Analysis, Discourse, Discovery, Interdisciplinarity, Interdisciplinary, Interdisciplinary Links, Mapping, Maps of Science, Methods, Risk, Science, Simulation

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Full Text: [2010\Scientometrics83, 851.pdf](2010/Scientometrics83,%20851.pdf)

Abstract: It is known that there are significant correlations between linking and geographical patterns. Although interlinking patterns have been studied in various contexts, co-inlinking patterns on the Web have only been studied as indicator of business competitive positions. This research studies the use of co-inlinks to local government Web sites, assesses whether co-inlinking follows geographic patterns and investigates reasons for creating the co-inlinks. Strong evidence was found that co-inlinking is more frequent to municipalities in the same functional region than to municipalities in different functional regions, indicating that this geographic aspect influences co-inlinking, even though geographic co-inlinking was not a strong trend overall. Because the functional regions are created based on cooperation between the municipalities, we have indirectly been able to map cooperation from co-inlinking patterns on the Web. The main reason to create co-inlinking links to municipalities was that the source of the links wanted to show a connection to its region.

Keywords: Co-Inlinking, Colinks, Content Analysis, Framework, Geography, Hyperlinks, Information, Link Analysis, Link Creation, Local, Local Government, Motivations, Research, Site Interlinking, Universities, Webometrics

? Borner, K., Huang, W.X., Linnemeier, M., Duhon, R.J., Phillips, P., Ma, N.L., Zoss, A.M., Guo, H.N. and Price, M.A. (2010), Rete-netzwerk-red: Analyzing and visualizing scholarly networks using the Network Workbench Tool. *Scientometrics*, **83** (3), 863-876.

Full Text: [2010\Scientometrics83, 863.pdf](2010/Scientometrics83,%20863.pdf)

Abstract: the enormous increase in digital scholarly data and computing power combined with recent advances in text mining, linguistics, network science, and scientometrics make it possible to scientifically study the structure and evolution of science on a large scale. This paper discusses the challenges of this ‘BIG science of science’aEuro”also called ‘computational scientometrics’ research-in terms of data access, algorithm scalability, repeatability, as well as result communication and interpretation. It then introduces two infrastructures: (1) the Scholarly Database (SDB) (http://sdb.slis.indiana.edu), which provides free online access to 22 million scholarly records-papers, patents, and funding awards which can be cross-searched and downloaded as dumps, and (2) Scientometrics-relevant plug-ins of the open-source Network Workbench (NWB) Tool (http://nwb.slis.indiana.edu). The utility of these infrastructures is then exemplarily demonstrated in three studies: a comparison of the funding portfolios and co-investigator networks of different universities, an examination of paper-citation and co-author networks of major network science researchers, and an analysis of topic bursts in streams of text. The article concludes with a discussion of related work that aims to provide practically useful and theoretically grounded cyberinfrastructure in support of computational scientometrics research, education and practice.

Keywords: Algorithm Scalability, Co-Author, Communication, Comparison, Computational Scientometrics, Cyberinfrastructure, Data Access, Database, Education, Evolution, Evolution of Science, Funding, Interpretation, Linguistics, Network Workbench, Networks, Open Access, Open Source, Patents, Related Tools, Research, Researchers, Scale, Scholarly Database, Science, Science of Science, Scientometrics, Text Mining, Text-Mining, Topic, Universities

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Full Text: [2010\Scientometrics84, 1.pdf](2010/Scientometrics84,%201.pdf)

Abstract: In this era of a rapid change in the way people finding and using information resources, despite that the academic communication and using patterns for people in the traditional print environment have been studied for many years, the Internet media presents a new and relatively unexplored area for such study. In this article, we explored the distribution and utilization of web recourses in humanities and social sciences based on web citations. We collected 1,421,731 citations listed in 148,172 articles from 493 journals published during the period of 2006-2007 in the CSSCI, which resulted in 44,973 web citations. We counted the amount and types of web resources used in various disciplines, analyzed the URLs frequency from the host-level, fitted the frequency distribution into the regression models with SPSS, and perform the disciplines coupling analysis based on the web citations. We found out that: (a) the distributions of web citations by years or by websites and webpage types are selective and regular; (b) Great disparity exists among various disciplines in terms of using web information, and the high-frequency websites; (c) the frequency distribution of web citations is similar to the Garfield’s citation distribution curve; (d) Some relationships between disciplines are detected, based on the utilization of web information.

Keywords: Accessibility, Articles, Change, Citation, Citations, Communication, CSSCI, Distribution, Electronic Resources, Environment, Humanities, Humanities and Social Sciences, Information-Science, Internet, Internet References, Journals, Models, Persistence, Regression, Social Sciences, Stability, Web Citation, Web Recourses, Web Reference

? Trimble, V. (2010), A generation of astronomical telescopes, their users, and publications. *Scientometrics*, **84** (1), 21-34.

Full Text: [2010\Scientometrics84, 21.pdf](2010/Scientometrics84,%2021.pdf)

Abstract: Research astronomers and the telescopes they use each have typical life spans of about 40 years. Most of their journals live a good deal longer, though the second most important one today is only 40 years old. This paper looks at numbers for productivity and impact of specific astronomical facilities, changes in equality of opportunities and achievements in observational astronomy, and some aspects of national contributions. The focus is on optical astronomy, though something is also said about radio telescopes and astronomy from space. In summary, nothing stays “best of class” for very long; the fraction of the community with access to the most valuable facilities has increased with time (more equality of opportunity); but the fraction of citations earned by the few super-star papers has also increased (less equality of achievement); and the USA remains the host of the most-cited journals and the most productive telescopes, though Europe (meaning in this context the member nations of the European Southern Observatory, the European Space Agency, and the supporters of the journal Astronomy & Astrophysics) are fast closing the gap, with the UK retaining its own journal and some observing facilities not shared with either the USA or other European countries. Detailed examination of specific facilities indicates that size (of telescope, community, and budget) are all of great importance, but that the most significant “focal plane instrument” is still the astronomer at the virtual eyepiece. The changes have happened against a background of enormous increases in numbers of astronomers, sizes of available facilities (but not total number), numbers of papers (but not of journals), and numbers of citations per paper. A significant subset of the conclusions on turnover of people and facilities accompanying major growth: opportunity versus achievement; Europe versus the USA; and the trade-off between community size and the influence of individual scientists undoubtedly apply in many other fields.

Keywords: Astrophysics, Background, Budget, Citation Impact, Citations, Europe, Growth, Impact, Journal, Journals, Observational Astronomy, Optical Telescopes, Productivity, Publication Productivity, Publications, Research, Telescope, UK, USA

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Full Text: [2010\Scientometrics84, 35.pdf](2010/Scientometrics84,%2035.pdf)

Abstract: I studied the distribution of changes in journal impact factors (JIF) between 1998 and 2007 according to an empirical beta law with two exponents. Changes in JIFs (CJIF) were calculated as the quotient obtained by dividing the JIF for a given year by the JIF for the preceding year. The CJIFs showed good fit to a beta function with two exponents. In addition, I studied the distribution of the changes in segments of the CJIF rank order. The distributions, which were similar from year to year, could be fitted to a Lorentzian function. The methods used here can be useful to understand the changes in JIFs using relatively simple functions.

Keywords: Citations, Distribution, Distribution of Changes In Impact Factors, Impact, Impact Factor, Impact Factors, Journal, Journal Impact, Journals, Methods

? Vannucci, S. (2010), Dominance dimension: a common parametric formulation for integer-valued scientific impact indices. *Scientometrics*, **84** (1), 43-48.

Full Text: [2010\Scientometrics84, 43.pdf](2010/Scientometrics84,%2043.pdf)

Abstract: We introduce the dominance dimension principle and the parameterized family of criteria for the assessment of publication/citation profiles it generates. We show that by a suitable choice of parameters dominance dimension may specialize to the most widely known and used of those impact scores for the scientific output of authors which disallow endogenous reputation effects, including the Durfee- or h-number, the publication number and the citation number.

Keywords: Assessment, Citation, Criteria, Effects, h-Index, Hirsch-Index, Impact, Integer-Valued Scores, Output, Parameters, Primitive Recursive Functions, Publication, Scientific Impact, Scientific Impact Indices, Scientific Output

? Sangam, S.L., Liming, L. and Ganjihal, G.A. (2010), Modeling the growth of Indian and Chinese liquid crystals literature as reflected in Science Citation Index (1997-2006). *Scientometrics*, **84** (1), 49-52.

Full Text: [2010\Scientometrics84, 49.pdf](2010/Scientometrics84,%2049.pdf)

Abstract: the present paper describes the application of growth models as suggested by Egghe and Ravichadra Rao (Scientometrics 25:5-46, 1992). The scope of the paper is limited to study the growth and dynamics of Indian and Chinese publications in the field of liquid crystals research (1997-2006).

Keywords: Citation, Dynamics, Growth, Liquid Crystals, Literature, Modeling, Modeling the Growth, Models, Publications, Research, Science, Science Citation Index, Scientometrics

? Luan, C.J., Zhou, C.Y. and Liu, A.Y. (2010), Patent strategy in Chinese universities: A comparative perspective. *Scientometrics*, **84** (1), 53-63.

Full Text: [2010\Scientometrics84, 53.pdf](2010/Scientometrics84,%2053.pdf)

Abstract: Patenting and licensing is not only a significant method of university knowledge transfer, but also an important indicator for measuring academic R&D strength and knowledge utilization. The methodologies of quantitative and qualitative analysis, including a special patent h-Index indicator to assess patenting quality, were used to examine university patenting worldwide. Analysis of university patenting from 1998 to 2008 showed a significant overall global increase in which Chinese academia stands out: most of the top 20 universities in patenting in 2008 were in China. However, a low rate of utilization of Chinese academic patents may have roots in: (1) university research evaluation system encourages the patent production more, rather than the utilization; (2) problems in the formal mechanisms for university technology transfer and licensing, (3) industry’s limited expectation and receptive capabilities and/or (4) a mismatch between the interests of the two institutional spheres. The next action to be taken by government, university and industry in China will be to explore strategies for improving academic patent quality and industry take-up.

Keywords: Academic Patent Industrialization, Bayh-Dole Act, China, Evaluation, Global, h Index, h-Index, Index, Industry, Knowledge, Mechanisms, Patent, Patent Quality Strategy, Patenting and Licensing, Patentometric, Patents, Production, Quality, Quantitative, R&D, Research, Research Evaluation, Roots, System, Technology, Technology Transfer, Universities, University, University Patenting, University Research, University Technology Transfer

? Bador, P. and Lafouge, T. (2010), Comparative analysis between impact factor and h-Index for pharmacology and psychiatry journals. *Scientometrics*, **84** (1), 65-79.

Full Text: [2010\Scientometrics84, 65.pdf](2010/Scientometrics84,%2065.pdf)

Abstract: Using strictly the same parameters (identical two publication years (2004 2005) and identical one-year citation window (2006)), IF 2006 was compared with h-Index 2006 for two samples of “Pharmacology and Pharmacy” and “Psychiatry” journals computed from the ISI Web of Science. for the two samples, the IF and the h-Index rankings of the journals are very different. The correlation coefficient between the IF and the h-Index is high for Psychiatry but lower for Pharmacology. The linearity test performed between the h-Index and IF alpha/alpha+1.n(1/alpha+1) showed the great sensitivity of the model compared with alpha. The IF and h-Index can be completely complementary when evaluating journals of the same scientific discipline.

Keywords: Citation, Correlation, h Index, h-Index, Hirsch Index, IF, Impact, Impact Factor, ISI, ISI Web, ISI Web of Science, Journal Impact Factor, Journal Ranking, Journals, Model, Parameters, Pharmacology, Psychiatry, Publication, Rankings, Science, Web of Science

? Yu, G., Wang, M.Y. and Yu, D.R. (2010), Characterizing knowledge diffusion of Nanoscience & Nanotechnology by citation analysis. *Scientometrics*, **84** (1), 81-97.

Full Text: [2010\Scientometrics84, 81.pdf](2010/Scientometrics84,%2081.pdf)

Abstract: This study investigates the knowledge diffusion patterns of Nanoscience & Nanotechnology (N&N) by analyzing the overall research interactions between N&N and nano-related subjects through citation analysis. Three perspectives were investigated to achieve this purpose. Firstly, the overall research interactions were analyzed to identify the dominant driving forces in advancing the development of N&N. Secondly, the knowledge diffusion intensity between N&N and nano-related subjects was investigated to determine the areas most closely related to N&N. Thirdly, the diffusion speed was identified to detect the time distance of knowledge diffusion between N&N and nano-related subjects. The analysis reveals that driving forces from the outside environment rather than within N&N itself make the foremost contributions to the development of N&N. From 1998 to 2007, Material Science, Physics, Chemistry, N&N, Electrical & Electronic and Metallurgy & Metallurgical Engineering are the key contributory and reference subjects for N&N. Knowledge transfer within N&N itself is the quickest. and the speed of knowledge diffusion from other subjects to N&N is slower than that from N&N to other subjects, demonstrating asymmetry of knowledge diffusion in the development of N&N. The results indicate that N&N has matured into a relatively open, diffuse and dynamic system of interactive subjects.

Keywords: Asymmetry, Chemistry, Citation, Citation Analysis, Development, Diffusion, Environment, Exploration, Field, Flows, Impact Factors, Knowledge, Knowledge Diffusion, Nanoscience, Nanoscience & Nanotechnology, Nanotechnology, Patent Citations, Physics, Publication Delays, Research, Science, Scientific Literature, System, Technology, Weak Ties

? Oswald, A.J. (2010), A suggested method for the measurement of world-leading research (illustrated with data on economics). *Scientometrics*, **84** (1), 99-113.

Full Text: [2010\Scientometrics84, 99.pdf](2010/Scientometrics84,%2099.pdf)

Abstract: Countries often spend billions on university research. There is growing interest in how to assess whether that money is well spent. Is there an objective way to assess the quality of a nation’s world-leading science? I suggest a method, and illustrate it with data on economics. of 450 genuinely world-leading journal articles, the UK produced 10% and the rest of Europe slightly more. Interestingly, more than a quarter of these UK articles came from outside the best-known university departments. The proposed methodology could be applied to almost any academic discipline or nation.

Keywords: Academic Discipline, Articles, Citation Counts, Citations, Economics, Europe, European Economics, Evaluation, Journal, Journals, Measurement, Methodology, Peer-Review, Quality, Research, Research Assessment Exercise (Rae), Research Excellence Framework (Ref), Science, Science, UK, United Kingdom, University, University Research

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Full Text: [2010\Scientometrics84, 115.pdf](2010/Scientometrics84,%20115.pdf)

Abstract: A relation, established by Andras Schubert (Scientometrics 78(3): 559-565, 2009) on the relation between a paper’s h-Index and its total number of received citations, is explained. The relation is a concavely increasing power law and is explained based on the Lotkaian model for the h-Index, proved by Egghe and Rousseau.

Keywords: Citations, h Index, h-Index, Hirsch-Index, Model, Power Law, Scientometrics, Single Paper h-Index, Single Paper Hirsch-Index

? Lin, C.H. and Jang, S.L. (2010), The impact of M&As on company innovation: evidence from the US medical device industry. *Scientometrics*, **84** (1), 119-131.

Full Text: [2010\Scientometrics84, 119.pdf](2010/Scientometrics84,%20119.pdf)

Abstract: the acquisition of new technologies represents a vitally important and fundamental goal of many corporate managers, particularly those within the medical device industry. We collect data on ten medical device companies as our sample in this study, covering the period from 1990 to 2006; this sample is drawn from the top 20 companies in the US, on the basis of international sales performance. We also collect details on all of the acquisitions undertaken by these companies, along with their patenting performance. The empirical results of this study suggest that technological acquisitions are only likely to be of help to the acquiring firms, in terms of improving their innovative performance, if they set out to acquire those companies that are in similar proximity, in terms of their technological field. There is also a clear need for such acquiring firms to ensure their continuing commitment to internal R&D investment in order to maintain their own versatility.

Keywords: Biotechnology Industry, Empirical-Analysis, Firms, Impact, Industry, Innovation, International, M&A, Medical, Patent Diversity, Patent Stock, Performance, R&D, Strategies, US, US Medical Device Industry

? Schubert, A. (2010), A reference-based Hirschian similarity measure for journals. *Scientometrics*, **84** (1), 133-147.

Full Text: [2010\Scientometrics84, 133.pdf](2010/Scientometrics84,%20133.pdf)

Abstract: Hirsch’s concept of h-Index was used to define a similarity measure for journals. The h-similarity is easy to calculate from the publicly available data of the Journal Citation Reports, and allows for plausible interpretation. On the basis of h-similarity, a relative eminence indicator of journals was determined: the ratio of the JCR impact factor to the weighted average of that of similar journals. This standardization allows journals from disciplines with lower average citation level (mathematics, engineering, etc.) to get into the top lists.

Keywords: Citation, Citation Analysis, Citation-Reports, Cocitation Analysis, Engineering, h Index, h-Index, h-Similarity, Impact, Impact Factor, Impact Factors, Index, Interpretation, Journal Citation Reports, Journals, Lists, Mathematics, Networks, Relatedness, Science, Scientific Journals, Similarity, Standardized Impact Factor

? Prathap, G. (2010), Going much beyond the Durfee square: enhancing the h (T) index. *Scientometrics*, **84** (1), 149-152.

Full Text: [2010\Scientometrics84, 149.pdf](2010/Scientometrics84,%20149.pdf)

Abstract: the h-Index is now used almost as a canonical tool for research assessment of individuals, research faculties and institutions and even for comparing performance of journals and countries. However, its limitations have also been noticed and many Hirsch-type variants have been proposed. In this paper, a “mock h-Index” which was recently proposed is compared with the “tapered h-Index”.

Keywords: Assessment, Bibliometrics, Corrected Quality Ratio, h Index, h-Index, Hirsch-Type Indexes, Indicators, Journals, Mock h-Index, Output, Performance, Research, Research Assessment, Tapered h-Index

? Prathap, G. (2010), Is there a place for a mock h-Index? *Scientometrics*, **84** (1), 153-165.

Full Text: [2010\Scientometrics84, 153.pdf](2010/Scientometrics84,%20153.pdf)

Abstract: the h-Index has captured the imagination of scientometricians and bibliometricians to such an extent that one can now divide the history of the subject virtually into a pre-Hirsch and a post-Hirsch period. Beyond its academic value, it is now used as a tool for research assessment of individuals, research faculties and institutions and even for comparing performance of journals and countries. Since its introduction, many Hirsch-type variants have been proposed to overcome perceived limitations of the original index. In this paper, using ideas from mathematical modeling, another mock h-Index is proposed which may complement the h-Index and give it better resolving power.

Keywords: Assessment, Bibliometrics, Corrected Quality Ratio, h Index, h-Index, Hirsch-Type Indexes, History, Journals, Mathematical Modeling, Mock h-Index, Modeling, Performance, Research, Research Assessment, Science

? Prathap, G. (2010), The 100 most prolific economists using the p-index. *Scientometrics*, **84** (1), 167-172.

Full Text: [2010\Scientometrics84, 167.pdf](2010/Scientometrics84,%20167.pdf)

Abstract: In this paper, a new indicator called the performance index (p-index) is used to rank a 100 most prolific economists. The p-index strikes the best balance between activity (total citations C) and excellence (mean citation rate C/P). The surprise is that the h-Index, which is now universally accepted almost as a canonical tool for research assessment of individuals, research faculties and institutions and even for comparing performance of journals and countries, is actually a poor indicator of performance.

Keywords: Assessment, Bibliometrics, Citation, Citations, g-Index, h Index, h-Index, h-Index, Hirsch-Type Indexes, Indicators, Journals, Output, p-Index, Performance, Research, Research Assessment

? Abramo, G., D’Angelo, C.A. and Solazzi, M. (2010), Assessing public-private research collaboration: Is it possible to compare university performance? *Scientometrics*, **84** (1), 173-197.

Full Text: [2010\Scientometrics84, 173.pdf](2010/Scientometrics84,%20173.pdf)

Abstract: It is widely recognized that collaboration between the public and private research sectors should be stimulated and supported, as a means of favoring innovation and regional development. This work takes a bibliometric approach, based on co-authorship of scientific publications, to propose a model for comparative measurement of the performance of public research institutions in collaboration with the domestic industry collaboration with the private sector. The model relies on an identification and disambiguation algorithm developed by the authors to link each publication to its real authors. An example of application of the model is given, for the case of the academic system and private enterprises in Italy. The study demonstrates that for each scientific discipline and each national administrative region, it is possible to measure the performance of individual universities in both intra-regional and extra-regional collaboration, normalized with respect to advantages of location. Such results may be useful in informing regional policies and merit-based public funding of research organizations.

Keywords: Bibliometric, Bibliometrics, Co-Authorship, Co-Authorships, Collaboration, Development, Flows, Funding, Identification, Industry, Industry Interaction, Innovation, Italy, Knowledge Spillovers, Measurement, Model, Performance, Public Funding of Research, Public Research, Publication, Publications, Regional, Research, Research Collaboration, Research Institutions, Research Productivity, Science, Scientific Publications, System, Universities, University, University-Industry Research Collaboration

? Hypponen, K. and Paganuzzi, V.M. (2010), Computer science research articles: the locations of different section types, and a proposal for standardization in the structure. *Scientometrics*, **84** (1), 199-220.

Full Text: [2010\Scientometrics84, 199.pdf](2010/Scientometrics84,%20199.pdf)

Abstract: This paper presents an analysis of the structure of computer science research articles published in the Lecture Notes of Computer Science series. While it is clear that most articles start with an Introduction and end with a Conclusion, the structure of text between these two sections is rather diverse. We studied the positions of different section types, and analysed dependencies between them. As a result, we present a number of common patterns used by writers, and make suggestions on how to improve the presentation of research in computer science.

Keywords: Articles, Computer, Computer Science, Linguistics, Presentation of Research, Research, Research Article, Science, Standardisation, Structure

? Zuccala, A. (2010), The mathematical review system: Does reviewer status play a role in the citation process? *Scientometrics*, **84** (1), 221-235.

Full Text: [2010\Scientometrics84, 221.pdf](2010/Scientometrics84,%20221.pdf)

Abstract: This paper revisits an aspect of citation theory (i.e., citer motivation) with respect to the Mathematical Review system and the reviewer’s role in mathematics. We focus on a set of journal articles (369) published in Singularity Theory (1974-2003), The mathematicians who wrote editorial reviews for these articles, and the number of citations each reviewed article received within a 5 year period. Our research hypothesis is that the cognitive authority of a high status reviewer plays a positive role in how well a new article is received and cited by others. Bibliometric evidence points to the contrary: Singularity Theorists of lower status (junior researchers) have reviewed slightly more well-cited articles (2-5 citations, excluding author self-citations) than their higher status counterparts (senior researchers). One explanation for this result is that lower status researchers may have been asked to review ‘trendy’ or more accessible parts of mathematics, which are easier to use and cite. We offer further explanations and discuss a number of implications for a theory of citation in mathematics. This research opens the door for comparisons to other editorial review systems, such as book reviews written in the social sciences or humanities.

Keywords: Articles, Bibliometric, Citation, Citation Theory, Citations, Citer Motivation, Editorial Reviews, Humanities, Journal, Mathematics, Play, Positive, Research, Researchers, Review, Science, Self-Citations, Social Sciences, Sociology, System, Theory

? Billaut, J.C., Bouyssou, D. and Vincke, P. (2010), Should you believe in the Shanghai ranking? *Scientometrics*, **84** (1), 237-263.

Full Text: [2010\Scientometrics84, 237.pdf](2010/Scientometrics84,%20237.pdf)

Abstract: This paper proposes a critical analysis of the “Academic Ranking of World Universities”, published every year by the Institute of Higher Education of the Jiao Tong University in Shanghai and more commonly known as the Shanghai ranking. After having recalled how the ranking is built, we first discuss the relevance of the criteria and then analyze the proposed aggregation method. Our analysis uses tools and concepts from Multiple Criteria Decision Making (MCDM). Our main conclusions are that the criteria that are used are not relevant, that the aggregation methodology is plagued by a number of major problems and that the whole exercise suffers from an insufficient attention paid to fundamental structuring issues. Hence, our view is that the Shanghai ranking, in spite of the media coverage it receives, does not qualify as a useful and pertinent tool to discuss the “quality” of academic institutions, let alone to guide the choice of students and family or to promote reforms of higher education systems. We outline the type of work that should be undertaken to offer sound alternatives to the Shanghai ranking.

Keywords: Academic Ranking, Attention, Bibliometric Methods, Coverage, Criteria, DEA, Decision-Making Units, Education, Evaluation Models, Exercise, Fatal Attraction, Higher Education, Index, League Tables, Methodology, Multiple Criteria Decision Analysis, National Research Performance, Ranking, Shanghai, Shanghai Ranking, Tools, University, University Rankings, World Universities

? Chen, J.H., Jang, S.L. and Wen, S.H. (2010), Measuring technological diversification: identifying the effects of patent scale and patent scope. *Scientometrics*, **84** (1), 265-275.

Full Text: [2010\Scientometrics84, 265.pdf](2010/Scientometrics84,%20265.pdf)

Abstract: Although technological diversification is an important strategic decision for both large and small firms alike, the conventional method of measuring such diversification may well introduce significant scale bias against small- and medium-sized firms. We examine this issue in this study using a sample of 73 Taiwanese integrated-circuit (IC) design firms covering the period from 1995 to 2007 and conclude that the conventional measure of technological diversification reflects the spread or distribution amongst technology classes of a company’s current technology portfolio, and does not capture the incremental expansion in technological scope, or the ‘dynamic act of diversification’, as reflected in our alternative scope measure. Our results suggest clear constraints on the applications made under the conventional index, particularly for firms with small patent scale.

Keywords: Applications, Bias, Distribution, Effects, Expansion, Field, Firms, IC Design Firms, Innovation, Patent, Patent Scope, Performance, Scale, Technological Diversification, Technology

? Schultz, D.M. (2010), Are three heads better than two? How the number of reviewers and editor behavior affect the rejection rate. *Scientometrics*, **84** (2), 277-292.

Full Text: [2010\Scientometrics84, 277.pdf](2010/Scientometrics84,%20277.pdf)

Abstract: Editors of peer-reviewed journals obtain recommendations from peer reviewers as guidance in deciding upon the suitability of a submitted manuscript for publication. To investigate whether the number of reviewers used by an editor affects the rate at which manuscripts are rejected, 500 manuscripts submitted to Monthly Weather Review during 15.5 months in 2007-2008 were examined. Two and three reviewers were used for 306 and 155 manuscripts, respectively (92.2% of all manuscripts). Rejection rates for initial decisions and final decisions were not significantly different whether two or three reviewers were used. Manuscripts with more reviewers did not spend more rounds in review or have different rejection rates at each round. The results varied by editor, however, with some editors rejecting more two-reviewer manuscripts and others rejecting more three-reviewer manuscripts. Editors described using their scientific expertise in the decision-making process, either in determining the number of reviews to be sought or in making decisions once the reviews were received, approaches that differ from that of relying purely upon reviewer agreement as reported previously in the literature. A simple model is constructed for three decision-making strategies for editors: rejection when all reviewers recommend rejection, rejection when any reviewer recommends rejection, and rejection when a majority of reviewers recommend rejection. By plotting the probability of reviewer rejection against the probability of editor rejection, the decision-making process can be graphically illustrated, demonstrating that, for this dataset, editors are likely to reject a manuscript when any reviewer recommends rejection.

Keywords: Editor, Editors, Journal, Journals, Literature, Manuscripts, Model, Monthly Weather Review, Peer Review, Publication, Rejection, Reliability, Review, Reviewer Agreement, Rounds of Reviews

? Zhao, D.Z. (2010), Characteristics and impact of grant-funded research: A case study of the library and information science field. *Scientometrics*, **84** (2), 293-306.

Full Text: [2010\Scientometrics84, 293.pdf](2010/Scientometrics84,%20293.pdf)

Abstract: This paper reports on a bibliometric study of the characteristics and impact of research in the library and information science (LIS) field which was funded through research grant programs, and compares it with research that received no extra funding. Seven core LIS journals were examined to identify articles published in 1998 that acknowledge research grant funding. The distribution of these articles by various criteria (e.g., topic, affiliation, funding agency) was determined. Their impact as indicated by citation counts during 1998-2008 was evaluated against that of articles without acknowledging extra funding and published in the same journals in the same year using citation data collected from Scopus’ Citation Tracker. The impact of grant-funded research as measured by citation counts was substantially higher than that of other research, both overall and in each journal individually. Scholars from outside LIS core institutions contributed heavily to grant-funded research. The two highest-impact publications by far reported non-grant-based research, and grant-based funding of research reported in core LIS journals was biased towards the information retrieval (IR) area, particularly towards research on IR systems. The percentage of articles reporting grant-funded research was substantially higher in information-oriented journals than in library-focused ones.

Keywords: Affiliation, Articles, Bibliometric, Bibliometric Study, Characteristics, Citation, Citation Analysis, Citation Counts, Core, Criteria, Distribution, Funding, Highest Impact, Impact, Information Retrieval, Information Science, IR, Journal, Journals, Library and Information Science, LIS, Publications, Research, Research Evaluation, Research Funding, Research Policy, Science, Scientific Collaboration, Scopus, Topic

? Pautasso, M. and Schafer, H. (2010), Peer review delay and selectivity in ecology journals. *Scientometrics*, **84** (2), 307-315.

Full Text: [2010\Scientometrics84, 307.pdf](2010/Scientometrics84,%20307.pdf)

Abstract: Peer review is fundamental to science as we know it, but is also a source of delay in getting discoveries communicated to the world. Researchers have investigated the effectiveness and bias of various forms of peer review, but little attention has been paid to the relationships among journal reputation, rejection rate, number of submissions received and time from submission to acceptance. In 22 ecology/interdisciplinary journals for which data could be retrieved, higher impact factor is positively associated with the number of submissions. However, higher impact factor journals tend to be significantly quicker in moving from submission to acceptance so that journals which receive more submissions are not those which take longer to get them through the peer review and revision processes. Rejection rates are remarkably high throughout the journals analyzed, but tend to increase with increasing impact factor and with number of submissions. Plausible causes and consequences of these relationships for journals, authors and peer reviewers are discussed.

Keywords: Attention, Bias, Editorial Rejection, Effectiveness, Impact, Impact Factor, Journal, Journals, Peer Review, Peer-Review, Peer-Reviewed Literature, Publication, Publish or Perish, Quality Control, Rejection, Review, Science, Scientific Technological and Medical (STM) Publishing, Selectivity, Standing of a Journal

? Derrick, G.E., Sturk, H., Haynes, A.S., Chapman, S. and Hall, W.D. (2010), A cautionary bibliometric tale of two cities. *Scientometrics*, **84** (2), 317-320.

Full Text: [2010\Scientometrics84, 317.pdf](2010/Scientometrics84,%20317.pdf)

Abstract: Reliability of citation searches is a cornerstone of bibliometric research. The authors compare simultaneous search returns at two sites to demonstrate discrepancies that can occur as a result of differences in institutional subscriptions to the Web of Science and Web of Knowledge. Such discrepancies may have significant implications for the reliability of bibliometric research in general, but also for the calculation of individual and group indices used for promotion and funding decisions. The authors caution care when describing the methods used in bibliometric analysis and when evaluating researchers from different institutions. In both situations a description of the specific databases used would enable greater reliability.

Keywords: Bibliometric, Bibliometric Analysis, Bibliometric Research, Citation, Citation Analysis, Databases, Evaluative Bibliometrics, Funding, Impact, Index, Institutional Subscriptions, Knowledge, Methods, Promotion, Publication, Reliability, Research, Researchers, Science, Web of Knowledge, Web of Science

? Ortega, J.L. and Aguillo, I.F. (2010), Describing national science and technology systems through a multivariate approach: Country participation in the 6th Framework Programmes. *Scientometrics*, **84** (2), 321-330.

Full Text: [2010\Scientometrics84, 321.pdf](2010/Scientometrics84,%20321.pdf)

Abstract: the objective of this work is to describe the distribution of different types of participating organizations in the health thematic area of the 6th Framework Programme. A total of 2132 different organizations were classified according to four types and then grouped by country. A Principal Component Analysis (PCA) was carried out on the percentage of funding obtained by each type of organization. Results show a countries map plotted around the “private” and “public” principal components. It is observed that there are countries which research is basically performed by government research centres, while others are supported in the university activity. We conclude that the PCA is a suitable method to plot the distribution of research organizations by country and the results could be used as a tool for theoretical studies about the scientific activity in a country.

Keywords: 6th Framework Programme, Biomedicine, Classification, Distribution, Funding, Health, Impact, Multivariate Analysis, National Science, PCA, Research, Science, Science and Technology, Scientometrics, Space, Technology, Triple Helix, University

? Guan, J.C. and Wang, G.B. (2010), A comparative study of research performance in nanotechnology for China’s inventor-authors and their non-inventing peers. *Scientometrics*, **84** (2), 331-343.

Full Text: [2010\Scientometrics84, 331.pdf](2010/Scientometrics84,%20331.pdf)

Abstract: This paper explores the relationship between patenting and publishing in the field of nanotechnology for Chinese universities. With their growing patents, Chinese universities are becoming main technological source for nanotechnology development that is extremely important in China. Matching names of patentees to names of research paper authors in Chinese universities, we find 6,321 authors with patents, i.e. inventor-authors, and 65,001 without any patent. Research performance is measured using three indicators-publication counts, total citations and h-Index received by each researcher. It is found that research performance of authors who are also inventors holding patents is better than that of those authors who do not have a patent, and that most of high quality research is performed by inventor-authors. Our findings indicate that patent-oriented research may produce better results.

Keywords: Bibliometrics, China, Citations, Development, Field, h Index, h-Index, Index, Inventor-Authors, Journals, Nanoscience, Nanotechnology, Patent, Patents, Performance, Publications, Publishing, Research, Research Performance, Science, Terms, Universities, University Patenting

? Gentil-Beccot, A., Mele, S. and Brooks, T.C. (2010), Citing and reading behaviours in high-energy physics. *Scientometrics*, **84** (2), 345-355.

Full Text: [2010\Scientometrics84, 345.pdf](2010/Scientometrics84,%20345.pdf)

Abstract: Contemporary scholarly discourse follows many alternative routes in addition to the three-century old tradition of publication in peer-reviewed journals. The field of High-Energy Physics (HEP) has explored alternative communication strategies for decades, initially via the mass mailing of paper copies of preliminary manuscripts, then via the inception of the first online repositories and digital libraries. This field is uniquely placed to answer recurrent questions raised by the current trends in scholarly communication: is there an advantage for scientists to make their work available through repositories, often in preliminary form? Is there an advantage to publishing in Open Access journals? Do scientists still read journals or do they use digital repositories? the analysis of citation data demonstrates that free and immediate online dissemination of preprints creates an immense citation advantage in HEP, whereas publication in Open Access journals presents no discernible advantage. In addition, the analysis of clickstreams in the leading digital library of the field shows that HEP scientists seldom read journals, preferring preprints instead.

Keywords: Citation, Communication, Digital Libraries, Digital Library, Discourse, Energy Physics, High, Impact, Journals, Libraries, Manuscripts, Open-Access, Open-Access, Physics, Publication, Publishing, Reading, Repository, Scholarly Communication, Trends

? Nejati, A. and Jenab, S.M.H. (2010), A two-dimensional approach to evaluate the scientific production of countries (case study: the basic sciences). *Scientometrics*, **84** (2), 357-364.

Full Text: [2010\Scientometrics84, 357.pdf](2010/Scientometrics84,%20357.pdf)

Abstract: the quantity and quality of scientific output of the topmost 50 countries in the four basic sciences (agricultural & biological sciences, chemistry, mathematics, and physics & astronomy) are studied in the period of the recent 12 years (1996-2007). In order to rank the countries, a novel two-dimensional method is proposed, which is inspired by the h-Index and other methods based on quality and quantity measures. The countries data are represented in a “quantity-quality diagram”, and partitioned by a conventional statistical algorithm into three clusters, members of which are rather the same in all of the basic sciences. The results offer a new perspective on the global positions of countries with regards to their scientific output.

Keywords: Algorithm, Basic Science, Biological, Biological Sciences, Chemistry, Global, h-Index, Impact, Index, Mathematics, Methods, Nations, Output, Production, Quality, Quantity, Ranking, Scientific Output, Scientific Production, Statistical

? Savanur, K. and Srikanth, R. (2010), Modified collaborative coefficient: A new measure for quantifying the degree of research collaboration. *Scientometrics*, **84** (2), 365-371.

Full Text: [2010\Scientometrics84, 365.pdf](2010/Scientometrics84,%20365.pdf)

Abstract: Collaborative coefficient (CC) is a measure of collaboration in research, that reflects both the mean number of authors per paper as well as the proportion of multi-authored papers. Although it lies between the values 0 and 1, and is 0 for a collection of purely single-authored papers, it is not 1 for the case where all papers are maximally authored, i.e., every publication in the collection has all authors in the collection as co-authors. We propose a simple modification of CC, which we call modified collaboration coefficient (or MCC, for short), which improves its performance in this respect.

Keywords: Collaboration, Collaborative Coefficient, Multiple Authorship, Performance, Publication, Research, Research Collaboration

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Full Text: [2010\Scientometrics84, 373.pdf](2010/Scientometrics84,%20373.pdf)

Abstract: Scientific collaboration is growing in its importance; more so in Asian and African countries. This paper examines the scenario of science and scientific collaboration in South Africa which had passed through the colonial and apartheid regimes before it became a democracy in 1994. South African science under distinct political periods moved through some difficult periods but it did not badly affect the progress and direction of South African science. Science and scientific collaboration continued to grow under its major political phases amidst serious challenges. Despite internal conflict and boycott by the international scientific community, South Africa could move onto a stable and steady path of growth in science and collaboration under apartheid which is being carried on in the new South Africa. Collaborative research is encouraged at various levels of knowledge production and in science. The importance science and scientific development is gaining in today’s South Africa is remarkable.

Keywords: Africa, Apartheid, Collaboration, Development, Growth, Indicators, International, Knowledge, Knowledge Production, Medicine, Nations, Organization, Production, Research, Research-and-Development, Scenario, Science, Scientific Collaboration, South Africa, State, Technology

? Han, C.S., Lee, S.K. and England, M. (2010), Transition to postmodern science-related scientometric data. *Scientometrics*, **84** (2), 391-401.

Full Text: [2010\Scientometrics84, 391.pdf](2010/Scientometrics84,%20391.pdf)

Abstract: A change in scientific developments in recent decades is widely proclaimed which may be associated with terms like postmodern science or steady state science. This change is usually discussed from a more epistemological viewpoint. In order to enhance the understanding of the underlying key factors, bibliometric, demographic and Nobel Prize recipient data spanning of the last hundred years are considered and analyzed. It is found that in general the considered data point to a quasi-steady state in bibliometric developments of highly developed countries. for emerging countries, such a steady state is not yet attained; therefore, the research output in scientific journal articles is still expected to rise considerably. Consequences and interpretations of an ever growing research output in relation to the increasing age of Nobel Prize recipients are discussed and conclusions are drawn from the considered data.

Keywords: Articles, Bibliometric, Biblometrics, Change, Demography, Exponential-Growth, Innovation, Journal, Nobel Prize, Postmodern Science, Research, Research Output, Science, Scientific Journal, State, Steady State, Steady State Science

? Mahbuba, D. and Rousseau, R. (2010), Scientific research in the Indian subcontinent: selected trends and indicators 1973-2007 comparing Bangladesh, Pakistan and Sri Lanka with India, the local giant. *Scientometrics*, **84** (2), 403-420.

Full Text: [2010\Scientometrics84, 403.pdf](2010/Scientometrics84,%20403.pdf)

Abstract: As part of a research program to analyse research in Bangladesh we provide a comparison between research indicators related to India, Bangladesh, Pakistan and Sri Lanka. In this investigation we make use of Web of Science (WoS) data as well as Scopus data (using the SCImago website). Special attention is given to collaboration data and to the evolution of country h-indices. A comparison based on relative quality indicators shows that Sri Lanka is the best performer among these four countries. Such a result agrees with the ranking of these countries according to the United Nations’ Human Development Index (HDI).

Keywords: Asia, Attention, Bangladesh, Citation, Collaboration, Comparison, Country h-Indices, Development, Evolution, Impact, Index, India, Indicators, Local, Pakistan, Publication Analysis, Research, Science, Scimago, Scopus, Sri Lanka, Trends, Web of Science, WOS

? Zhang, L., Zhao, H.A., Li, Q.S., Wang, J.A. and Tan, X. (2010), Establishment of paper assessment system based on academic disciplinary benchmarks. *Scientometrics*, **84** (2), 421-429.

Full Text: [2010\Scientometrics84, 421.pdf](2010/Scientometrics84,%20421.pdf)

Abstract: An article assessment system based on both Tianjin University and nine key Chinese Universities’ academic disciplinary benchmarks was established to evaluate researcher’s published papers. With this scientific benchmarking system, the quality of a researcher’s papers could be easily located in a percentile scale in corresponding field within certain groups. Several factors, including total number of papers, order of authors, impact of journals, citation count, h-Index, e-index, a-index, m-quotient, etc., were also utilized for both quantity and quality analysis. Furthermore, the novel proposed weighted citation analysis was introduced to judge a researcher’s contribution to his/her research outcomes. The convenient application and comprehensive evaluation property of this assessment system was thoroughly discussed via a given example.

Keywords: Article Assessment System, Articles, Assessment, Benchmarking, Benchmarks, Citation, Citation Analysis, Citation Count, Citations, Contribution, Evaluation, Groups, h Index, h-Index, Impact, Index, Journals, Outcomes, Research, Research Performance Assessment, Scale, System, Universities, University

? Ye, F.Y. and Rousseau, R. (2010), Probing the h-core: An investigation of the tail-core ratio for rank distributions. *Scientometrics*, **84** (2), 431-439.

Full Text: [2010\Scientometrics84, 431.pdf](2010/Scientometrics84,%20431.pdf)

Abstract: the set of citations received by a set of publications consists of citations received by articles in the h-core and citations received by articles in the h-tail. Denoting the cardinalities of these fours sets as C, P, C (H) and C (T) we introduce the tail-core ratio (C (T)/C (H)) and show that in practical cases this ratio tends to increase. Introducing further the k-index, defined as k = (C/P)/(C (T)/C (H)), we show that this index decreases in most practical cases. A power law model is in accordance with these practical observations.

Keywords: Articles, Citations, h, h-Core, h-Index, h-Tail, Index, K-Index, Model, Power Law, Publications, Tail-Core Ratio, V-Index

? Marx, W. and Bornmann, L. (2010), How accurately does Thomas Kuhn’s model of paradigm change describe the transition from the static view of the universe to the big bang theory in cosmology? *Scientometrics*, **84** (2), 441-464.

Full Text: [2010\Scientometrics84, 441.pdf](2010/Scientometrics84,%20441.pdf)

Abstract: Up to the 1960s the prevalent view of science was that it was a step-by-step undertaking in slow, piecemeal progression towards truth. Thomas Kuhn argued against this view and claimed that science always follows this pattern: after a phase of “normal” science, a scientific “revolution” occurs. Taking as a case study the transition from the static view of the universe to the Big Bang theory in cosmology, we appraised Kuhn’s theoretical approach by conducting a historical reconstruction and a citation analysis. As the results show, the transition in cosmology can be linked to many different persons, publications, and points in time. The findings indicate that there was not one (short term) scientific revolution in cosmology but instead a paradigm shift that progressed as a slow, piecemeal process.

Keywords: Bibliometrics, Change, Chemistry, Citation, Citation Analysis, Citation Counts, Cosmology, Distance, Distributions, Extra-Galactic Nebulae, Historical Reconstruction, Model, Paradigm, Progression, Publications, Radiation, Reconstruction, Relativity, Science, Scientific Discovery, Theory, Thomas Kuhn, Velocity

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Full Text: [2010\Scientometrics84, 465.pdf](2010/Scientometrics84,%20465.pdf)

Abstract: Over the last years the h-Index has gained popularity as a measure for comparing the impact of scientists. We investigate if ranking according to the h-Index is stable with respect to (i) different choices of citation databases, (ii) normalizing citation counts by the number of authors or by removing self-citations, (iii) small amounts of noise created by randomly removing citations or publications and (iv) small changes in the definition of the index. In experiments for 5,283 computer scientists and 1,354 physicists we show that although the ranking of the h-Index is stable under most of these changes, it is unstable when different databases are used. Therefore, comparisons based on the h-Index should only be trusted when the rankings of multiple citation databases agree.

Keywords: Citation, Citation Counts, Citation Databases, Citations, Computer, Databases, h Index, h-Index, Impact, Noise, Publications, Ranking Scientists, Rankings, Self-Citations, Stability, Stability Analysis

? Boshoff, N. (2010), South-South research collaboration of countries in the Southern African Development Community (SADC). *Scientometrics*, **84** (2), 481-503.

Full Text: [2010\Scientometrics84, 481.pdf](2010/Scientometrics84,%20481.pdf)

Abstract: This study investigates South-South collaboration in research, and specifically collaboration among the 15 countries of the Southern African Development Community (SADC) as well as between the SADC and the rest of Africa. It was found that only 3% of SADC papers during 2005-2008 were jointly authored by researchers from two or more SADC countries (intra-regional collaboration), and only 5% of SADC papers were jointly authored with researchers from African countries outside the SADC (continental collaboration). In contrast, 47% of SADC papers were co-authored with scientists from high-income countries. The few instances of intra-regional and continental collaboration in the SADC are largely the product of North-South collaboration. Authors from high-income countries are included in 60% of intra-regional co-authored papers and in 59% of continental co-authored papers. Moreover, between 2005 and 2008, South Africa produced 81% of all SADC papers and 78% of all intra-regional co-authored papers. This implies that there is a highly unbalanced and unequal partnership that can best be described as a variant of North-South collaboration with the scientific giant in the South taking on the role of the ‘political North’. As a consequence, guidelines for successful North-South collaborations should be extended to include South-South collaborations that comprise highly unequal partners, as is the case between South Africa and the other SADC countries.

Keywords: Africa, Authors, Co-Authorship, Co-Authorships, Collaboration, Context, Development, North, North-South Collaboration, Regional Integration, Research, Research Collaboration, Researchers, Science, South Africa, South-South Collaboration, Southern African Development Community (SADC)

? Kim, M.J. (2010), Visibility of Korean science journals: An analysis between citation measures among international composition of editorial board and foreign authorship. *Scientometrics*, **84** (2), 505-522.

Full Text: [2010\Scientometrics84, 505.pdf](2010/Scientometrics84,%20505.pdf)

Abstract: This article reports findings from a study of the relationship between citation measures (impact factor and its quartile) among international composition of editorial board and foreign authorship in 17 Korean SCI journals for the three 5-year periods, 1995, 2000, and 2005. With few exceptions, the relationship between international editorial board composition and foreign authorship and citation measures was non-existent, at p > 0.05. However, the international members on editorial boards and foreign authorship of papers in Korean journals have increased greatly over the three 5-year periods, and there has been to a certain degree growth in the visibility and performance of Korean SCI journals in terms of impact factors, but not their quartiles.

Keywords: Authorship, Citation, Citation Measures, Composition, Foreign Authorship, Growth, Impact, Impact Factor, Impact Factors, International, International Composition of Editorial Board, Journals, Korean Science Journals, Performance, SCI, Science, Scientific Journals, Visibility

? van Eck, N.J. and Waltman, L. (2010), Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, **84** (2), 523-538.

Full Text: [2010\Scientometrics84, 523.pdf](2010/Scientometrics84,%20523.pdf)

Abstract: We present VOSviewer, a freely available computer program that we have developed for constructing and viewing bibliometric maps. Unlike most computer programs that are used for bibliometric mapping, VOSviewer pays special attention to the graphical representation of bibliometric maps. The functionality of VOSviewer is especially useful for displaying large bibliometric maps in an easy-to-interpret way. The paper consists of three parts. In the first part, an overview of VOSviewer’s functionality for displaying bibliometric maps is provided. In the second part, the technical implementation of specific parts of the program is discussed. Finally, in the third part, VOSviewer’s ability to handle large maps is demonstrated by using the program to construct and display a co-citation map of 5,000 major scientific journals.

Keywords: Attention, Bibliometric, Bibliometric Mapping, Co-Citation, Computational Intelligence Field, Computer, Computer Programs, Graphs, Journal Co-Citation Analysis, Journals, Mapping, Maps, Pathfinder Networks, Science, Science Mapping, Scientific Journals, Survey, Visualization, VOS, Vosviewer

? Lortie, C.J. (2010), Letter to the editor: A global comment on scientific publications, productivity, people, and beer. *Scientometrics*, **84** (2), 539-541.

Full Text: [2010\Scientometrics84, 539.pdf](2010/Scientometrics84,%20539.pdf)

Keywords: Editor, Global, Nations, Productivity, Publications, Scientific Publications

? Lim, H. and Park, Y. (2010), Identification of technological knowledge intermediaries. *Scientometrics*, **84** (3), 543-561.

Full Text: [2010\Scientometrics84, 543.pdf](2010/Scientometrics84,%20543.pdf)

Abstract: Intermediaries in a technological knowledge network have recently been highlighted as crucial innovation drivers that accelerate technological knowledge flows. Although the patent network analysis has been frequently used to monitor technological knowledge structures, it has examined only sources or recipients of the technological knowledge by mainly estimating technological knowledge inflows or outflows of a network node. This study, therefore, aims to identify technological knowledge intermediaries when a technology-level knowledge network is composed of several industries. First, types of technological knowledge flows are deductively classified into four types by highlighting industry affiliations of source technologies and recipient technologies. Second, a directed technological knowledge network is generated at the technology class level, using patent co-classification analysis. Third, for each class, mediating scores are measured according to the four types. The empirical analysis illustrates the Korea’s technological knowledge network between 2000 and 2008. As a result, the four types of mediating scores are compared between industries, and industry-wise technological knowledge intermediaries are identified. The proposed approach is practical to explore converging processes in technology development where technology classes act as technological knowledge intermediaries among diverse industries.

Keywords: Betweenness, Brokerage, Centrality, Firms, Industry Affiliation, Innovations, Knowledge Network, Network Analysis, Patent Co-Classification, Patent Statistics, Perspective, Positions, Research-and-Development, Spillovers, Technological Knowledge Intermediary

? Yanagisawa, K., Ito, K., Katsuki, C., Kawashima, K. and Shirabe, M. (2010), An outcome of nuclear safety research in JAERI: case study for LOCA. *Scientometrics*, **84** (3), 563-573.

Full Text: [2010\Scientometrics84, 563.pdf](2010/Scientometrics84,%20563.pdf)

Abstract: An outcome of nuclear safety research (NSR) done by JAERI (Japan Atomic Energy Research Institute) was case studied by the bibliometric method. (1) for LOCA (loss-of-coolant accident) a domestic share of JAERI in monoclinic research paper was 63% at the past (20) 1978-1982 but was decreased to 40% at the present 1998-2002. for co-authored papers a domestic share between JAERI and PS (public sectors) was zero at past (20) but increased to 4% at the present. Research cooperation is active between Tokyo University and JAERI or between JAERI and Nagoya University. (2) It is revealed that LOCA outputs born by NSR-JAERI reflected partly to those of the Safety Licensing Guidelines, however, a share of NSR-JAERI could not determined due to the lack of necessary information in the Guideline.

Keywords: Bibliometrics, Jaeri, Loca, Nuclear Safety Research, Outcome, Research, Safety Licensing Guideline, University

? Larsen, P.O. and von Ins, M. (2010), The rate of growth in scientific publication and the decline in coverage provided by Science Citation Index. *Scientometrics*, **84** (3), 575-603.

Full Text: [2010\Scientometrics84, 575.pdf](2010/Scientometrics84,%20575.pdf)

Abstract: the growth rate of scientific publication has been studied from 1907 to 2007 using available data from a number of literature databases, including Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Traditional scientific publishing, that is publication in peer-reviewed journals, is still increasing although there are big differences between fields. There are no indications that the growth rate has decreased in the last 50 years. At the same time publication using new channels, for example conference proceedings, open archives and home pages, is growing fast. The growth rate for SCI up to 2007 is smaller than for comparable databases. This means that SCI was covering a decreasing part of the traditional scientific literature. There are also clear indications that the coverage by SCI is especially low in some of the scientific areas with the highest growth rate, including computer science and engineering sciences. The role of conference proceedings, open access archives and publications published on the net is increasing, especially in scientific fields with high growth rates, but this has only partially been reflected in the databases. The new publication channels challenge the use of the big databases in measurements of scientific productivity or output and of the growth rate of science. Because of the declining coverage and this challenge it is problematic that SCI has been used and is used as the dominant source for science indicators based on publication and citation numbers. The limited data available for social sciences show that the growth rate in SSCI was remarkably low and indicate that the coverage by SSCI was declining over time. National Science Indicators from Thomson Reuters is based solely on SCI, SSCI and Arts and Humanities Citation Index (AHCI). Therefore the declining coverage of the citation databases problematizes the use of this source.

Keywords: Big Science, Citation, Coverage of Conference Proceedings, Coverage of Databases, Coverage of Science Citation Index, Cumulative Values, Databases for Scientific Publications, Doubling Time, Exponential Growth, Google Scholar, Growth Rate for Science, Growth Rate for Scientific Publication, Indicator, Little Science, Low, Number of Scientific Journals, Publication, SCI, Scopus, Web

? Abramo, G., D’Angelo, C.A. and Solazzi, M. (2010), National research assessment exercises: a measure of the distortion of performance rankings when labor input is treated as uniform. *Scientometrics*, **84** (3), 605-619.

Full Text: [2010\Scientometrics84, 605.pdf](2010/Scientometrics84,%20605.pdf)

Abstract: Measuring the efficiency of scientific research activity presents critical methodological aspects, many of which have not been sufficiently studied. Although many studies have assessed the relation between quality and research productivity and academic rank, not much is known about the extent of distortion in national university performance rankings when academic rank and the other labor factors are not considered as a factor of normalization. This work presents a comparative analysis that aims to quantify the sensitivity of bibliometric rankings to the choice of input, with input considered as only the number of researchers on staff, or alternatively where their cost is also considered. The field of observation consists of all 69 Italian universities active in the hard sciences. Performance measures are based on the 81,000 publications produced during the 2004-2006 triennium by all 34,000 research staff, with analysis carried out at the level of individual disciplines, 187 in total. The effect of the switch from labor to cost seems to be minimal except for a few outliers.

Keywords: Bibliometric Indicators, Bibliometrics, Cost Efficiency, Gender, Methodology, Research, Research Productivity, Research Productivity, Scientists, Universities, University Ranking

? Cardoso, A.R., Guimaraes, P. and Zimmermann, K.F. (2010), Comparing the early research performance of PhD graduates in labor economics in Europe and the USA. *Scientometrics*, **84** (3), 621-637.

Full Text: [2010\Scientometrics84, 621.pdf](2010/Scientometrics84,%20621.pdf)

Abstract: This paper analyzes the early research performance of PhD graduates in labor economics, addressing the following questions: Are there major productivity differences between graduates from American and European institutions? If so, how relevant is the quality of the training received (i.e. ranking of institution and supervisor) and the research environment in the subsequent job placement institution? the population under study consists of labor economics PhD graduates who received their degree in the years 2000-2005 in Europe or the USA. Research productivity is evaluated alternatively as the number of publications or the quality-adjusted number of publications of an individual. When restricting the analysis to the number of publications, results suggest a higher productivity by graduates from European universities than from USA universities, but this difference vanishes when accounting for the quality of the publication. The results also indicate that graduates placed at American institutions, in particular top ones, are likely to publish more quality-adjusted articles than their European counterparts. This may be because, when hired, they already have several good acceptances or because of more focused research efforts and clearer career incentives.

Keywords: Education, Graduate Programs, Incentives, Job Placements, Publication, Publication Analysis, Research, Research Productivity, Research Productivity

? Yin, C.Y., Aris, M.J. and Chen, X. (2010), Combination of Eigenfactor (TM) and h-Index to evaluate scientific journals. *Scientometrics*, **84** (3), 639-648.

Full Text: [2010\Scientometrics84, 639.pdf](2010/Scientometrics84,%20639.pdf)

Abstract: the h-Index and Eigenfactor (TM) values of top and specialized scientific/engineering journals are tabulated and combined to provide a simple graphical representation of the journals. The information may be tailored to specific uses by respective stakeholders to aid decision making processes with regards to scholarly research and scientific journal publications.

Keywords: Eigenfactor (TM) Score, h-Index, Impact Factor, Journal Impact Factor, Journal Status, Research

? Ramos-Vielba, I., Fernandez-Esquinas, M. and Espinosa-de-los-Monteros, E. (2010), Measuring university-industry collaboration in a regional innovation system. *Scientometrics*, **84** (3), 649-667.

Full Text: [2010\Scientometrics84, 649.pdf](2010/Scientometrics84,%20649.pdf)

Abstract: Studies of university-industry collaboration remain subject to important limitations due to the shortage of empirical data and a lack of consistency in that obtained to date. This article puts into practice a set of universities Third Mission indicators in a regional innovation system. Selected indicators previously compiled from literature were reorganized and pre-tested. We have undertaken two face-to-face surveys of 737 firms and 765 heads of research teams, respectively. The results test the validation of indicators and provide a complex map of university-industry linkages as well as some observations on the flexibility needed to address this issue.

Keywords: Indicators, Indicators, Institutionalization, Knowledge Transfer, Links, Regional Innovation System, Research, Science, Technology, University-Industry Collaboration, US

? Wong, C.Y. and Goh, K.L. (2010), Modeling the behaviour of science and technology: self-propagating growth in the diffusion process. *Scientometrics*, **84** (3), 669-686.

Full Text: [2010\Scientometrics84, 669.pdf](2010/Scientometrics84,%20669.pdf)

Abstract: Through theoretical analysis and empirical demonstration, this paper attempts to model the behavior of science and technology by investigating the self-propagating behavior of their diffusion for South Korea, Malaysia and Japan. The dynamics of the self-propagating behavior were examined using the logistic growth function within a dynamic carrying capacity, while allowing for different effectiveness of potential influence of science and technology producers on potential adopters. Evidence suggests that the self-propagating growth function is particularly relevant for countries with advanced science and technology, like Japan. While self-propagating growth was also found for South Korea, the diffusion process remained fairly static for Malaysia.

Keywords: Capacity, Carrying Capacity, China, Countries, Diffusion, Dynamism, Emergence, Functionality Development, Growth Function, Industry, Innovation, Knowledge, Science, Systems, Technology

? Pepe, A. and Rodriguez, M.A. (2010), Collaboration in sensor network research: an in-depth longitudinal analysis of assortative mixing patterns. *Scientometrics*, **84** (3), 687-701.

Full Text: [2010\Scientometrics84, 687.pdf](2010/Scientometrics84,%20687.pdf)

Abstract: Many investigations of scientific collaboration are based on statistical analyses of large networks constructed from bibliographic repositories. These investigations often rely on a wealth of bibliographic data, but very little or no other information about the individuals in the network, and thus, fail to illustrate the broader social and academic landscape in which collaboration takes place. In this article, we perform an in-depth longitudinal analysis of a relatively small network of scientific collaboration (N = 291) constructed from the bibliographic record of a research centerin the development and application of wireless and sensor network technologies. We perform a preliminary analysis of selected structural properties of the network, computing its range, configuration and topology. We then support our preliminary statistical analysis with an in-depth temporal investigation of the assortative mixing of selected node characteristics, unveiling the researchers’ propensity to collaborate preferentially with others with a similar academic profile. Our qualitative analysis of mixing patterns offers clues as to the nature of the scientific community being modeled in relation to its organizational, disciplinary, institutional, and international arrangements of collaboration.

Keywords: Co-Authorship, Coauthorship, Community, Discrete Assortativity, Growth, Homophily, Mixing Patterns, Network Evolution, Physics, Research, Science, Scientific Collaboration Networks, Sensor Network and Wireless Research, Social Network

? Macias-Chapula, C. (2010), Influence of local and regional publications in the production of public health research papers in Latin America. *Scientometrics*, **84** (3), 703-716.

Full Text: [2010\Scientometrics84, 703.pdf](2010/Scientometrics84,%20703.pdf)

Abstract: the study seeks to identify the influence of local and regional publications in the production of public health research papers in the Latin American region. A citation analysis of the papers published in the following three leading journals in the field of public health was conducted: Revista M,dica de Chile (Chile) (RMCh); Archivos Latinoamericanos de Nutricin (Venezuela) (ALAN); and Salud PA(0)blica de M,xico (M,xico) (SPM). Papers were analyzed for the period 2003-2007. SciELO (Scientific Electronic Library Online) and the printed version of the journals were used in the analysis. Overall, 1,273 papers from 122 journal issues were analyzed. References accounted for a total of 38,459. Over 90% of the production was published through the collaboration of two or more authors. Author affiliation corresponded in most cases to the country of origin of the journal. References to Portuguese papers accounted for nearly 5% in ALAN and less than 1% each in SPM and RMCh. Citations among the three journals were not significant. Only ALAN cited RMCh and SPM over 3% each, of total citations. SPM and RMCh cited each other less than 1% of total citations. With the exception of ALAN, most public health papers published in RMCh and SPM derived from the national collaboration of researchers in the field. A small amount of public health knowledge communication was being transferred from Brazil to the region through RMCh and SPM. A vertical and individual (per journal/country) model of knowledge communication in public health was identified.

Keywords: Bibliometric Analysis, Citation Analysis, Citations, Countries, De-Saude-Publica, Health Journals, Knowledge Management, Latin America, Output, Public Health Research, Research, Salud

? Lee, G.J. (2010), Assessing publication performance of research units: extensions through operational research and economic techniques. *Scientometrics*, **84** (3), 717-734.

Full Text: [2010\Scientometrics84, 717.pdf](2010/Scientometrics84,%20717.pdf)

Abstract: Many quantitative measures exist to assess the publishing outputs of research units such as university departments or institutes. In addition to well-known issues with such measures, further shortcomings include inadequate adjustments for relative entity sizes and researcher intensity, the extent to which research is concentrated among a few rather than all researchers and lags between staffing and publication. This article presents a further array of possible measurement indices, based on operational research and economic ratios, which are capable of adjusting for each of these shortcomings, and which analysts can combine with relatively little effort into existing measures.

Keywords: Bibliometrics, Concentration, Higher-Education, Indicators, Inequality, Institutions, Lag in Research, Politics, Profiles, Publication, Research, Research Measures, Research Output, Research Productivity, Research Units, Scientific Productivity, University Departments

? Wang, J.C., Chiang, C.H. and Lin, S.W. (2010), Network structure of innovation: can brokerage or closure predict patent quality? *Scientometrics*, **84** (3), 735-748.

Full Text: [2010\Scientometrics84, 735.pdf](2010/Scientometrics84,%20735.pdf)

Abstract: Patents are important intellectual assets for companies to defend or to claim their technological rights. To control R&D cost, companies should carefully examine their patents by patent quality. Approaches to evaluating patent quality are mostly a posteriori uses of factual information of patent quality. This paper examined whether patent quality can be predicted a priori, i.e., during the early years after a patent is granted, by analyzing information embedded in a network of patent citations. Social network analysis was applied to analyze two network positions occupied by a patent, brokerage and closure to determine whether either position is a good predictor of patent quality. Patent renewal decisions and forward citations were adopted as surrogates of patent quality. The analytical results showed that forward citations can be positively predicted by the brokerage position and negatively predicted by the closure position in the early and mature stages. Renewal decisions can be negatively predicted by the brokerage position in the early stage, and the closure position influences the renewal decision in a different way in the early and mature stages. These analytical results imply that a company should focus on developing patents that bridge different technologies as its technological developments reach maturity.

Keywords: Brokerage, Citations, Closure, Linkage, Market Value, Multiple Indicators, Patent Citation Network, Performance, Research-and-Development, Science, Social Network Analysis, Stock, Strategic Alliances, Technology

? Lillquist, E. and Green, S. (2010), The discipline dependence of citation statistics. *Scientometrics*, **84** (3), 749-762.

Full Text: [2010\Scientometrics84, 749.pdf](2010/Scientometrics84,%20749.pdf)

Abstract: This study compares the citations characteristics of researchers in engineering disciplines with other major scientific disciplines, and investigates variations in citing patterns within subdisciplines in the field of engineering. Utilizing citations statistics including Hirsch’s (Proc Natl Acad Sci USA 102(46):16569-16572, 2005) h-Index value, we find that significant differences in citing characteristics exist between engineering disciplines and other scientific fields. Our findings also reveal statistical differences in citing characteristics between subdisciplines found within the same engineering discipline.

Keywords: Citations, Discipline, Field, Fields, h-Index, h-Index, Impact, Science, Statistics

? Tang, L. and Walsh, J.P. (2010), Bibliometric fingerprints: name disambiguation based on approximate structure equivalence of cognitive maps. *Scientometrics*, **84** (3), 763-784.

Full Text: [2010\Scientometrics84, 763.pdf](2010/Scientometrics84,%20763.pdf)

Abstract: Authorship identity has long been an Achilles’ heel in bibliometric analyses at the individual level. This problem appears in studies of scientists’ productivity, inventor mobility and scientific collaboration. Using the concepts of cognitive maps from psychology and approximate structural equivalence from network analysis, we develop a novel algorithm for name disambiguation based on knowledge homogeneity scores. We test it on two cases, and the results show that this approach outperforms other common authorship identification methods with the ASE method providing a relatively simple algorithm that yields higher levels of accuracy with reasonable time demands.

Keywords: Approximate Structural Equivalence, Authorship, Bibliometric, Citation Analysis, Cognitive Map, Common Names, Hierarchical Clustering, Impact, Knowledge Homogeneity Score, Name Disambiguation, Nanotechnology, Publications, Science, Web

? Hagen, N.T. (2010), Harmonic publication and citation counting: sharing authorship credit equitably - not equally, geometrically or arithmetically. *Scientometrics*, **84** (3), 785-793.

Full Text: [2010\Scientometrics84, 785.pdf](2010/Scientometrics84,%20785.pdf)

Abstract: Bibliometric counting methods need to be validated against perceived notions of authorship credit allocation, and standardized by rejecting methods with poor fit or questionable ethical implications. Harmonic counting meets these concerns by exhibiting a robust fit to previously published empirical data from medicine, psychology and chemistry, and by complying with three basic ethical criteria for the equitable sharing of authorship credit. Harmonic counting can also incorporate additional byline information about equal contribution, or the elevated status of a corresponding last author. By contrast, several previously proposed counting schemes from the bibliometric literature including arithmetic, geometric and fractional counting, do not fit the empirical data as well and do not consistently meet the ethical criteria. In conclusion, harmonic counting would seem to provide unrivalled accuracy, fairness and flexibility to the long overdue task of standardizing bibliometric allocation of publication and citation credit.

Keywords: Bibliometric, Bibliometric Counting, Bibliometry, Consequences, Counting Bias, Multiple Authorship, Publication, Validation

? Egghe, L. (2010), Letter to the editor: On RandiA double dagger’s H-sequence. *Scientometrics*, **84** (3), 795-797.

Full Text: 2010\Scientometrics84, 795.pdf

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Full Text: [2010\Scientometrics84, 799.pdf](2010/Scientometrics84,%20799.pdf)

Abstract: This paper analyses the nationalities of the editorial board members of the top 20 journals (according to their impact factor in the ISI Journal Citation Report, Science Edition 2005) serving 15 scientific disciplines. A total of 281 journals were analysed (some journals crossed disciplinary boundaries) and 10,055 of their editorial board members were identified. Some 53% of board members were from the United States. Europe provided 32%, with the United Kingdom making the greatest contribution (9.8%). The analysis of scientific output by nationality in these journals showed a significant correlation, in all disciplines, with the representation of the corresponding nations on the editorial boards. The composition of editorial boards may therefore provide a useful indicator for measuring a country’s international scientific visibility. The present results should be taken into account in the design of national policies with the aim of enhancing the presence of a country’s most prestigious scientists on the editorial boards of the main international journals.

Keywords: Citation, Editorial Boards, Gatekeeping Patterns, Impact Factor, Indicator, Internationalisation Indicators, Journal, Science, Science Journals, Scientific Journals, Visibility of Science

? Wang, M.H., Yu, T.C. and Ho, Y.S. (2010), A bibliometric analysis of the performance of *Water Research*. *Scientometrics*, **84** (3), 813-820.

Full Text: [2010\Scientometrics-Ho1.pdf](2010/Scientometrics-Ho1.pdf); [2010\Scientometrics-Ho2.pdf](2010/Scientometrics-Ho2.pdf); [2010\Scientometrics84, 813.pdf](2010/Scientometrics84,%20813.pdf)

Abstract: This paper presents a detailed chronological survey of papers published in the journal titled Water Research which started publication since 1967. This current investigation reviews publication patterns between 1967 and 2008. An analysis of the research performance according to publication output, distribution of words in article title, author keywords, and keywords plus. Performances of countries, institutes, and authors, including total, single, collaborative, first author, and corresponding author publications were analyzed. The most-frequently cited articles each year and the articles of the highest impact in 2008 were also reported. Results showed that “activated sludge” was the most frequently used author keyword, followed by “adsorption,” and “drinking water.” Authors from 114 different countries/territories published in the journal, with the most articles submitted by authors from the USA.

Keywords: Author Keywords, Citation, Citations, Journal, Publication, Publications, References, Research, SCI, Scientometrics, Water

? Abramo, G., D’Angelo, C.A. and Di Costa, F. (2010), Citations versus journal impact factor as proxy of quality: could the latter ever be preferable? *Scientometrics*, **84** (3), 821-833.

Full Text: [2010\Scientometrics84, 821.pdf](2010/Scientometrics84,%20821.pdf)

Abstract: In recent years bibliometricians have paid increasing attention to research evaluation methodological problems, among these being the choice of the most appropriate indicators for evaluating quality of scientific publications, and thus for evaluating the work of single scientists, research groups and entire organizations. Much literature has been devoted to analyzing the robustness of various indicators, and many works warn against the risks of using easily available and relatively simple proxies, such as journal impact factor. The present work continues this line of research, examining whether it is valid that the use of the impact factor should always be avoided in favour of citations, or whether the use of impact factor could be acceptable, even preferable, in certain circumstances. The evaluation was conducted by observing all scientific publications in the hard sciences by Italian universities, for the period 2004-2007. Performance sensitivity analyses were conducted with changing indicators of quality and years of observation.

Keywords: Bibliometrics, Citations, Impact Factor, Research, Research Assessment, Research Evaluation, Research Productivity, University

? Ortega, J.L. and Aguillo, I.F. (2010), Network collaboration in the 6th Framework Programmes: country participation in the health thematic area. *Scientometrics*, **84** (3), 835-844.

Full Text: [2010\Scientometrics84, 835.pdf](2010/Scientometrics84,%20835.pdf)

Abstract: This paper aims to explore the role of each country in the health thematic area of the 6th Framework Programme (6FP) of the EU. We try to explain how the collaborative research processes are generated in a research programme using social network analysis (SNA) tools. We have modelled a one-mode network set up by 2,132 organizations which participate in 601 research projects. This network was shrunk at the country level, obtaining a network of 31 countries. Results show that there is a strong relationship between R&D indicators and the structural position of each country in the network. The paper concludes that the SNA techniques are a suitable tool to assess the country performance in the EU research programmes.

Keywords: Centrality, Country Collaboration, Emergence, EU Research Programmes, Indicators, Network Analyses, Research, Science, Scientometrics

? Hofer, K.M., Smejkal, A.E., Bilgin, F.Z. and Wuehrer, G.A. (2010), Conference proceedings as a matter of bibliometric studies: the Academy of International Business 2006-2008. *Scientometrics*, **84** (3), 845-862.

Full Text: [2010\Scientometrics84, 845.pdf](2010/Scientometrics84,%20845.pdf)

Abstract: This study does a bibliometric analysis based on keywords of conference proceedings. Scientometric investigations of conference proceedings are a new and innovative, not very common approach. The studies and papers presented may be interpreted as early indicators of scientific development. The Academy of International Business (AIB) was chosen for being the leading organization for studies in international business with contributions covering a 3-year period (2006-2008). The study presents the general structure of current scholarly interest in international business studies, clusters the keywords and reflects details on the focused research areas of the papers analyzed. The bibliometric analysis indicates three clusters: the core, the semi-periphery and the periphery. The five most occurring keywords were found to be multinational enterprise, emerging markets, foreign direct investment, internationalization and knowledge management in descending order. The analyses focus on concepts building the core (in total ten keywords), The semi-periphery which is coined by performance and related topics (60 keywords) and the periphery of the studies with governance and specific facets of it (199 keywords).

Keywords: Co-Word Analysis, Cocitation, Conference Proceedings, Content Analysis, Countries, Emerging Economies, Field, Foreign Direct-Investment, Globalization, Information, International Business, Knowledge Management, Methodology, Ranking, Research, Science, Scientometrics, Theory Development

? Sooryamoorthy, R. (2010), Medical research in South Africa: A scientometric analysis of trends, patterns, productivity and partnership. *Scientometrics*, **84** (3), 863-885.

Full Text: [2010\Scientometrics84, 863.pdf](2010/Scientometrics84,%20863.pdf)

Abstract: Being a scientifically active country in Africa, South Africa has made significant strides in the production of scientific publications. Medicine is one branch of science that has achieved a remarkable position in this regard. Extracting and analyzing medical publications for three decades and at regular intervals (1975-2005) from the SCI database, this paper pioneers an attempt to find out whether the reported pace of growth in the production of scientific papers in medicine is an effect of partnerships that scholars have with their counterparts within the organization, within the country, or with those in other countries. This paper also presents the unique patterns of scientific research in medicine, taking into account factors such as the count and fractional count of papers, citations, trends of growth, sectoral participation, partners, and publication outlets, and seeks to provide new insights into the directions medical science is taking in South Africa today.

Keywords: Authorship, Citation, Health, Indicators, International Collaboration, Medicine, Networks, Output, Partnership, Productivity, Publication, Research, SCI, Science, Scientific Collaboration, Scientometric Analysis, South Africa

? Hodder, A.P.W. and Hodder, C. (2010), Research culture and New Zealand’s performance-based research fund: some insights from bibliographic compilations of research outputs. *Scientometrics*, **84** (3), 887-901.

Full Text: [2010\Scientometrics84, 887.pdf](2010/Scientometrics84,%20887.pdf)

Abstract: Year-on-year trends in research outputs show increases in research activity as the date of the research assessment exercise-in New Zealand the Performance-Based Research Fund (PBRF)-looms. Moreover, changes with time in the number and types of conference presentation indicate that the vehicle of publication is also being influenced by the PBRF. Within New Zealand business schools, relating the published journal articles to the Australian Business Deans Council rankings list shows a trend towards more publications of lower rank, raising doubts about whether the rhetoric about the PBRF raising the quality of research is really justified. This ‘drive’ towards increasing numbers of research outputs is also fostered by an increasing trend towards co-authorship in publishing across all disciplines.

Keywords: Author Collaboration, Performance-Based Research Fund (PBRF), Publication, Research, Research Assessment Exercise, Research Collaboration, Research Outputs, Research Publications, Research Quality

? Mesnard, L. (2010), On Hochberg et al.’s “The tragedy of the reviewer commons”. *Scientometrics*, **84** (3), 903-917.

Full Text: [2010\Scientometrics84, 903.pdf](2010/Scientometrics84,%20903.pdf)

Abstract: We discuss each of the recommendations made by Hochberg et al. (Ecol Lett 12:2-4, 2009) to prevent the “tragedy of the reviewer commons”. Having scientific journals share a common database of reviewers would be to recreate a bureaucratic organization, where extra-scientific considerations prevailed. Pre-reviewing of papers by colleagues is a widespread practice but raises problems of coordination. Revising manuscripts in line with all reviewers’ recommendations presupposes that recommendations converge, which is acrobatic. Signing an undertaking that authors have taken into accounts all reviewers’ comments is both authoritarian and sterilizing. Sending previous comments with subsequent submissions to other journals amounts to creating a cartel and a single all-encompassing journal, which again is sterilizing. Using young scientists as reviewers is highly risky: they might prove very severe; and if they are not yet published authors themselves, the recommendation violates the principle of peer review. Asking reviewers to be more severe would only create a crisis in the publishing houses and actually increase reviewers’ workloads. The criticisms of the behavior of authors looking to publish in the best journals are unfair: it is natural for scholars to try to publish in the best journals and not to resign themselves to being second rate. Punishing lazy reviewers would only lower the quality of reports: instead, we favor the idea of paying reviewers “in kind” with, say, complimentary books or papers.

Keywords: Articles, Association, Book Reviews, Editor, Evaluative Content, Hochberg, Impact, Manuscripts, Publication, Publisher, Publishing, Referee, Referees, Reviewer, Science Journals, Sociology, Tragedy of the Commons

? Padial, A.A., Nabout, J.C., Siqueira, T., Bini, L.M. and Diniz, J.A.F. (2010), Weak evidence for determinants of citation frequency in ecological articles. *Scientometrics*, **85** (1), 1-12.

Full Text: [2010\Scientometrics85, 1.pdf](2010/Scientometrics85,%201.pdf)

Abstract: Citation frequency has been considered a biased surrogate of publication merit. However, previous studies on this subject were based on small sample sizes and were entirely based on null-hypothesis significance testing. Here we evaluated the relative effects of different predictors on citation frequency of ecological articles using an information theory framework designed to evaluate multiple competing hypotheses. Supposed predictors of citation frequency (e.g., number of authors, length of articles) accounted for a low fraction of the total variation. We argue that biases concerning citation are minor in ecology and further studies that attempt to quantify the scientific relevance of an article, aiming to make further relationships with citation, are needed to advance our understanding of why an article is cited.

Keywords: Biases, Citation Frequency, Ecological Articles, Ecology, Journal Impact, Merit, Publication, Rates, Tool

? Giuliani, F., De Petris, M.P. and Nico, G. (2010), Assessing scientific collaboration through coauthorship and content sharing. *Scientometrics*, **85** (1), 13-28.

Full Text: [2010\Scientometrics85, 13.pdf](2010/Scientometrics85,%2013.pdf)

Abstract: Over the past decade there have been many investigations aimed at defining the role of scientists and research groups in their coauthorship networks. Starting from the assumptions of network analysis, in this work we propose an analytical definition of a collaboration potential between authors of scientific papers based on both coauthorships and content sharing. The collaboration potential can also be considered a useful tool to investigate the relationships between a single scientist and research groups, thus allowing for the identification of characteristic “types” of scientists (integrated, independent, etc.). We computed the collaboration potential for a set of authors belonging to research groups of an institute specialized in the field of Medical Genetics. The methods presented in the paper are rather general as they can be applied to compute a collaboration potential for a network of cooperating actors in every situation in which one can qualify the content of some activities and which of them are in common among the actors of the network.

Keywords: Classification, Coauthorships, Collaboration Potential, Community, Impact, Network Analysis, Patterns, R&D Networks, Research, Science, Scientific Collaborations, Semantic Web

? Fisher, E., Slade, C.P., Anderson, D. and Bozeman, B. (2010), The public value of nanotechnology? *Scientometrics*, **85** (1), 29-39.

Full Text: [2010\Scientometrics85, 29.pdf](2010/Scientometrics85,%2029.pdf)

Abstract: Science and innovation policy (SIP) is typically justified in terms of public values while SIP program assessments are typically limited to economic terms that imperfectly take into account these values. The study of public values through public value mapping (PVM) lacks widely-accepted methods for systematically identifying value structures within SIP and its public policy processes, especially when there are multiple stakeholder groups. This paper advances the study of public values in SIP using nanoscale science and engineering (NSE) policy by demonstrating that quantitative analysis of value statements can provide a credible and robust basis for policy analysis. We use content analysis of over 1,000 documents with over 100,000 pages from major contributors to the NSE policy discourse to identify and analyze a wide range of public value statements. Data analysis and reduction methods reveal a multifactor structure of public values that has been consistently cited by a range of actors in an NSE research policy network.

Keywords: Nanotechnology, Public Policy Analysis, Public Values, Research, Science and Technology Policy, Valuation

? Bartneck, C. and Hu, J. (2010), The fruits of collaboration in a multidisciplinary field. *Scientometrics*, **85** (1), 41-52.

Full Text: [2010\Scientometrics85, 41.pdf](2010/Scientometrics85,%2041.pdf)

Abstract: Collaboration between researchers and between research organizations is generally considered a desirable course of action, in particular by some funding bodies. However, collaboration within a multidisciplinary community, such as the Computer-Human Interaction (CHI) community, can be challenging. We performed a bibliometric analysis of the CHI conference proceedings to determine if papers that have authors from different organization or countries receive more citations than papers that are authored by members of the same organization. There was no significant difference between these three groups, indicating that there is no advantage for collaboration in terms of citation frequency. Furthermore, we tested if papers written by authors from different organizations or countries receive more best paper awards or at least award nominations. Papers from only one organization received significantly fewer nominations than collaborative papers.

Keywords: Bibliometric, Bibliometric Analysis, Bibliometrics, Citations, Collaboration, Impact, Organizations, Research, Science

? Aminpour, F., Kabiri, P., Boroumand, M.A., Keshtkar, A.A. and Hejazi, S.S. (2010), Iranian Medical Universities in SCIE: Evaluation of address variation. *Scientometrics*, **85** (1), 53-63.

Full Text: [2010\Scientometrics85, 53.pdf](2010/Scientometrics85,%2053.pdf)

Abstract: Applying different institutional addresses in the scientific production of a same university has underestimated the scientific production of Iranian universities and consequently lowered their position in the international academic rankings for a long time. The present study evaluated the scientific production of Iranian medical universities according to their institutional addresses registered in the papers indexed by Science Citation Index Expanded (SCIE). By conducting a descriptive research we retrieved total SCIE indexed of top Iranian medical universities and their respective hospitals and research centers from the beginning of 1986 to the end of 2007. Then different variations of the institutional addresses of each university in the author affiliation of papers were assessed. Finally the universities were ranked according to observing a uniformed format for more registered addresses in SCIE. The findings showed unexpected diversity in the institutional affiliation of each university in their SCIE indexed papers. Although “Tehran University of Medical Sciences” showed the most variation in registering institutional addresses but ranked first according to observing unification for more addresses in the SCIE indexed papers comparing to the other universities. The problem of applying different institutional affiliations in the scientific production of the universities should be valued enough by the whole scientific community. Observing a uniformed format in registering institutional addresses of Iranian medical universities would affect their scientific credibility and international ranks through representing their real scientific productivity.

Keywords: Academic Rankings, Articles, Author Affiliation, Fatal Attraction, Institutional Affiliation, Iranian Universities, Rankings, Research, Science Citation Index Expanded, Scientific Productivity

? Su, H.N. and Lee, P.C. (2010), Mapping knowledge structure by keyword co-occurrence: A first look at journal papers in Technology Foresight. *Scientometrics*, **85** (1), 65-79.

Full Text: [2010\Scientometrics85, 65.pdf](2010/Scientometrics85,%2065.pdf)

Abstract: This study proposes an approach for visualizing a knowledge structure, the proposed approach creates a three-dimensional “Research focused parallelship network”, a “Keyword Co-occurrence Network”, and a two-dimensional knowledge map to facilitate visualization of the knowledge structure created by journal papers from different perspectives. The networks and knowledge maps can be depicted differently by choosing different information as the network actor, e.g. author, institute or country keyword, to reflect knowledge structures in micro-, meso-, and macro-levels, respectively. Technology Foresight is selected as an example to illustrate the method proposed in this study. A total of 556 author keywords contained in 181 Technology Foresight related papers have been analyzed. European countries, China, India and Brazil are located at the core of Technology Foresight research. Quantitative ways of mapping journal papers are investigated in this study to unveil emerging elements as well as to demonstrate dynamics and visualization of knowledge. The quantitative method provided in this paper shows a possible way of visualizing and evaluating knowledge structure; thus a computerized calculation is possible for potential quantitative applications, e.g. R&D resource allocation, research performance evaluation, science map, etc.

Keywords: Bibliometric Analysis, Co-Word Analysis, Database Tomography, Discovery LRD, Infrastructure, Keyword, Knowledge Structure, Network Theory, Neural-Network Research, Parkinsons-Disease, Potential Treatments, Research, Science-and-Technology, Scientometrics, Technology Foresight

? Elkins, M.R., Maher, C.G., Herbert, R.D., Moseley, A.M. and Sherrington, C. (2010), Correlation between the Journal Impact Factor and three other journal citation indices. *Scientometrics*, **85** (1), 81-93.

Full Text: [2010\Scientometrics85, 81.pdf](2010/Scientometrics85,%2081.pdf)

Abstract: To determine the degree of correlation among journal citation indices that reflect the average number of citations per article, the most recent journal ratings were downloaded from the websites publishing four journal citation indices: the Institute of Scientific Information’s journal impact factor index, Eigenfactor’s article influence index, SCImago’s journal rank index and Scopus’ trend line index. Correlations were determined for each pair of indices, using ratings from all journals that could be identified as having been rated on both indices. Correlations between the six possible pairings of the four indices were tested with Spearman’s rho. Within each of the six possible pairings, the prevalence of identifiable errors was examined in a random selection of 10 journals and among the 10 most discordantly ranked journals on the two indices. The number of journals that could be matched within each pair of indices ranged from 1,857 to 6,508. Paired ratings for all journals showed strong to very strong correlations, with Spearman’s rho values ranging from 0.61 to 0.89, all p < 0.001. Identifiable errors were more common among scores for journals that had very discordant ranks on a pair of indices. These four journal citation indices were significantly correlated, providing evidence of convergent validity (i.e. They reflect the same underlying construct of average citability per article in a journal). Discordance in the ranking of a journal on two indices was in some cases due to an error in one index.

Keywords: Bibliometric Analysis, Citation Analysis, Impact Factor, Nonsense, Science, Sense, Tool

? Moehrle, M.G. (2010), Measures for textual patent similarities: A guided way to select appropriate approaches. *Scientometrics*, **85** (1), 95-109.

Full Text: [2010\Scientometrics85, 95.pdf](2010/Scientometrics85,%2095.pdf)

Abstract: the measurement of textual patent similarities is crucial for important tasks in patent management, be it prior art analysis, infringement analysis, or patent mapping. In this paper the common theory of similarity measurement is applied to the field of patents, using solitary concepts as basic textual elements of patents. After unfolding the term ‘similarity’ in a content and formal oriented level and presenting a basic model of understanding, a segmented approach to the measurement of underlying variables, similarity coefficients, and the criteria-related profiles of their combinations is lined out. This leads to a guided way to the application of textual patent similarities, interesting both for theory and practice.

Keywords: Infringement Analysis, Patent, Patent Mapping, Prior Art Analysis, Representations, Science Maps, Similarity Coefficients, Similarity Measurement

? Ohniwa, R.L., Hibino, A. and Takeyasu, K. (2010), Trends in research foci in life science fields over the last 30 years monitored by emerging topics. *Scientometrics*, **85** (1), 111-127.

Full Text: [2010\Scientometrics85, 111.pdf](2010/Scientometrics85,%20111.pdf)

Abstract: We report here a simple method to identify the ‘emerging topics’ in life sciences. First, the keywords selected from MeSH terms on PubMed by filtering the terms based on their increment rate of the appearance, and, then, were sorted into groups dealing with the same topics by ‘co-word’ analysis. These topics were defined as ‘emerging topics’. The survey of the emerging keywords with high increment rates of appearance between 1972 to 2006 showed that emerging topics changed dramatically year by year, and that the major shift of the topics occurred in the late 90s; the topics that cover technical and conceptual aspects in molecular biology to the more systematic ‘-omics’-related and nanoscience-related aspects. We further investigated trends in emerging topics within various sub-fields in the life sciences.

Keywords: Co-Word Analysis, Co-Word Analysis, Emerging Topics, Knowledge, Mesh Terms, Networks, Patterns, Pubmed, Research, Trends In Life Science

? Parker, J.N., Lortie, C. and Allesina, S. (2010), Characterizing a scientific elite: the social characteristics of the most highly cited scientists in environmental science and ecology. *Scientometrics*, **85** (1), 129-143.

Full Text: [2010\Scientometrics85, 129.pdf](2010/Scientometrics85,%20129.pdf)

Abstract: In science, a relatively small pool of researchers garners a disproportionally large number of citations. Still, very little is known about the social characteristics of highly cited scientists. This is unfortunate as these researchers wield a disproportional impact on their fields, and the study of highly cited scientists can enhance our understanding of the conditions which foster highly cited work, the systematic social inequalities which exist in science, and scientific careers more generally. This study provides information on this understudied subject by examining the social characteristics and opinions of the 0.1% most cited environmental scientists and ecologists. Overall, the social characteristics of these researchers tend to reflect broader patterns of inequality in the global scientific community. However, while the social characteristics of these researchers mirror those of other scientific elites in important ways, they differ in others, revealing findings which are both novel and surprising, perhaps indicating multiple pathways to becoming highly cited.

Keywords: Authors, Citation, Citation Analysis, Ecology, Environmental Science, Gender-Differences, Highly-Cited, Level, Productivity, Publication Output, Scientific Elite, Specialization, Stratification

? Pouris, A. (2010), A scientometric assessment of the Southern Africa Development Community: Science in the tip of Africa. *Scientometrics*, **85** (1), 145-154.

Full Text: [2010\Scientometrics85, 145.pdf](2010/Scientometrics85,%20145.pdf)

Abstract: This article reports the results of a scientometric assessment of the Southern Africa Development Community countries. The National Science Indicators database of Thomson-Reuters and the online ISI Web of Knowledge are utilized in order to identify the number of publications of the 15 countries over a period of 15 years; the activity and relative impact indicators of 22 scientific disciplines for each country and their collaborative patterns. It is identified that South Africa with 19% of the population in the region is responsible for 60% of the regional GDP and 79% of the regions publications. All countries tend to have the same focus in their disciplinary priorities and underemphasize disciplines such as engineering, materials science and molecular biology. It is expressed concern that the current research infrastructures are inadequate to assist in reaching the objectives developed in the Regional Indicative Strategic Development Plan of the Community.

Keywords: Assessment, Impact, Indicators, ISI, Research, SADC, Scientometrics, Southern Africa

? Schultz, L.I. and Joutz, F.L. (2010), Methods for identifying emerging General Purpose Technologies: A case study of nanotechnologies. *Scientometrics*, **85** (1), 155-170.

Full Text: [2010\Scientometrics85, 155.pdf](2010/Scientometrics85,%20155.pdf)

Abstract: Nanotechnology is an emerging field of science with the potential to generate new and enhance existing products and transform the production process. US patent data is used to track the emergence of nanotechnologies since 1978. The nanotechnologies that have undergone the most development are identified using patent citation data and cocitation patterns of patents are examined to define clusters of related nanotechnologies. The potential for economic impact of the emerging nanotechnologies is assessed using a generality index.

Keywords: Citation Analysis, Field, General Purpose Nanotechnology, Nanotechnologies, Nanotechnology, Patents, Science, Terms, US

? Levitt, J.M. and Thelwall, M. (2010), Does the higher citation of collaborative research differ from region to region? A case study of Economics. *Scientometrics*, **85** (1), 171-183.

Full Text: [2010\Scientometrics85, 171.pdf](2010/Scientometrics85,%20171.pdf)

Abstract: Many studies have found that collaborative research is, in general, more highly cited than non-collaborative research. This paper describes an investigation into the extent to which the association between high citation and collaboration for Economics articles published in 2000 varies from region to region and depends on the choice of indicator of citation level. Using data from the Social Science Citation Index (SSCI) for 18 countries, 17 American states and four indicators of citation level the citation levels of the collaborative articles are compared with the citation levels of the non-collaborative articles. The main findings are that: (a) for every country and every indicator the mean citation level of the collaborative articles was at least as high as that for the non-collaborative articles, but for five US states and for at least one other indicator the citation level of collaborative articles was lower than that of non-collaborative articles, and (b) the extent to which collaborative articles were more highly cited varied considerably from country to country, from state to state, and from indicator to indicator. This indicates the importance of using multiple indicators when investigating citation advantage since the choice of indicator can change the results.

Keywords: Articles, Bibliometric Approach, Citation, Citation Analysis, Co-Authorship, Impact, International Collaboration, Publication, Relative Indicators, Research, Research Collaboration, Science, Scientific Collaboration, Self-Citations, Us

? Prathap, G. (2010), An iCE map approach to evaluate performance and efficiency of scientific production of countries. *Scientometrics*, **85** (1), 185-191.

Full Text: [2010\Scientometrics85, 185.pdf](2010/Scientometrics85,%20185.pdf)

Abstract: An indicator called the performance index (p-index) which can effectively combine size and quality of scientific papers, mocking what the h-Index could do, emerges from an energy like term E = iC, where i is a measure of quality, expressed as the ratio of citations C to papers published P. In this paper, we demonstrate how this energy paradigm can be used for bibliometric research assessment. The energy assessment technique is demonstrated by applying it to the research assessment of all the countries listed in Essential Science Indicators. Partitioning is easily done by using contour lines on the two-dimensional iCE (impact-Citations-Energy) map.

Keywords: Bibliometric, Bibliometrics, E = IC, Efficiency, Energy-Index, h Index, h-Index, h-Index, Hirsch-Type Indexes, ICE Maps, P-Index, Performance, Quality, Quantity, Research

? Pautasso, M. (2010), Worsening file-drawer problem in the abstracts of natural, medical and social science databases. *Scientometrics*, **85** (1), 193-202.

Full Text: [2010\Scientometrics85, 193.pdf](2010/Scientometrics85,%20193.pdf)

Abstract: the file-drawer problem is the tendency of journals to preferentially publish studies with statistically significant results. The problem is an old one and has been documented in various fields, but to my best knowledge there has not been attention to how the issue is developing in a quantitative way through time. In the abstracts of various major scholarly databases (Science and Social Science Citation Index (1991-2008), CAB Abstracts and MEDLINE (1970s-2008), The file drawer problem is gradually getting worse, in spite of an increase in (1) the total number of publications and (2) the proportion of publications reporting both the presence and the absence of significant differences. The trend is confirmed for particular natural science topics such as biology, energy and environment but not for papers retrieved with the keywords biodiversity, chemistry, computer, engineering, genetics, psychology and quantum (physics). A worsening file-drawer problem can be detected in various medical fields (infection, immunology, malaria, obesity, oncology and pharmacology), but not for papers indexed with strings such as AIDS/HIV, epidemiology, health and neurology. An increase in the selective publication of some results against some others is worrying because it can lead to enhanced bias in meta-analysis and hence to a distorted picture of the evidence for or against a certain hypothesis. Long-term monitoring of the file-drawer problem is needed to ensure a sustainable and reliable production of (peer-reviewed) scientific knowledge.

Keywords: Citation, Guide, History of Science, Manuscript, Meta-Analysis, Obesity, Psychiatry, Publication Bias, Publication Explosion, Scientific Knowledge, Significant Differences, STM Publishing, Tests

? Franceschini, F., Maisano, D., Perotti, A. and Proto, A. (2010), Analysis of the ch-Index: an indicator to evaluate the diffusion of scientific research output by citers. *Scientometrics*, **85** (1), 203-217.

Full Text: [2010\Scientometrics85, 203.pdf](2010/Scientometrics85,%20203.pdf)

Abstract: This paper focuses the attention on the ch-Index, a recent bibliometric indicator similar to the Hirsch (h) index, to evaluate the published research output of a scientist (Ajiferuke and Wolfram, Proceedings of the 12th international conference of the international society for scientometrics and informetrics. Rio de Janeiro, pp. 798-808, 2009). Ch-Index is defined as the number such that, for a general group of scientific publications, ch publications are cited by at least ch different citers while the other publications are cited by no more than ch different citers. The basic difference from the classical h is that, according to ch, the diffusion of one author’s publication is evaluated on the basis of the number of different citing authors (or citers), rather than the number of received citations. The goal of this work is to discuss the pros and cons of ch and identify its connection with h. A large sample of scientists in the Quality Engineering/Management field are analyzed so as to investigate the novel indicator’s characteristics. Then, the analysis is preliminarily extended to other scientific disciplines. The most important result is that ch is almost insensitive to self-citations and/or citations made by recurrent citers, and it can be profitably used for complementing h.

Keywords: Author, Bibliometric, Bibliometric Indicators, Bibliometrics, Citations, Citers, Citing Authors, h-Index, Hirsch Index, Hirsch-Index, Impact, Journals, Quality, Recurrent Citers, Research, Science, Self-Citation, Self-Citations

? Velden, T., Haque, A. and Lagoze, C. (2010), A new approach to analyzing patterns of collaboration in co-authorship networks: Mesoscopic analysis and interpretation. *Scientometrics*, **85** (1), 219-242.

Full Text: [2010\Scientometrics85, 219.pdf](2010/Scientometrics85,%20219.pdf)

Abstract: This paper focuses on methods to study patterns of collaboration in co-authorship networks at the mesoscopic level. We combine qualitative methods (participant interviews) with quantitative methods (network analysis) and demonstrate the application and value of our approach in a case study comparing three research fields in chemistry. A mesoscopic level of analysis means that in addition to the basic analytic unit of the individual researcher as node in a co-author network, we base our analysis on the observed modular structure of co-author networks. We interpret the clustering of authors into groups as bibliometric footprints of the basic collective units of knowledge production in a research specialty. We find two types of coauthor-linking patterns between author clusters that we interpret as representing two different forms of cooperative behavior, transfer-type connections due to career migrations or one-off services rendered, and stronger, dedicated inter-group collaboration. Hence the generic coauthor network of a research specialty can be understood as the overlay of two distinct types of cooperative networks between groups of authors publishing in a research specialty. We show how our analytic approach exposes field specific differences in the social organization of research.

Keywords: Bibliometric, Chemistry, Co-Author Networks, Coauthorship, Community Structure, Complex Networks, Disciplines, Growth-Model, International Scientific Collaboration, Journal Literature, Manifestation, Network Analysis, Productivity, Research, Science, Scientific Communication

? Aguillo, I.F., Bar-Ilan, J., Levene, M. and Ortega, J.L. (2010), Comparing university rankings. *Scientometrics*, **85** (1), 243-256.

Full Text: [2010\Scientometrics85, 243.pdf](2010/Scientometrics85,%20243.pdf)

Abstract: Recently there is increasing interest in university rankings. Annual rankings of world universities are published by QS for the Times Higher Education Supplement, the Shanghai Jiao Tong University, the Higher Education and Accreditation Council of Taiwan and rankings based on Web visibility by the Cybermetrics Lab at CSIC. In this paper we compare the rankings using a set of similarity measures. for the rankings that are being published for a number of years we also examine longitudinal patterns. The rankings limited to European universities are compared to the ranking of the Centre for Science and Technology Studies at Leiden University. The findings show that there are reasonable similarities between the rankings, even though each applies a different methodology. The biggest differences are between the rankings provided by the QS-Times Higher Education Supplement and the Ranking Web of the CSIC Cybermetrics Lab. The highest similarities were observed between the Taiwanese and the Leiden rankings from European universities. Overall the similarities are increased when the comparison is limited to the European universities.

Keywords: Bibliometric Methods, Comparative Analysis, Leiden Ranking, Ranking, Shanghai Ranking, Taiwan Ranking, Times Ranking, Universities, Webometrics Ranking

? Fu, L.D. and Aliferis, C.F. (2010), Using content-based and bibliometric features for machine learning models to predict citation counts in the biomedical literature. *Scientometrics*, **85** (1), 257-270.

Full Text: [2010\Scientometrics85, 257.pdf](2010/Scientometrics85,%20257.pdf)

Abstract: the most popular method for judging the impact of biomedical articles is citation count which is the number of citations received. The most significant limitation of citation count is that it cannot evaluate articles at the time of publication since citations accumulate over time. This work presents computer models that accurately predict citation counts of biomedical publications within a deep horizon of 10 years using only predictive information available at publication time. Our experiments show that it is indeed feasible to accurately predict future citation counts with a mixture of content-based and bibliometric features using machine learning methods. The models pave the way for practical prediction of the long-term impact of publication, and their statistical analysis provides greater insight into citation behavior.

Keywords: Bibliometric, Bibliometrics, Citation Analysis, Information Retrieval, Machine Learning, Text Categorization

? Gomez-Sancho, J.M. and Mancebon-Torrubia, M.J. (2010), A new approach to measuring scientific production in JCR journals and its application to Spanish public universities. *Scientometrics*, **85** (1), 271-293.

Full Text: [2010\Scientometrics85, 271.pdf](2010/Scientometrics85,%20271.pdf)

Abstract: Scientific production has been evaluated from very different perspectives, the best known of which are essentially based on the impact factors of the journals included in the Journal Citation Reports (JCR). This has been no impediment to the simultaneous issuing of warnings regarding the dangers of their indiscriminate use when making comparisons. This is because the biases incorporated in the elaboration of these impact factors produce significant distortions, which may invalidate the results obtained. Notable among such biases are those generated by the differences in the propensity to cite of the different areas, journals and/or authors, by variations in the period of materialisation of the impact and by the varying presence of knowledge areas in the sample of reviews contained in the JCR. While the traditional evaluation method consists of standardisation by subject categories, recent studies have criticised this approach and offered new possibilities for making inter-area comparisons. In view of such developments, the present study proposes a novel approach to the measurement of scientific activity, in an attempt to lessen the aforementioned biases. This approach consists of combining the employment of a new impact factor, calculated for each journal, with the grouping of the institutions under evaluation into homogeneous groups. An empirical application is undertaken to evaluate the scientific production of Spanish public universities in the year 2000. This application considers both the articles published in the multidisciplinary databases of the Web of Science (WoS) and the data concerning the journals contained in the Sciences and Social Sciences Editions of the Journal Citation Report (JCR). All this information is provided by the Institute of Scientific Information (ISI), via its Web of Knowledge (WoK).

Keywords: Accuracy, Citation, Citation Analysis, Cross-Field, Field-Normalization, Impact Factors, Indicators, ISI, Journal Impact Factor, Performance, Research Evaluation, Universities

? Bookstein, F.L., Seidler, H., Fieder, M. and Winckler, G. (2010), Too much noise in the Times Higher Education rankings. *Scientometrics*, **85** (1), 295-299.

Full Text: [2010\Scientometrics85, 295.pdf](2010/Scientometrics85,%20295.pdf)

Abstract: Several individual indicators from the Times Higher Education Survey (THES) data base-the overall score, the reported staff-to-student ratio, and the peer ratings-demonstrate unacceptably high fluctuation from year to year. The inappropriateness of the summary tabulations for assessing the majority of the “top 200” universities would be apparent purely for reason of this obvious statistical instability regardless of other grounds of criticism. There are far too many anomalies in the change scores of the various indices for them to be of use in the course of university management.

Keywords: Rankings, Statistical Noise, Times Higher Education Ranking

? Zyczkowski, K. (2010), Citation graph, weighted impact factors and performance indices. *Scientometrics*, **85** (1), 301-315.

Full Text: [2010\Scientometrics85, 201.pdf](2010/Scientometrics85,%20201.pdf)

Abstract: A scheme of evaluating an impact of a given scientific paper based on importance of papers quoting it is investigated. Introducing a weight of a given citation, dependent on the previous scientific achievements of the author of the citing paper, we define the weighting factor of a given scientist. Technically the weighting factors are defined by the components of the normalized leading eigenvector of the matrix describing the citation graph. The weighting factor of a given scientist, reflecting the scientific output of other researchers quoting his work, allows us to define weighted number of citation of a given paper, weighted impact factor of a journal and weighted Hirsch Index of an individual scientist or of an entire scientific institution.

Keywords: Citation, Citation Graph, Citations, Eigenvector, Google, h-Index, Hirsch Index, Hirsch-Index, Pagerank, Performance Index, Science, Self-Citations, Weighted Bibliometric Indices

? Wiles, L., Olds, T. and Williams, M. (2010), Evidence base, quantitation and collaboration: three novel indices for bibliometric content analysis. *Scientometrics*, **85** (1), 317-328.

Full Text: [2010\Scientometrics85, 317.pdf](2010/Scientometrics85,%20317.pdf)

Abstract: Bibliometric measurements, though controversial, are useful in providing measures of research performance in a climate of research competition and marketisation. Numerous bibliometric studies have been performed which rely on traditional indices (such as the journal impact factor and citation index) and provide little descriptive data regarding the actual characteristics of research. The purpose of this study was two-fold, to develop three novel bibliometric indices, designed to describe the characteristics of research (relating to evidence base, quantitation and collaboration), and to apply them in a cross-sectional audit of original research articles published in Australian professional association journals across medicine, nursing and allied health in 2007. Results revealed considerable variation in bibliometric indices across these journals. There were emerging clusters of journals that published collaborative research using higher levels of evidence and reported quantitative data, with others featuring articles using lower levels of evidence, fewer quantitative data and less collaboration among authors.

Keywords: Allied Health Occupations, Authorship, Bibliometric, Bibliometrics, Gender, Health Research, Medicine, Nursing Health Occupations, Professional Practice, Research

? Albarran, P., Crespo, J.A., Ortuno, I. and Ruiz-Castillo, J. (2010), A comparison of the scientific performance of the US and the European union at the turn of the 21st century. *Scientometrics*, **85** (1), 329-344.

Full Text: [2010\Scientometrics85, 329.pdf](2010/Scientometrics85,%20329.pdf)

Abstract: In this paper, scientific performance is identified with the impact that journal articles have through the citations they receive. In 15 disciplines, as well as in all sciences as a whole, the EU share of total publications is greater than that of the U.S. However, as soon as the citations received by these publications are taken into account the picture is completely reversed. Firstly, the EU share of total citations is still greater than the U.S. in only seven fields. Secondly, the mean citation rate in the U.S. is greater than in the EU in every one of the 22 fields studied. Thirdly, since standard indicators-such as normalized mean citation ratios-are silent about what takes place in different parts of the citation distribution, this paper compares the publication shares of the U.S. and the EU at every percentile of the world citation distribution in each field. It is found that in seven fields the initial gap between the U.S. and the EU widens as we advance towards the more cited articles, while in the remaining 15 fields-except for Agricultural Sciences-the U.S. always surpasses the EU when it counts, namely, at the upper tail of citation distributions. Finally, for all sciences as a whole the U.S. publication share becomes greater than that of the EU for the top 50% of the most highly cited articles. The data used refers to 3.6 million articles published in 1998-2002, and the more than 47 million citations they received in 1998-2007.

Keywords: Bibliometric Tools, Citation, Citation Analysis, European Paradox, Indicators, National Research Performance, Policy, Research Performance, Science-and-Technology, Scientific Ranking, US, World

? Lewison, G. and Turnbull, T. (2010), News in brief and features in New Scientist magazine and the biomedical research papers that they cite, August 2008 to July 2009. *Scientometrics*, **85** (1), 345-359.

Full Text: [2010\Scientometrics85, 345.pdf](2010/Scientometrics85,%20345.pdf)

Abstract: New Scientist is a British weekly magazine that is half-way between a newspaper and a scientific journal. It has many news items, and also longer feature articles, both of which cite biomedical research papers, and thus serve to make them better known to the public and to the scientific community, mainly in the UK but about half overseas. An analysis of these research papers shows (in relation to their presence in the biomedical research literature) a strong bias towards the UK, and also one to the USA, Scandinavia and Ireland. There is a reasonable spread of subject areas, although neuroscience is favoured, and coverage of many journals-not just the leading weeklies. Most of the feature articles (but not the news items) in New Scientist include comments by other researchers, who can put the new results in context. Their opinions appear to be more discriminating than those of commentators on research in the mass media, who usually enthuse over the results while counselling patience before a cure for the disease is widely available.

Keywords: Cancer, Cited Papers, Coverage, Health Research, Impact, Media, News Stories, Newspapers, Popular Science Writing, Press, Research, Risks, SARS

Notes: CCountry

? Kaur, H. and Gupta, B.M. (2010), Mapping of dental science research in India: A scientometric analysis of India’s research output, 1999-2008. *Scientometrics*, **85** (1), 361-376.

Full Text: [2010\Scientometrics85, 361.pdf](2010/Scientometrics85,%20361.pdf)

Abstract: the study examines India’s performance based on its publication output in dental sciences during 1999-2008, based on several parameters, including the country annual average growth rate, global publication share & rank among 25 most productive countries of the world, national publication output and impact in terms of average citations per paper, international collaboration output and share and contribution of major collaborative partners, contribution and impact of select top 25 Indian institutions and select top 15 most productive authors, patterns of communication in national and international journals and characteristics of its 45 high cited papers. The study uses 10 years (1999-2008) publications data in dental sciences of India and other countries drawn from Scopus international multidisciplinary bibliographical database.

Keywords: Dental Citations, Dental Publications, Dental Research, Research, Scientometric Analysis

? Ortega, J.L. and Aguillo, I.F. (2010), Shaping the European research collaboration in the 6th Framework Programme health thematic area through network analysis. *Scientometrics*, **85** (1), 377-386.

Full Text: [2010\Scientometrics85, 377.pdf](2010/Scientometrics85,%20377.pdf)

Abstract: This paper aims to analyse the collaboration network of the 6th Framework Programme of the EU, specifically the “Life sciences, genomics and biotechnology for health” thematic area. A collaboration network of 2,132 participant organizations was built and several variables were added to improve the visualization such as type of organization and nationality. Several statistical tests and structural indicators were used to uncover the main characteristic of this collaboration network. Results show that the network is constituted by a dense core of government research organizations and universities which act as large hubs that attract new partners to the network, mainly companies and non-profit organizations.

Keywords: 6th Framework Programme, Biotechnology, Centrality, Emergence, Network Analysis, Research, Research Collaboration, Science, Scientometrics, Web

? Calver, M., Wardell-Johnson, G., Bradley, S. and Taplin, R. (2010), What makes a journal international? A case study using conservation biology journals. *Scientometrics*, **85** (2), 387-400.

Full Text: [2010\Scientometrics85, 387.pdf](2010/Scientometrics85,%20401.pdf)

Abstract: the qualitative label ‘international journal’ is used widely, including in national research quality assessments. We determined the practicability of analysing internationality quantitatively using 39 conservation biology journals, providing a single numeric index (IIJ) based on 10 variables covering the countries represented in the journals’ editorial boards, authors and authors citing the journals’ papers. A numerical taxonomic analysis refined the interpretation, revealing six categories of journals reflecting distinct international emphases not apparent from simple inspection of the IIJs alone. Categories correlated significantly with journals’ citation impact (measured by the Hirsch Index), with their rankings under the Australian Commonwealth’s ‘Excellence in Research for Australia’ and with some countries of publication, but not with listing by ISI Web of Science. The assessments do not reflect on quality, but may aid editors planning distinctive journal profiles, or authors seeking appropriate outlets.

Keywords: Bibliometrics, Citation, Citation Studies, Conservation Biology, Hirsch Index, International Journal, ISI, Journal Ranking, Journals, Paper, Perspectives, Publication, Research

? Breimer, L.H. and Nilsson, T.K. (2010), A longitudinal and cross-sectional study of Swedish biomedical PhD processes 1991-2009 with emphasis on international and gender aspects. *Scientometrics*, **85** (2), 401-414.

Full Text: [2010\Scientometrics85, 401.pdf](2010/Scientometrics85,%20401.pdf)

Abstract: This longitudinal survey of Swedish biomedical PhDs from 1991 to 2009 found a 2.5-fold increase in biomedical PhD graduates, especially women, and mainly non-MDs, while the number of MDs remained fairly constant. The proportion obtaining a biomedical PhD in Sweden in 2006 was two and a half times that in USA compared to population and three and a half times by GDP, but similar to that of the Netherlands. Female non-MD but not female MD candidates were more likely than men to be examined by female examiners. Fewer of the non-MD than MD women continued to publish in English after their PhD. The median number of authors per paper in a thesis had increased by 1 (from 4 to 5) compared with 15-20 years ago. Swedish biomedical research was already well internationalized in 1991, when 38% of the external examiners came from abroad. This rose to 53% in 2003 but in 2009 had returned to 42%. USA and UK were the most common countries but Australia accounted for 2%. When assessed by connection with foreign research teams, Swedish researchers were also internationally well connected. Studies in other countries are needed to assess how generally applicable these findings are. Our findings suggest that the policy and management of Swedish scientific research systems needs revision to harmonize with the national economic capacity.

Keywords: Bibliometrics, Cross-Border Comparisons, Gender Issues, Higher Education Performance Indicators, Iternationalization of Research, PhD Process, Research, Researchers, Thesis

? Assimakis, N. and Adam, M. (2010), A new author’s productivity index: p-index. *Scientometrics*, **85** (2), 415-427.

Full Text: [2010\Scientometrics85, 415.pdf](2010/Scientometrics85,%20415.pdf)

Abstract: In this paper a new author’s productivity index is introduced, namely the golden productivity index. The proposed index measures the productivity of an individual researcher evaluating the number of papers as well as the rank of co-authorship. It provides an efficient method to measure the author’s contribution in articles writing, compared to other ordinary methods. It gives emphasis to the first authors contributions due to the fact that traditionally the rank of each author shows the magnitude of his contribution in the article.

Keywords: Articles, Author, Author Rank, Citation Measures, Co-Authorship, Coauthors, Collaboration, Contribution, Credit, Metrics, Multiple Authorship, Order, P-Index, Patterns, Productivity, Publication, Scientists

? Juznic, P., Peclin, S., Zaucer, M., Mandelj, T., Pusnik, M. and Demsar, F. (2010), Scientometric indicators: Peer-review, bibliometric methods and conflict of interests. *Scientometrics*, **85** (2), 429-441.

Full Text: [2010\Scientometrics85, 429.pdf](2010/Scientometrics85,%20429.pdf)

Abstract: the paper discusses the role of scientometric indicators in peer-review selection of research project proposals. An ex post facto evaluation was made of three calls for research project proposals in Slovenia: 2003 with a peer review system designed in a way that conflict of interest was not avoided effectively, 2005 with a sound international peer-review system with minimized conflict of interest influence but a limited number of reviewers, and 2008 with a combination of scientometric indicators and a sound international peer review with minimized conflict of interest influence. The hypothesis was that the three different peer review systems would have different correlations with the same set of scientometric indicators. In the last two decision-making systems (2005 and 2008) where conflict of interest was effectively avoided, we have a high percentage (65%) of projects that would have been selected in the call irrespective of the method (peer review or bibliometrics solely). In contrast, in the 2003 call there is a significantly smaller percentage (49%) of projects that would have been selected in the call irrespective of the method (peer review or bibliometrics solely). It was shown that while scientometric indicators can hardly replace the peer-review system as the ultimate decision-making and support system, they can reveal its weaknesses on one hand and on the other can verify peer-review scores and minimize conflict of interest if necessary.

Keywords: Bibliometric, Bibliometrics, Citation, Conflict of Interests, Counts, Evaluation, EX Post Evaluation, Exercises, Impact, Peer Review Systems, Physics, Publications, Research, Research Project Proposals, Science Policy, Scientific Excellence, Scientometric Indicators, System

? Lancho-Barrantes, B.S., Guerrero-Bote, V.P. and Moya-Anegon, F. (2010), The iceberg hypothesis revisited. *Scientometrics*, **85** (2), 443-461.

Full Text: [2010\Scientometrics85, 443.pdf](2010/Scientometrics85,%20443.pdf)

Abstract: A study is described of the rank/JIF (Journal Impact Factor) distributions in the high-coverage Scopus database, using recent data and a three-year citation window. It includes a comparison with an older study of the Journal Citation Report categories and indicators, and a determination of the factors most influencing the distributions. While all the specific subject areas fit a negative logarithmic law fairly well, those with a greater External JIF have distributions with a more sharply defined peak and a longer tail-something like an iceberg. No S-shaped distributions, such as predicted by Egghe, were found. A strong correlation was observed between the knowledge export and import ratios. Finally, data from both Scopus and ISI were used to characterize the rank/JIF distributions by subject area.

Keywords: Categories, Citation, Citation Analysis, Fields, Impact Factor, ISI, Journal Impact Factor, Journal Impact Measures, Knowledge Export, Pathfinder, Science, Scientometrics

? Cho, C.C., Hu, M.W. and Liu, M.C. (2010), Improvements in productivity based on co-authorship: A case study of published articles in China. *Scientometrics*, **85** (2), 463-470.

Full Text: [2010\Scientometrics85, 463.pdf](2010/Scientometrics85,%20463.pdf)

Abstract: the issue of primary interest to this study is the collaboration that has taken place in science and technology (S&T) research in China. Due to our empirical evidences, the regions with higher relationship (network) capital enjoy higher knowledge productivity in terms of published articles. Our purpose in this paper is to investigate the relationships that exist between regional published articles and co-authorship in China covering the period from 1998 to 2007 by using Stata to investigate the relation between the regional publications and co-authored published articles. As main findings, the greater the number of co-authored articles that a region has, the greater their success, in terms of the number of articles published. Indeed, both domestic and international co-authorship have had positive effects on published article levels in China.

Keywords: Academic Research, Co-Authorship, Collaboration, Determinants, Economics, Journals, Knowledge, Knowledge Production Function, Publications, Regional Innovation Systems, Research, Science, Scientific Collaboration, Technology

? Haddow, G. and Genoni, P. (2010), Citation analysis and peer ranking of Australian social science journals. *Scientometrics*, **85** (2), 471-487.

Full Text: [2010\Scientometrics85, 471.pdf](2010/Scientometrics85,%20471.pdf)

Abstract: Citation analyses were performed for Australian social science journals to determine the differences between data drawn from Web of Science and Scopus. These data were compared with the tier rankings assigned by disciplinary groups to the journals for the purposes of a new research assessment model, Excellence in Research for Australia (ERA), due to be implemented in 2010. In addition, citation-based indicators including an extended journal impact factor, the h-Index, and a modified journal diffusion factor, were calculated to assess whether subsequent analyses influence the ranking of journals. The findings suggest that the Scopus database provides higher number of citations for more of the journals. However, there appears to be very little association between the assigned tier ranking of journals and their rank derived from citations data. The implications for Australian social science researchers are discussed in relation to the use of citation analysis in the ERA.

Keywords: Australia, Citation, Citation Analysis, Citation Sources, Citations, Counts, Coverage, Diffusion, ERA, Google-Scholar, h Index, h-Index, Impact, Information, Journal Ranking, Journals, Research, Research Assessment, Research Assessment Exercise, Researchers, Science, Scopus, Social Science Journals, Web-of-Science

? De Marchi, M. and Rocchi, M. (2010), Note on R&D expenditures and fixed capital formation. *Scientometrics*, **85** (2), 489-494.

Full Text: [2010\Scientometrics85, 489.pdf](2010/Scientometrics85,%20489.pdf)

Abstract: In this paper we deal with the fixed capital nature of the means of production and labour employed in research and development which generate scientific and technological knowledge. We argue that these R&D current expenditures typically have the nature of fixed investments. We then present an empirical analysis which shows that expenditures on industrial R&D are more strongly linked to the formation of fixed capital than to the formation of capital in general. Applying this conclusion to the economics of research and innovation would make it possible to analyse investments in the production of scientific and technological knowledge with a higher degree of clarity and precision.

Keywords: Capital, Innovation, Production, Research

Notes: CCountry

? Miguel, S., Moya-Anegon, F. and Herrero-Solana, V. (2010), The impact of the socio-economic crisis of 2001 on the scientific system of Argentina from the scientometric perspective. *Scientometrics*, **85** (2), 495-507.

Full Text: [2010\Scientometrics85, 495.pdf](2010/Scientometrics85,%20495.pdf)

Abstract: In recent years a number of studies have focused on Argentina’s 2001 economic crisis and its political, social, and institutional repercussions. To date, however, no studies have analyzed its effects upon the country’s scientific system from a scientometric perspective, in terms of resources dedicated to scientific activity and the final output and impact. The present study does so by means of a set of scientometric indicators that reflect economic effort, human resources dedicated to research, publications, collaborative relations, and the international visibility of scientific contributions.

Keywords: 2001, Argentina, Latin-America, Publications, Research, Scientific System, Scientometric Indicators, Socio-Economic Crisis

Notes: CCountry

? Bolaños-Pizarro, M., Thijs, B. and Glänzel, W. (2010), Cardiovascular research in Spain. A comparative scientometric study. *Scientometrics*, **85** (2), 509-526.

Full Text: [2010\Scientometrics85, 509.pdf](2010/Scientometrics85,%20509.pdf)

Abstract: A bibliometric analysis of Spanish cardiovascular research is presented. The study focuses on the productivity, visibility and citation impact in an international, notably European context. Special attention is given to international collaboration. The underlying bibliographic data are collected from Thomson Reuters’s Web of Science on the basis of a ‘hybrid’ search strategy combining core journals, lexical terms and citation links especially developed for the field of cardiology.

Keywords: Bibliometric, Bibliometric Analysis, Bibliometric Approach, Cardiovascular Research, Citation, Citations, Co-Authorship, Indicators, International Collaboration, International Scientific Collaboration, Journal Impact, Journals, Output, Research, Research Performance, Science, Spain

? Meyer, M., Debackere, K. and Glänzel, W. (2010), Can applied science be ‘good science’? Exploring the relationship between patent citations and citation impact in nanoscience. *Scientometrics*, **85** (2), 527-539.

Full Text: [2010\Scientometrics85, 527.pdf](2010/Scientometrics85,%20527.pdf)

Abstract: There is a rich literature on how science and technology are related to each other. Patent citation analysis is amongst the most frequently used to tool to track the strengths of links. In this paper we explore the relationship between patent citations and citation impact in nanoscience. Our observations indicate that patent-cited papers perform better in terms of standard bibliometric indicators than comparable publications that are not linked to technology in this way. More specifically, we found that articles cited in patents are more likely to be cited also by other papers. The share of highly cited papers is the most striking result. Instead of the average of 4% of all papers, 13.8% of the papers cited once or twice in patents fall into this category and even 23.5% of the papers more frequently cited in patents receive citation rates far above the standard. Our analyses further demonstrate the presence and the relevance of bandwagon effects driving the development of science and technology.

Keywords: Bibliometric, Citation, Citation Analysis, Citation Impact, Citations, Collaboration, Emerging Field, Exploration, Innovation, Interdisciplinarity, Nano-Science, Nanoscience, Nanotechnology, Nanotechnology, Patent, Patent Citations, Performance, Publications, Science, Science-Technology Linkage, Scientific Literature, Technology

? Jeong, S. and Kim, H.G. (2010), Intellectual structure of biomedical informatics reflected in scholarly events. *Scientometrics*, **85** (2), 541-551.

Full Text: [2010\Scientometrics85, 541.pdf](2010/Scientometrics85,%20541.pdf)

Abstract: the purpose of this paper was to analyze the intellectual structure of biomedical informatics reflected in scholarly events such as conferences, workshops, symposia, and seminars. As analysis variables, ‘call for paper topics’, ‘session titles’ and author keywords from biomedical informatics-related scholarly events, and the MeSH descriptors were combined. As analysis cases, the titles and abstracts of 12,536 papers presented at five medical informatics (MI) and six bioinformatics (BI) global scale scholarly event series during the years 1999-2008 were collected. Then, n-gram terms (MI = 6,958; BI = 5,436) from the paper corpus were extracted and the term co-occurrence network was analyzed. One hundred important topics for each medical informatics and bioinformatics were identified through the hub-authority metric, and their Usage contexts were compared with the k-nearest neighbor measure. To research trends, newly popular topics by 2-year period units were observed. In the past 10 years the most important topic in MI has been “decision support”, while in BI “gene expression”. Though the two communities share several methodologies, according to our analysis, they do not use them in the same context. This evidence suggests that MI uses technologies for the improvement of productivity in clinical settings, while BI uses algorithms as its tools for scientific biological discovery. Though MI and BI are arguably separate research fields, their topics are increasingly intertwined, and the gap between the fields blurred, forming a broad informatics-namely biomedical informatics. Using scholarly events as data sources for domain analysis is the closest way to approximate the forefront of biomedical informatics.

Keywords: Author, Bibliometric Analysis, Bioinformatics, Biomedical Informatics, Biotechnology, Co-Word Analysis, Co-Word Analysis, Conference, Conferences, Exploratory Analysis, Field, Intellectual Structure, Medical Informatics, Research, Scholarly Event, Science, Social Network Analysis, Undiscovered Public Knowledge

? Perakakis, P., Taylor, M., Mazza, M. and Trachana, V. (2010), Natural selection of academic papers. *Scientometrics*, **85** (2), 553-559.

Full Text: [2010\Scientometrics85, 553.pdf](2010/Scientometrics85,%20553.pdf)

Abstract: Academic papers, like genes, code for ideas or technological innovations that structure and transform the scientific organism and consequently the society at large. Genes are subject to the process of natural selection which ensures that only the fittest survive and contribute to the phenotype of the organism. The process of selection of academic papers, however, is far from natural. Commercial for-profit publishing houses have taken control over the evaluation and access to scientific information with serious consequences for the dissemination and advancement of knowledge. Academic authors and librarians are reacting by developing an alternative publishing system based on free-access journals and self-archiving in institutional repositories and global disciplinary libraries. Despite the emergence of such trends, the journal monopoly, rather than the scientific community, is still in control of selecting papers and setting academic standards. Here we propose a dynamical and transparent peer review process, which we believe will accelerate the transition to a fully open and free-for-all science that will allow the natural selection of the fittest ideas.

Keywords: Academic Publishing, Ethics, Evaluation, Journals, Peer Review, Science

? Prathap, G. (2010), The iCE approach for journal evaluation. *Scientometrics*, **85** (2), 561-565.

Full Text: [2010\Scientometrics85, 561.pdf](2010/Scientometrics85,%20561.pdf)

Abstract: Recent research has shown that simple graphical representations of research performance can be obtained using two-dimensional maps based on impact (i) and citations (C). The product of impact and citations leads to an energy term (E). Indeed, using E as the third coordinate, three-dimensional landscape maps can be prepared. In this paper, instead of using the traditional impact factor and total citations received for journal evaluation, Article Influence(TM) and Eigenfactor(TM) are used as substitutes. Article Influence becomes a measure of quality (i.e. a proxy for impact factor) and Eigenfactor is a proxy for size/quantity (like citations) and taken together, the product is an energy-like term. This can be used to measure the influence/prestige of a journal. It is also possible to propose a p-factor (where p = E (1/3)) as an alternative measure of the prestige or prominence of a journal which plays the equivalent role of the h-Index.

Keywords: Article Influence (TM), Citations, Eigenfactor, Eigenfactor (TM), Evaluation, h Index, h-Index, Impact Factor, Impact Factor, Journal Evaluation, P-Index, Research

? Hagen, N.T. (2010), Deconstructing doctoral dissertations: how many papers does it take to make a PhD? *Scientometrics*, **85** (2), 567-579.

Full Text: [2010\Scientometrics85, 567.pdf](2010/Scientometrics85,%20567.pdf)

Abstract: A collection of coauthored papers is the new norm for doctoral dissertations in the natural and biomedical sciences, yet there is no consensus on how to partition authorship credit between PhD candidates and their coauthors. Guidelines for PhD programs vary but tend to specify only a suggested range for the number of papers to be submitted for evaluation, sometimes supplemented with a requirement for the PhD candidate to be the principal author on the majority of submitted papers. Here I use harmonic counting to quantify the actual amount of authorship credit attributable to individual PhD graduates from two Scandinavian universities in 2008. Harmonic counting corrects for the inherent inflationary and equalizing biases of routine counting methods, thereby allowing the bibliometrically identifiable amount of authorship credit in approved dissertations to be analyzed with unprecedented accuracy. Unbiased partitioning of authorship credit between graduates and their coauthors provides a post hoc bibliometric measure of current PhD requirements, and sets a de facto baseline for the requisite scientific productivity of these contemporary PhD’s at a median value of approximately 1.6 undivided papers per dissertation. Comparison with previous census data suggests that the baseline has shifted over the past two decades as a result of a decrease in the number of submitted papers per candidate and an increase in the number of coauthors per paper. A simple solution to this shifting baseline syndrome would be to benchmark the amount of unbiased authorship credit deemed necessary for successful completion of a specific PhD program, and then monitor for departures from this level over time. Harmonic partitioning of authorship credit also facilitates cross-disciplinary and inter-institutional analysis of the scientific output from different PhD programs. Juxtaposing bibliometric benchmarks with current baselines may thus assist the development of harmonized guidelines and transparent transnational quality assurance procedures for doctoral programs by providing a robust and meaningful standard for further exploration of the causes of intra- and inter-institutional variation in the amount of unbiased authorship credit per dissertation.

Keywords: Author, Authorship Credit, Baseline, Benchmark, Bias, Bibliometric, Bibliometric Counting, Bibliometry, Ethics, Evaluation, Faculty-Student Collaborations, Graduate, Publication, Theses

? Shin, J.C. and Cummings, W.K. (2010), Multilevel analysis of academic publishing across disciplines: research preference, collaboration, and time on research. *Scientometrics*, **85** (2), 581-594.

Full Text: [2010\Scientometrics85, 581.pdf](2010/Scientometrics85,%20581.pdf)

Abstract: This study developed a multilevel model of academic publishing and tested the effects of several predictors on faculty publishing. In particular, the analysis paid special attention to faculty preference, time on research, research collaboration, and faculty discipline. The data we used for this study is the Changing Academic Professions (CAP) data which is the follow-up study of the Carnegie Foundation in 1992. The study found that faculty preference for research affects research publishing. In addition, faculty collaboration with international peers is a critical factor in academic publishing. While time spent on research is related to publishing, time spent on teaching does not have a conflicting effect on faculty research. In the institution level analysis, institutional goal-orientation and institutional mission were found to have effects on academic publishing. However, the principal determinants of academic publishing were found to lie at the individual faculty member level. for each of these findings, there are subtle differences by academic discipline.

Keywords: Academic Publication, Departments, Disciplinary Differences, Faculty Research Productivity, Gender, Higher-Education, Interdisciplinary, Research, Research Collaboration, Research Preference, Scientific Productivity, Teaching Effectiveness, Time on Research

? Shapira, P., Youtie, J. and Porter, A.L. (2010), The emergence of social science research on nanotechnology. *Scientometrics*, **85** (2), 595-611.

Full Text: [2010\Scientometrics85, 595.pdf](2010/Scientometrics85,%20595.pdf)

Abstract: This article examines the development of social science literature focused on the emerging area of nanotechnology. It is guided by the exploratory proposition that early social science work on emerging technologies will draw on science and engineering literature on the technology in question to frame its investigative activities, but as the technologies and societal investments in them progress, social scientists will increasingly develop and draw on their own body of literature. To address this proposition the authors create a database of nanotechnology-social science literature by merging articles from the Web of Science’s Social Science Citation Index and Arts and Humanities Citation Index with articles from Scopus. The resulting database comprises 308 records. The findings suggest that there are multiple dimensions of cited literature and that social science citations of other social scientists’ works have increased since 2005.

Keywords: Citation, Citations, Collaboration, Emerging Technologies, Interdisciplinarity, Nanoscience, Nanotechnology, Patterns, Publications, Research, Robots, Science, Science Citation Index, Scientometrics, Societal Implications, Technical Change, Technology, Trust, US

? Mingers, J. and Lipitakis, E.A.E.C. (2010), Counting the citations: A comparison of Web of Science and Google Scholar in the field of business and management. *Scientometrics*, **85** (2), 613-625.

Full Text: [2010\Scientometrics85, 613.pdf](2010/Scientometrics85,%20613.pdf)

Abstract: Assessing the quality of the knowledge produced by business and management academics is increasingly being metricated. Moreover, emphasis is being placed on the impact of the research rather than simply where it is published. The main metric for impact is the number of citations a paper receives. Traditionally this data has come from the ISI Web of Science but research has shown that this has poor coverage in the social sciences. A newer and different source for citations is Google Scholar. In this paper we compare the two on a dataset of over 4,600 publications from three UK Business Schools. The results show that Web of Science is indeed poor in the area of management and that Google Scholar, whilst somewhat unreliable, has a much better coverage. The conclusion is that Web of Science should not be used for measuring research impact in management.

Keywords: Citations, Databases, Google Scholar, h-Index, Impact, ISI, Journals, Publications, Research, Research Impact, Scopus, Web of Science

? Vieira, P.C. and Teixeira, A.A.C. (2010), Are finance, management, and marketing autonomous fields of scientific research? An analysis based on journal citations. *Scientometrics*, **85** (3), 627-646.

Full Text: [2010\Scientometrics85, 627.pdf](2010/Scientometrics85,%20627.pdf)

Abstract: Although there is considerable consensus that Finance, Management and Marketing are ‘science’, some debate remains with regard to whether these three areas comprise autonomous, organized and settled scientific fields of research. In this paper we aim to explore this issue by analyzing the occurrence of citations in the top-ranked journals in the areas of Finance, Management, and Marketing. We put forward a modified version of the model of science as a network, proposed by Klamer and Van Dalen (J Econ Methodol 9(2):289-315, 2002), and conclude that Finance is a ‘Relatively autonomous, organized and settled field of research’, whereas Management and (to a larger extent) Marketing are relatively non-autonomous and hybrid fields of research’. Complementary analysis based on sub-discipline rankings using the recursive methodology of Liebowitz and Palmer (J Econ Lit 22:77-88, 1984) confirms the results. In conclusions we briefly discuss the pertinence of Whitley’s (The intellectual and social organization of the sciences, 1984) theory for explaining cultural differences across these sub-disciplines based on its dimensions of scholarly practices, ‘mutual dependency’ and ‘task uncertainty’.

Keywords: Analysis, Autonomy, Citations, Co-Word Analysis, Communication, Departments, Economics Journals, Finance, Index, Journals, Management, Marketing, Nanotechnology, Network, Patterns, Quality, Relative Impacts, Research, Science

? Lopresti, R. (2010), Citation accuracy in environmental science journals. *Scientometrics*, **85** (3), 647-655.

Full Text: [2010\Scientometrics85, 647.pdf](2010/Scientometrics85,%20647.pdf)

Abstract: Citations in five leading environmental science journals were examined for accuracy. 24.41% of the 2,650 citations checked were found to contain errors. The largest category of errors was in the author field. of the five journals Conservation Biology had the lowest percentage of citations with errors and Climatic Change had the highest. of the citations with errors that could be checked in Web of Science, 18.18% of the errors caused a search for the cited article to fail. Citations containing electronic links had fewer errors than those without.

Keywords: Author, Citation, Citation Accuracy, Citation Errors, Citations, Environmental Journals, Journals, Science, Web of Science

? De Witte, K. and Rogge, N. (2010), To publish or not to publish? On the aggregation and drivers of research performance. *Scientometrics*, **85** (3), 657-680.

Full Text: [2010\Scientometrics85, 657.pdf](2010/Scientometrics85,%20657.pdf)

Abstract: This paper presents a methodology to aggregate multidimensional research output. Using a tailored version of the non-parametric Data Envelopment Analysis model, we account for the large heterogeneity in research output and the individual researcher preferences by endogenously weighting the various output dimensions. The approach offers three important advantages compared to the traditional approaches: (1) flexibility in the aggregation of different research outputs into an overall evaluation score; (2) a reduction of the impact of measurement errors and a-typical observations; and (3) a correction for the influences of a wide variety of factors outside the evaluated researcher’s control. As a result, research evaluations are more effective representations of actual research performance. The methodology is illustrated on a data set of all faculty members at a large polytechnic university in Belgium. The sample includes questionnaire items on the motivation and perception of the researcher. This allows us to explore whether motivation and background characteristics (such as age, gender, retention, etc.,) of the researchers explain variations in measured research performance.

Keywords: Academic Economists, Belgium, Composite Indicator, Composite Indicators, Conditional Efficiency, Data Envelopment Analysis, Data Envelopment Analysis, Evaluation, Higher Education, Nonparametric Frontier Models, Preferences, Publication Productivity, Research, Research Institutes, Research Output, Research Performance, Research Productivity, Researchers, Retention, Scientific Productivity, Scientometric Indicators, Teaching Effectiveness

? Bornmann, L. and Daniel, H.D. (2010), The validity of staff editors’ initial evaluations of manuscripts: A case study of Angewandte Chemie International Edition. *Scientometrics*, **85** (3), 681-687.

Full Text: [2010\Scientometrics85, 681.pdf](2010/Scientometrics85,%20681.pdf)

Abstract: This paper investigates the extent to which staff editors’ evaluations of submitted manuscripts-that is, internal evaluations carried out before external peer reviewing-are valid. To answer this question we utilized data on the manuscript reviewing process at the journal Angewandte Chemie International Edition. The results of this study indicate that the initial internal evaluations are valid. Further, it appears that external review is indispensable for the decision on the publication worthiness of manuscripts: (1) for the majority of submitted manuscripts, staff editors are uncertain about publication worthiness; (2) there is a statistically significant proportional difference in “Rejection” between the editors’ initial evaluation and the final editorial decision (after peer review); (3) three-quarters of the manuscripts that were rated negatively at the initial internal evaluation but accepted for publication after the peer review had far above-average citation counts.

Keywords: Articles, Citation, Citation Counts, Evaluation, Impact, Peer Review, Publication, Staff Editor’S Initial Evaluation, Validity

? Lee, P.C., Su, H.N. and Chan, T.Y. (2010), Assessment of ontology-based knowledge network formation by Vector-Space Model. *Scientometrics*, **85** (3), 689-703.

Full Text: [2010\Scientometrics85, 689.pdf](2010/Scientometrics85,%20689.pdf)

Abstract: This study proposes an empirical way for determining probability of network tie formation between network actors. In social network analysis, it is a usual problem that information for determining whether or not a network tie should be formed is missing for some network actors, and thus network can only be partially constructed due to unavailability of information. This methodology proposed in this study is based on network actors’ similarities calculations by Vector-Space Model to calculate how possible network ties can be formed. Also, a threshold value of similarity for deciding whether or not a network tie should be generated is suggested in this study. Four ontology-based knowledge networks, with journal paper or research project as network actors, constructed previously are selected as the targets of this empirical study: (1) Technology Foresight Paper Network: 181 papers and 547 keywords, (2) Regional Innovation System Paper Network: 431 papers and 1165 keywords, (3) Global Sci-Tech Policy Paper Network: 548 papers and 1705 keywords, (4) Taiwan’s Sci-Tech Policy Project Network: 143 research projects and 213 keywords. The four empirical investigations allow a cut-off threshold value calculated by Vector-Space Model to be suggested for deciding the formation of network ties when network linkage information is unavailable.

Keywords: Analysis, Assessment, Co-Word Analysis, Cocitation Analysis, Cut-Off Value, Field, Innovation, Keyword, Knowledge Network, Maps, Network, Network Formation, Research, Retrieval, Scientometrics, Social Network, Strength, System, Technology Foresight, Tool, Vector-Space Model

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Full Text: [2010\Scientometrics85, 705.pdf](2010/Scientometrics85,%20705.pdf)

Abstract: In national research assessment exercises that take the peer review approach, research organizations are evaluated on the basis of a subset of their scientific production. The dimension of the subset varies from nation to nation but is typically set as a proportional function of the number of researchers employed at each research organization. However, scientific fertility varies from discipline to discipline, meaning that the representativeness of such a subset also varies according to discipline. The rankings resulting from the assessments could be quite sensitive to the size of the share of articles selected for evaluation. The current work examines this issue, developing empirical evidence of variations in ranking due changes in the dimension of the subset of products evaluated. The field of observation is represented by the scientific production from the hard sciences of the entire Italian university system, from 2001 to 2003.

Keywords: 2001, Analysis, Bibliometrics, Evaluation, Italy, Peer Review, Peer-Review, Production, Rankings, Research, Research Assessment Exercise, Researchers, Universities

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Full Text: [2010\Scientometrics85, 721.pdf](2010/Scientometrics85,%20721.pdf)

Abstract: This paper quantitatively explores the social and socio-semantic patterns of constitution of academic collaboration teams. To this end, we broadly underline two critical features of social networks of knowledge-based collaboration: first, they essentially consist of group-level interactions which call for team-centered approaches. Formally, this induces the use of hypergraphs and n-adic interactions, rather than traditional dyadic frameworks of interaction such as graphs, binding only pairs of agents. Second, we advocate the joint consideration of structural and semantic features, as collaborations are allegedly constrained by both of them. Considering these provisions, we propose a framework which principally enables us to empirically test a series of hypotheses related to academic team formation patterns. In particular, we exhibit and characterize the influence of an implicit group structure driving recurrent team formation processes. On the whole, innovative production does not appear to be correlated with more original teams, while a polarization appears between groups composed of experts only or non-experts only, altogether corresponding to collectives with a high rate of repeated interactions.

Keywords: Cohesion, Communities, Epistemic Dynamics Social Cohesion, Hypergraphs, Mechanisms, Network Structure, Performance, Perspective, Production, Research Collaboration, Science, Scientific Collaboration, Self-Organization, Social Network, Social Network Analysis, Social Networks, Socio-Semantic Networks, Team Formation

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Full Text: [2010\Scientometrics85, 741.pdf](2010/Scientometrics85,%20741.pdf)

Abstract: I propose the index (h) over bar (“hbar”), defined as the number of papers of an individual that have citation count larger than or equal to the (h) over barh of all coauthors of each paper, as a useful index to characterize the scientific output of a researcher that takes into account the effect of multiple authorship. The bar is higher for (h) over bar.

Keywords: (h)Over-Bar, (h)Over-Bar-Core, Authorship, Citation, Citations, Coauthors, Coauthorship, h-Core, h-Index, h-Index, Hirsch-Index, Impact, Individual Achievement, Proposal, Research, Research Output, Self-Consistency

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Full Text: [2010\Scientometrics85, 755.pdf](2010/Scientometrics85,%20755.pdf)

Abstract: Over the past 30 years, the research behavior of Chinese scholars has continually evolved. This paper studied the citing behavior of Chinese scholars by employing three indicators of citation concentration from the perspective of citation breadth analysis. All the citations from 2,338,033 papers from the Chinese Citation Database (1979-2008) covering four disciplines-Chemistry; Clinical Medicine; Library, Information and Archival Science; and Chinese Literature and World Literature-were analyzed. Empirical results show a general weakening tendency towards citation concentration: (1) decreasing percentage of uncited published papers within a given year; (2) a higher percentage of papers required to account for the same proportion of citation than before; and (3) the steady decline in the Herfindahl-Hirschman index (HHI) of citation distribution. All three measures indicate a decline in citing concentration or an increase in citation breadth. This phenomenon may be the result of increased access to materials, perhaps because of the ease with which scholarly materials can be accessed through the Internet.

Keywords: Analysis, Bibliometrics, China, Citation, Citations, Citations Analysis, Citing Behavior, Medicine, Reform and Opening up, Research, Science, Scientific Publications, Uncitedness, Web

? Feeney, M.K. and Bernal, M. (2010), Women in STEM networks: Who seeks advice and support from women scientists? *Scientometrics*, **85** (3), 767-790.

Full Text: [2010\Scientometrics85, 767.pdf](2010/Scientometrics85,%20767.pdf)

Abstract: Supporting and advancing women’s science careers continues to be of interest to researchers, scientists, science funders, and universities. Similarly, professional advice and support networks are important to understanding the advancement of scientific careers. This research aims to marry these two lines of research to investigate and compare the ways in which men and women scientists seek advice and support from women in their networks. Using a sample of academic scientists in nonmedical biology, chemistry, computer science, earth and atmospheric sciences, electrical engineering, and physics we assess the extent to which women and men scientists seek advice and support from women in their networks. We find that field of science is the primary predictor for the presence of women in scientists’ advice and support networks. We also find that citizenship, rank, age, and friendship are significantly related to the proportion of women in women’s networks, but are not consistently significantly related to the proportion of women in men’s networks. We conclude with a discussion of the findings and the distinctions between men and women scientists’ advice and support networks.

Keywords: Advice, American Academic Science, Critical Mass, Dilemmas, Field of Science, Networks, Overcoming Isolation, Paradox, Research, Researchers, Science, Size, Support, Women

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Full Text: [2010\Scientometrics85, 791.pdf](2010/Scientometrics85,%20791.pdf)

Abstract: A detailed analysis of the research carried out in Mexico in the physics specialty of particles and fields (MPPF) reveals the way the current production and citation patterns evolved over a period of 60 years. The basis for the analysis were the publications and citations registered in the Stanford Public Information REtrieval System-High Energy Physics (SPIRES) from 1970 to 2007. The historical coverage afforded by the Science Citation Index provided supplementary data from 1948 to 1979. Papers were classified into five research types: theoretical, phenomenological, experimental, cosmological, and other, while citations were identified as coming from: published or unpublished sources. Results show that the development of MPPF emerged from traditional theoretical and phenomenological research and that the most notable changes taking place in production and impact are associated with the community’s involvement in more productive and more internationally visible research practices, characteristic of large international collaborations, leaders in experimental physics and in the authorship of review papers.

Keywords: Analysis, Authorship, Big Science, Citation, Citations, Impact, Mexican Physics, Physics Particles and Fields, Production, Publications, Research, Science, Science Citation Index, Scientific Communication Patterns, Scientific Production

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Full Text: [2010\Scientometrics85, 803.pdf](2010/Scientometrics85,%20803.pdf)

Abstract: With the growing recognition of the importance of knowledge creation, knowledge maps are being regarded as a critical tool for successful knowledge management. However, the various methods of developing knowledge maps mostly depend on unsystematic processes and the judgment of domain experts with a wide range of untapped information. Thus, this research aims to propose a new approach to generate knowledge maps by mining document databases that have hardly been examined, thereby enabling an automatic development process and the extraction of significant implications from the maps. To this end, the accepted research proposal database of the Korea Research Foundation (KRF), which includes a huge knowledge repository of research, is investigated for inducing a keyword-based knowledge map. During the developmental process, text mining plays an important role in extracting meaningful information from documents, and network analysis is applied to visualize the relations between research categories and measure the value of network indices. Five types of knowledge maps (core R&D map, R&D trend map, R&D concentration map, R&D relation map, and R&D cluster map) are developed to explore the main research themes, monitor research trends, discover relations between R&D areas, regions, and universities, and derive clusters of research categories. The results can be used to establish a policy to support promising R&D areas and devise a long-term research plan.

Keywords: Analysis, Bibliometric Methods, Foresight Exercises, Knowledge Map, Network, Network Analysis, Networks, R&D, Research, Research Proposal Database, Science, Text Mining, Trend, Universities

Notes: JJournal

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Full Text: [2010\Scientometrics85, 821.pdf](2010/Scientometrics85,%20821.pdf)

Abstract: the paper presents the dynamics of the strategic management scientific community network during knowledge creation and dissemination through the Strategic Management Journal from 1980 to 2009. The paper describes the evolution of the participant countries’ position within the network structure. We present the different stages that the network goes through, the vertices’ transformation into nodes and hubs, and the statistical significance level of cooperation between the country in the core position and the countries in the semi-periphery and periphery positions during their evolution and growth.

Keywords: Alliances, Business Policy, Co-Word Analysis, Collaboration, Intellectual Structure, Knowledge, Knowledge Creation and Dissemination, Management, Network, Representations, Science Maps, Scientific Community Network, Strategic Management, Strategic Management Journal, Virtual Community

Notes: JJournal

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Full Text: [2010\Scientometrics85, 849.pdf](2010/Scientometrics85,%20849.pdf)

Abstract: This paper studies the structure of collaboration in the Journal of Finance for the period 1980-2009 using publication data from the Social Sciences Citation Index (SSCI). There are 3,840 publications within this period, out of which 58% are collaborations. These collaborations form 405 components, with the giant component capturing approximately 54% of total coauthors (it is estimated that the upper limit of distinct JF coauthors is 2,536, obtained from the total number of distinct author keywords found within the study period). In comparison, the second largest component has only 13 members. The giant component has mean degree 3 and average distance 8.2. It exhibits power-law scaling with exponent alpha = 3.5 for vertices with degree a parts per thoUSAnd yen5. Based on the giant component, the degree, closeness and betweenness centralization score, as well as the hubs/authorities score is determined. The findings indicate that the most important vertex on the giant component coincides with Sheridan Titman based on his top ten ranking on all four scores.

Keywords: Author, Centrality, Citation, Co-Authorship, Coauthors, Collaboration, Finance, Network Structure, Networks, Publication, Publications, Scientific Collaboration, Web

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Full Text: [2010\Scientometrics85, 861.pdf](2010/Scientometrics85,%20861.pdf)

Keywords: Bibliometrics, Credit, Impact, Indexes, Model, Performance, Science, Scientometrics

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Full Text: [2011\Scientometrics86, 1.pdf](2011/Scientometrics86,%201.pdf)

Abstract: Large-scale scientific projects have become a major impetus of scientific advances. But few studies have specifically analyzed how those projects bolster scientific research. We address this question from a scientometrics perspective. By analyzing the bibliographic records of papers relevant to the Sloan Digital Sky Survey (SDSS), we found that the SDSS helped scientists from many countries further develop their own research; investigators initially formed large research groups to tackle key problems, while later papers involved fewer authors; and the number of research topics increased but the diversity of topics remains stable. Furthermore, the entropy analysis method has proven valuable in terms of analyzing patterns of research topics at a macroscopic level.

Keywords: Analysis, Astronomical Publications, Bibliometric, Entropy Analysis, Large-Scale Scientific Project, Publication Analysis, Research, Research Topics, Science, Scientific Research, Scientometrics, Sloan Digital Sky Survey, Trends

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Full Text: [2011\Scientometrics86, 15.pdf](2011/Scientometrics86,%2015.pdf)

Abstract: In order to monitor articles/patents in nanotechnology, there is little agreement on a universal lexical query or even an explicit definition of nanotechnology. Here in the light of a proposed definition, a set of case studies has been conducted to remove keywords which are not exclusive to nanotechnology. This resulted in a collective and abridged lexical query (CALQ) for nanotechnology delineation. Through bibliometric quantification of already-proposed as well as the novel keywords, it was shown that all keywords included in CALQ have considerable exclusive retrieval and precision, while the removed keywords do not satisfy either of these numerical thresholds. This approach may also be applied for the future updating of CALQ.

Keywords: Bibliometric, Bibliometric Study, Delineation, Field, Lexical Query, Light, Nanomedicine, Nanotechnology, Patents, Publications

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Full Text: [2011\Scientometrics86, 27.pdf](2011/Scientometrics86,%2027.pdf)

Abstract: the aim of this study was to investigate the existence of a “gender gap” in the authorship of the four most important peer-reviewed psychiatric journals in Brazil and to quantify its magnitude. In addition, we examined the patterns of change in this gap during the period extending from 2001 to 2008 and variations according to the total number of authors, the type of article (original vs. non-original studies), and the journals themselves. A total of 1,036 articles were analyzed. We found that the proportion of female overall participation has increased from 2001 to 2008. Nevertheless, the incremental rate was accounted mostly by the growth of the participation in non-original articles. While the average annual increment for original articles was virtually null (.01%), for the non-original articles the corresponding figure was 3.7%. We also found that the chance of a woman being first author was about three times greater in original papers as compared to non-original ones at the beginning of the study period; this differential declined by 11% per year during this period. A different pattern emerged from the analysis of female last authorship. Year of publication and type of study were still associated with the chance of a woman being the last author but without interaction. Further, the journals themselves were found to be related with female last authorship: the chance of a woman being the last author in an article published in the Revista Brasileira de Psiquiatria was significantly smaller than in the other three journals. Our findings indicate clearly that some progress in being achieved in eliminating the gender gap also in field of Psychiatry and highlight the need for further research in this area.

Keywords: 2001, 3 Decades, Analysis, Author, Authorship, Bibliometrics, Brazil, Female Authorship, Field, Gender Gap, Growth, Journals, Mental-Health, Number of Authors, Psychiatry, Publication, Publications, Research, Science, Scientific Production, Scientometrics, Women

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Full Text: [2011\Scientometrics86, 39.pdf](2011/Scientometrics86,%2039.pdf)

Abstract: Data on patent families is used in economic and statistical studies for many purposes, including the analysis of patenting strategies of applicants, the monitoring of the globalization of inventions and the comparison of the inventive performance and stock of technological knowledge of different countries. Most of these studies take family data as given, as a sort of black box, without going into the details of their underlying methodologies and patent linkages. However, different definitions of patent families may lead to different results. One of the purposes of this paper is to compare the most commonly used definitions of patent families and identify factors causing differences in family outcomes. Another objective is to shed light into the internal structure of patent families and see how it affects patent family outcomes based on different definitions. An automated characterization of the internal structures of all extended families with earliest priorities in the 1990s, as recorded in PATSTAT, found that family counts are not affected by the choice of patent family definitions in 75% of families. However, different definitions may really matter for the 25% of families with complex structures and lead to different family compositions, which might have an impact, for instance, on econometric studies using family size as a proxy of patent value.

Keywords: Analysis, Characterization, Comparison, Complex, Data, Family, Globalization, Impact, Lead, Light, Monitoring, Patent, Patent Equivalents, Patent Families, Patent Value, Performance, Priorities

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Full Text: [2011\Scientometrics86, 65.pdf](2011/Scientometrics86,%2065.pdf)

Abstract: This paper is set out to examine the temporal pattern of innovative activities: what might have affected a firm’s patenting from one period to the next. Based upon data on ‘information technology’ (IT) manufacturing firms in Taiwan covering the years 1990-2001, we develop a survival model to analyze the underlying drivers of patenting duration. Our results indicate that the level of the patent stock at the onset of the patent spell, defined as the number of successive years during which a firm produced at least one patent per year, has a non-linear effect on spell duration. Other factors, such as industrial growth, firm size and firm profitability, have a positive effect on patenting duration, while firm age and spell sequence affect negatively to spell duration. We conclude that state dependence is demonstrated by innovative behavior, yet the advantages gained from such creative accumulation can easily be dissipated, thereby illustrating the transient nature of dynamic capabilities.

Keywords: Countries, Data, Duration, Firms, Growth, Industrial, Information Technology, Innovative Persistence, Model, Patent, Patent Spell Longevity, Persistence, State Dependence, Survival, Taiwan, Technology, Technology Accumulation

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Full Text: [2011\Scientometrics86, 77.pdf](2011/Scientometrics86,%2077.pdf)

Abstract: We take a new look at the Shanghai Jiao Tong Academic Ranking of World Universities to evaluate the performance of whole university systems. We deal with system aggregates by means of averaging scores taken over a number of institutions from each higher education system according to the Gross Domestic Product of its country. We treat the set of indicators (measures) at the country level as a scale, and investigate its reliability and dimensionality using appropriate statistical tools. After a Principal Component Analysis is performed, a clear picture emerges: at the aggregate level ARWU seems to be a very reliable one-dimensional scale, with a first component that explains more than 72% of the variance of the sample under analysis. The percentages of variance of the indicators explained by the first component do shed light on the fact that ARWU is in fact measuring the research quality (both at the individual and collective levels) of a university system. When the second principal component is taken into account, the two principal components contribute to explain more than 90% of the variance. The rotated solution facilitates the interpretation of the components and provides clear and interesting clustering information about the 32 higher education systems under analysis.

Keywords: Analysis, Clustering, Education, Indicators, Light, PCA, Performance, Ranking, Reliability, Research, Research Performance, Scale, Shanghai, Shanghai Ranking, System, Universities, University System

? Bornmann, L., Neuhaus, C. and Daniel, H.D. (2011), The effect of a two-stage publication process on the Journal Impact Factor: A case study on the interactive open access journal Atmospheric Chemistry and Physics. *Scientometrics*, **86** (1), 93-97.

Full Text: [2011\Scientometrics86, 93.pdf](2011/Scientometrics86,%2093.pdf)

Abstract: Taking the interactive open access journal Atmospheric Chemistry and Physics as an example, this study examines whether Thomson Reuters, for the Journal Citation Reports, correctly calculates the Journal Impact Factor (JIF) of a journal that publishes several versions of a manuscript within a two-stage publication process. The results of this study show that the JIF of the journal is not overestimated through the two-stage publication process.

Keywords: Angewandte-Chemie, Chemistry, Citation, Citations, Impact Factor, Impact-Factor, Index, Indicators, Journal, Journal Citation Reports, Journal Impact Factor, Misuse, Open Access, Peer Review, Process, Publication, Reports, Science

? Waaijer, C.J.F., van Bochove, C.A. and van Eck, N.J. (2011), On the map: Nature and Science editorials. *Scientometrics*, **86** (1), 99-112.

Full Text: [2011\Scientometrics86, 99.pdf](2011/Scientometrics86,%2099.pdf)

Abstract: Bibliometric mapping of scientific articles based on keywords and technical terms in abstracts is now frequently used to chart scientific fields. In contrast, no significant mapping has been applied to the full texts of non-specialist documents. Editorials in Nature and Science are such non-specialist documents, reflecting the views of the two most read scientific journals on science, technology and policy issues. We use the VOSviewer mapping software to chart the topics of these editorials. A term map and a document map are constructed and clusters are distinguished in both of them. The validity of the document clustering is verified by a manual analysis of a sample of the editorials. This analysis confirms the homogeneity of the clusters obtained by mapping and augments the latter with further detail. As a result, the analysis provides reliable information on the distribution of the editorials over topics, and on differences between the journals. The most striking difference is that Nature devotes more attention to internal science policy issues and Science more to the political influence of scientists.

Keywords: Analysis, Bibliometric, Bibliometrics, Classification, Clustering, Cocitation Analysis, Document Clustering, Editorials, Full-Text, Information-Science, Journals, Mapping, Science, Scientific Journals, Software, Technology, Vosviewer

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Full Text: [2011\Scientometrics86, 113.pdf](2011/Scientometrics86,%20113.pdf)

Abstract: This paper presents and discusses a new bibliometric indicator of research performance, designed with the fundamental concern of enabling cross-disciplinary comparisons. The indicator, called x-index, compares a researcher’s output to a reference set of research output from top researchers, identified in the journals where the researcher has published. It reflects publication quantity and quality, uses a moderately sized data set, and works with a more refined definition of scientific fields. x-index was developed to rank researchers in a scientific excellence award in the Faculty of Engineering of the University of Porto. The data set collected for the 2009 edition of the award is used to study the indicator’s features and design choices, and provides the basis for a discussion of its advantages and limitations.

Keywords: Bibliometric, Bibliometric Indicators, Cross-Disciplinarity, Data, Impact, Index, Individuals, Journals, Output, Performance, Publication, Rankings, Research, Research Output, Research Performance, Researchers

? Bouabid, H., Dalimi, M. and ElMajid, Z. (2011), Impact evaluation of the voluntary early retirement policy on research and technology outputs of the faculties of science in Morocco. *Scientometrics*, **86** (1), 125-132.

Full Text: [2011\Scientometrics86, 125.pdf](2011/Scientometrics86,%20125.pdf)

Abstract: Scientometric indicators or science metrics, conventional and derived ones, are used in ex-post evaluating of a government policy with impact on research system. Publications, citations, h-Index, Glänzel model, and patents are applied in both micro and meso levels. This provides useful insight into the impact of the voluntary early retirement policy on research and technological outputs of the faculties of science in Morocco and consequently on the overall Morocco’s research system. The use of these metrics showed that the effect of the initiative was quite limited by affecting an average of 8% of the professor staffs of these institutions. Furthermore, each professor benefiting from this initiative had produced an average of 3.7 publications indexed in SCI in all his (her) career. The few number of the publications attributed to these professors had been gradually decreasing even 6 years before the initiative. No specific scientific field had intensively been struck. The findings also support that these professors were in general more ‘author’ than ‘inventor’. Inventor-professor institutions were likely more affected by the initiative. By means of these metrics, even if the initiative had not contributed to rejuvenate the professor-staffs of the faculties of science in Morocco, would nevertheless be a stimulus of their research system with respect to their scientometric indicators.

Keywords: Author, Chemistry, Citations, Evaluation, Field, h Index, h-Index, Hirsch-Index, Impact, Indicators, Metrics, Model, Morocco, Patent, Patents, Professors, Public Policy, Publication, Publications, Research, Research and Technology Outputs, SCI, Science, Scientific Field, Scientists, Scientometric Indicators, Support, System, Technology

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Full Text: [2011\Scientometrics86, 133.pdf](2011/Scientometrics86,%20133.pdf)

Abstract: the paper has the general aim of assessing the worldwide research activity in agricultural and food science and technology as it is reflected by the mainstream journal literature. The specific research questions were as follows: (1) What is the position of the European Research Area (ERA) represented by 33 countries in this study, on the world map of agrifood science publications? (2) Which countries are influential and what is their position? (3) Are there any specific European strengths and weaknesses by subfields of agrifood science? Overall, assessed by the total number of publications, the European Research Area (ERA), represented by 33 countries in this study, is in a dominant position on the world map of agrifood science. However, agrifood publications from the United States are more influential (judged by the average citation rates per paper). Correlation has been found between economic power and agrifood science publications: this is true not only for the total number of papers, but also for influence (measured by, again, the citation rates). Within Europe, the UK, Germany, France, Spain and the Netherlands dominate the agrifood research fields also in terms of citations. The Scandinavian countries, the Benelux states and Switzerland manage to produce influential papers across several fields of agrifood science. The EU’s New Member States-a populous area-together have less than 10% share in Europe’s agrifood publications and in citations they account for a 3-4% portion only. It seems that deepening of the integration of the national research systems in the European Research Area is desirable to have more impact of European agrifood research viewed from a global perspective.

Keywords: Activity, Agricultural-Research, Agriculture, Citation, Citation Analysis, Citation Rates, Citations, Era, Europe, European Union, Food Science, Food-Science, Germany, Impact, Journal, Literature, Number of Publications, Publication, Publication Analysis, Publications, Research, Science, Science and Technology, Scientific Production, Spain, Switzerland, Technology, UK

? Ivanovic, D., Surla, D. and Rackovic, M. (2011), A CERIF data model extension for evaluation and quantitative expression of scientific research results. *Scientometrics*, **86** (1), 155-172.

Full Text: [2011\Scientometrics86, 155.pdf](2011/Scientometrics86,%20155.pdf)

Abstract: This paper presents a proposal of CERIF data model extension for evaluation of scientific research results. The data model extension is based on the CERIF semantic layer which enables classification of entities and relations between entities according to some classification scheme. The proposed data model was created using PowerDesigner CASE tool. The model is represented using a physical data model in the conceptual notation that is adopted in literature for representing the CERIF data model. This model is verified using the rule book for evaluation and quantitative expression of scientific research results of researchers employed at University of Novi Sad.

Keywords: Bibliographic Records, Bibliometrics, Cerif, Consequences, Data, Data Model Extension, Evaluation, Evaluation of Scientific Research Results, Informetrics, Library Circulation System, Literature, Marc 21, Model, Research, Researchers, Science, Scientific Research, Scientometrics, Unimarc, XML Editor

? Bornmann, L. (2011), Mimicry in science? *Scientometrics*, **86** (1), 173-177.

Full Text: [2011\Scientometrics86, 173.pdf](2011/Scientometrics86,%20173.pdf)

Abstract: Since bibliometric indicators have obtained a general acceptance in science policy and attained applied relevance in research evaluation, feedback effects on scientists’ behaviour resulting from the use of these indicators for science funding decisions have been reported. These adaptation strategies could be called mimicry in science. Scientists apply strategies that should enable them to comply to bibliometric accountability and to secure funds to their own research.

Keywords: Adaptation, Bibliometric, Bibliometric Indicators, Evaluation, Impact, Indicators, Mimicry, Publication, Quality, Research, Research Evaluation, Science, Scientific Progress, Spanish Research

? Behrens, H. and Luksch, P. (2011), Mathematics 1868-2008: A bibliometric analysis. *Scientometrics*, **86** (1), 179-194.

Full Text: [2011\Scientometrics86, 179.pdf](2011/Scientometrics86,%20179.pdf)

Abstract: This paper presents a bibliometric analysis of the literature published in the field of mathematics from 1868 to date. The data originate from the Zentralblatt MATH database. The increase rate of publications per year reflects the growth of the mathematics community and both can well be represented by exponential or linear functions, the latter especially after the Second World War. The distribution of publications follows Bradford’s law but in contrast to many other disciplines there is no strong domination of a small number of journals. The productivity of authors follows two inverse power laws of the Lotka form with different parameters, one in the range of low productivity and the other in the range of high productivity. The average productivity has changed only slightly since the year 1870. As far as multiple authorship is concerned the distribution of the number of authors per publication can be described quite well by a Gamma Distribution. The average number of authors per publication has been increasing steadily; while it was close to 1 up to the first quarter of the last century it has now reached a value of 2 in the last few years. This means that the percentage of single-authored papers has fallen from over 95% in the years before 1930 to about 30% today.

Keywords: Analysis, Authorship, Bibliometric, Bibliometric Analysis, Collaboration, Data, Database, Distribution, Field, Growth, Journals, Literature, Mathematics, Number of Authors, Power Laws, Publication, Publications, Science, War

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Full Text: [2011\Scientometrics86, 195.pdf](2011/Scientometrics86,%20195.pdf)

Abstract: Text mining was used to extract technical intelligence from the open source global SARS research literature. A SARS-focused query was applied to the Science Citation Index (SCI) (SCI 2008) database for the period 1998-early 2008. The SARS research literature infrastructure (prolific authors, key journals/institutions/countries, most cited authors/journals/documents) was obtained using bibliometrics, and the SARS research literature technical structure (hierarchical taxonomy) was obtained using computational linguistics/document clustering.

Keywords: Bibliometrics, Bibliometrics, China, Citation, Citation Analysis, Clustering, Coronavirus, COV, Database, Database Tomography, Discovery LRD, Infectious Diseases, Intelligence, Literature, Research, SARS, SCI, Science, Science Citation Index, Severe Acute Respiratory Syndrome (SARS), Text Mining

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Full Text: [2011\Scientometrics86, 211.pdf](2011/Scientometrics86,%20211.pdf)

Abstract: In the production of scientific knowledge, as revealed by publication output, South Africa is at the forefront of many other countries in the developing world and in the African continent. This study examines for the first time the publication trends of South African engineering researchers for a period of 30 years since 1975. Drawing data from the ISI Web of Knowledge, this paper specifically looks at the publication patterns of engineering researchers in South Africa.

Keywords: Collaboration, Data, Engineering, ISI, Knowledge, Output, Production, Publication, Publication Trends, Publications, Research Collaboration, Researchers, Science, Scientific Production, South Africa, Trends, Web of Knowledge

? Bošnjak, L., Puljak, L., Vukojević, K. and Marušić, A. (2011), Analysis of a number and type of publications that editors publish in their own journals: Case study of scholarly journals in Croatia. *Scientometrics*, **86** (1), 227-233.

Full Text: [2011\Scientometrics86, 227.pdf](2011/Scientometrics86,%20227.pdf)

Abstract: To assess the publication practices of editors in their own journals, we analysed the number of articles that Croatian editors published in the journals they edit. From 2005 to 2008, 256 decision-making editors of 180 journals published a total of 887 publications in their own journals. Out of these, 332 were relevant for their academic promotion. Only 18 editors published 5 or more articles in their own journals. A single journal had regulations for self-publishing in the instructions for authors. Although the majority of editors did not misuse their own journals for scientific publishing and academic promotion, there is a need for greater transparency of the declaration and management of editorial conflict of interest in academic and scholarly journals.

Keywords: Academic Promotion, Authors, Conflict of Interest, Croatia, Decision Making, Guidelines for Authors, Instructions, Journal, Journal Editors, Journals, Promotion, Publication, Publications, Publishing, Transparency

? Prathap, G. (2011), The fractional and harmonic p-indices for multiple authorship. *Scientometrics*, **86** (2), 239-244.

Full Text: [2011\Scientometrics86, 239.pdf](2011/Scientometrics86,%20239.pdf)

Abstract: A proposal is made so that the p-index (a composite performance index that can effectively combine size and quality of scientific papers) can be extended for bibliometric research assessment in cases where multiple authorship is taken into account. The fractional and harmonic p-indices are applied to some recent examples to show their usefulness.

Keywords: Assessment, Authorship, Bibliometric, Bibliometric Research, Bibliometrics, Composite, Fractional Counting, h-Index, h-Index, Harmonic Counting, Index, P-Index, Papers, Performance, Quality, Quality of, Quantity, Recent, Research, Research Assessment, Size

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Full Text: [2011\Scientometrics86, 245.pdf](2011/Scientometrics86,%20245.pdf)

Abstract: It has long been known that scientific output proceeds on an exponential increase, or more properly, a logistic growth curve. The interplay between effort and discovery is clear, and the nature of the functional form has been thought to be due to many changes in the scientific process over time. Here I show a quantitative method for examining the ease of scientific progress, another necessary component in understanding scientific discovery. Using examples from three different scientific disciplines mammalian species, chemical elements, and minor planets I find the ease of discovery to conform to an exponential decay. In addition, I show how the pace of scientific discovery can be best understood as the outcome of both scientific output and ease of discovery. A quantitative study of the ease of scientific discovery in the aggregate, such as done here, has the potential to provide a great deal of insight into both the nature of future discoveries and the technical processes behind discoveries in science.

Keywords: Changes, Chemical, Difficulty, Discovery, Ease, Elements, Growth, Mammals, Mammals, Minor, Minor Planets, Model, Outcome, Potential, Progress, Science, Scientific Output, Scientific Progress, Species, Understanding

? Schultz, D.M. (2011), Rejection rates for multiple-part manuscripts. *Scientometrics*, **86** (2), 251-259.

Full Text: [2011\Scientometrics86, 251.pdf](2011/Scientometrics86,%20251.pdf)

Abstract: Multiple-part manuscripts are those submitted to a journal and intended for publication as a series, usually having “Part 1,” “Part I,” ... “Part N” in the title. Although some journals prohibit such submissions, other journals (including Monthly Weather Review) have no such restrictions. To examine how reviewers and editors view multiple-part manuscripts, 308 multiple-part manuscripts submitted to Monthly Weather Review from May 2001 through February 2010 were examined. for multiple-part manuscripts having reached a final decision, 67% were accepted, which was also the average acceptance rate of all manuscripts (67%). Part I manuscripts submitted alone had a lower acceptance rate (61%) than the average, whereas Part II manuscripts submitted alone had a higher acceptance rate (77%) than the average. Two-part manuscripts submitted together had an acceptance rate (67%) comparable to the average. Typical reviewer comments for Part I manuscripts submitted alone included the manuscript being too long for the available results and the author making claims in Part I that would be supported in the unseen Part II. Typical comments for Part 11 manuscripts submitted alone included the somewhat contradictory statements that material was unnecessarily duplicated in the two manuscripts and more repetition was needed between the two parts. for two-part manuscripts submitted together, reviewers often recommended condensing the two manuscripts and merging them into one. In some cases, editors rejected manuscripts even though no reviewer recommended rejection because the sum of all reviewers’ comments would require substantial reorganization of the manuscripts. The results of this study suggest the following recommendations for authors considering writing multiple-part manuscripts: Write manuscripts that are sensibly independent of each other, make minimal reference to unsubmitted manuscripts, and have sufficient and substantiated scientific content within each manuscript.

Keywords: Acceptance, Authors, Comments, Decision, Editors, Journal, Journals, Merging, Multiple-Part Manuscripts, Publication, Rates, Recommendations, Reference, Rejection, Rejection Rate, Restrictions, Reviewers

Notes: TTopics, CCountry

? Gupta, B.M., Kshitij, A. and Verma, C. (2011), Mapping of Indian computer science research output, 1999-2008. *Scientometrics*, **86** (2), 261-283.

Full Text: [2011\Scientometrics86, 261.pdf](2011/Scientometrics86,%20261.pdf)

Abstract: the research output of India in computer science during 1999-2008 is analyzed in this paper on several parameters including total research output, its growth, rank and global publication share, citation impact, share of international collaborative papers and major collaborative partner countries and patterns of research communication in most productive journals. It also analyses the characteristics of most productive institutions, authors and high-cited papers. The publications output and impact of India is also compared with China, South Korea, Taiwan and Brazil.

Keywords: Analyses, Authors, Brazil, Characteristics, China, Citation, Communication, Computer Science, Growth, Impact, India, Information Technology, Institutions, International, Journals, Korea, Mapping, Papers, Publication, Publications, Rank, Research, Research Priorities In Computer, Science, Science Research, Taiwan

Notes: UUniversity

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Full Text: [2011\Scientometrics86, 285.pdf](2011/Scientometrics86,%20285.pdf)

Abstract: As indicator weights obtaining is often difficult in all types of evaluation, this paper describes an approach to improve the indicator weights of scientific and technological competitiveness evaluation of Chinese universities. As a public institution funded by Chinese government, the research center for Chinese science evaluation of Wuhan University has completed five annual evaluations for the scientific and technological competitiveness of Chinese universities since 2005, whose abundant and reliable data motivated us to try to improve the weights obtained by the AHP (analytical hierarchy process). Based on these data, we calculated the objective weights of the indicator using the representative mathematical methods of the least square and the variation coefficient. As the weights of AHP can be influenced by the knowledge, experience and preference of experts and the calculated objective weights neglect the subjective judgement information, we integrated the subjective and objective weights by respectively using the additive and multiplicative model to reflect both the subjective considerations of experts and the objective information, and obtained three kinds of integrative weights. Finally, we selected the integrative weights of multiplicative model as the best weights by comparing and analyzing the evaluation results in 2005 and 2009 of each kind of weights. The results show that the evaluation effect of the weights of multiplicative model is indeed the best for all types of Chinese universities among these kinds of weights, and the experts and university principals enquired also basically reached a consensus on the university rankings of the integrative weights of multiplicative model.

Keywords: AHP, Approach, Chinese, Consensus, Data, Evaluation, Experience, Experts, Improvement, Indicator, Indicator Weights, Information, Integrative, Journal Evaluation, Knowledge, Management, Mathematical Methods, Methods, Model, Neglect, Performance, Preference, Public, Rankings, Research, Science, Science Evaluation, Taiwan, Universities, University

Notes: TTopics, CCountry

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Full Text: [2011\Scientometrics86, 299.pdf](2011/Scientometrics86,%20299.pdf)

Abstract: China is becoming a leading nation in terms of its share of the world’s publications in the emerging nanotechnology domain. This paper demonstrates that the international rise of China’s position in nanotechnology has been underwritten by the emergence of a series of regional hubs of nanotechnology R&D activity within the country. We develop a unique database of Chinese nanotechnology articles covering the period 1990 to mid-2006 to identify the regional distribution of nanotechnology research in China. To build this database, a new approach was developed to clean and standardize the geographical allocation of Chinese publication records. We then analyze the data to understand the regional development of nanotechnology research in China over our study period and to map interregional and international research collaboration linkages. We find that the geographical distribution of China’s domestic nanotechnology research is characterized by regional imbalance, with most of the leading regions located in eastern China, including not only Beijing and Shanghai but also a series of other new regional hubs. There is much less development of nanotechnology research in central and western China. Beijing, Shanghai, and Hong Kong are among the leading Chinese regions for international nanotechnology research collaboration. Other Chinese nanotechnology regions are less focused on international collaboration, although they have developed domestic interregional collaborations. Although new regional research hubs have emerged in the nanotechnology domain, the paper notes that their concentration in eastern China reinforces existing imbalances in science and technology capabilities in China, and in turn this may further reinforce the dominant position of eastern China in the commercialization of new technologies such as nanotechnology.

Keywords: Allocation, Approach, Bibliometric Analysis, China, Chinese, Co-Authorship, Collaboration, Collaborations, Concentration, Country, Data, Database, Development, Distribution, Growth, Hong Kong, Infrastructure, International, Nanoscience, Nanotechnology, Nanotechnology Research, Networks, Patterns, Publication, Publications, Records, Regional, Regional Development, Research, Research Collaboration, Science, Science and Technology, Technologies, Technology

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Full Text: [2011\Scientometrics86, 317.pdf](2011/Scientometrics86,%20317.pdf)

Abstract: We obtained data of statistical significance to verify the intuitive impression that collaboration leads to higher impact. We selected eight scientific journals to analyze the correlations between the number of citations and the number of coauthors. for different journals, the single-authored articles always contained the lowest citations. The citations to those articles with fewer than five coauthors are lower than the average citations of the journal. We also provided a simple measurement to the value of authorship with regards to the increase number of citations. Compared to the citation distribution, similar but smaller fluctuations appeared in the coauthor distribution. Around 70% of the citations were accumulated in 30% of the papers, while 60% of the coauthors appeared in 40% of the papers. We find that predicting the citation number from the coauthor number can be more reliable than predicting the coauthor number from the citation number. for both citation distribution and coauthor distribution, the standard deviation is larger than the average value. We caution the use of such an unrepresentative average value. The average value can be biased significantly by extreme minority, and might not reflect the majority.

Keywords: Authorship, Citation, Citations, Coauthorship, Coauthorship, Collaboration, Correlations, Data, Distribution, Impact, Journal, Journals, Measurement, Papers, Scientific Journals, Significance, Standard, Value

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Full Text: [2011\Scientometrics86, 325.pdf](2011/Scientometrics86,%20325.pdf)

Abstract: We define converging research as the emergence of an interdisciplinary research area from fields that did not show interdisciplinary connections before. This paper presents a process to search for converging research using journal subject categories as a proxy for fields and citations to measure interdisciplinary connections, as well as an application of this search. The search consists of two phases: a quantitative phase in which pairs of citing and cited fields are located that show a significant change in number of citations, followed by a qualitative phase in which thematic focus is sought in publications associated with located pairs. Applying this search on publications from the Web of Science published between 1995 and 2005, 38 candidate converging pairs were located, 27 of which showed thematic focus, and 20 also showed a similar focus in the other, reciprocal pair.

Keywords: Application, Citations, Convergence, Dynamics, Emergence, Field, Impact, Interdisciplinarity, Interdisciplinary, Interdisciplinary Research, Journal, Journal Subject Categories, Measure, Model, Nanotechnology, Non-Linear Growth, Patterns, Physics, Publication, Publications, Qualitative, Research, Research Areas, Research Focus, Science, Web of Science

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Full Text: [2011\Scientometrics86, 339.pdf](2011/Scientometrics86,%20339.pdf)

Abstract: Although composition of bibliometric indicators appears to be desirable, in many cases it may be misleading. After a brief introduction on the properties of scales of measurement, the attention of this communication is focused on a recent composite indicator, the hg-index, suggested by Alonso et al. (Scientometrics 82(2):391-400, 2010). Specifically, hg-index has three major criticalities: (1) the hg scale is the result of a composition of the h- and g-indices, which are defined both on ordinal scales, (2) the equivalence classes of hg are questionable and the substitution rate between h and g may arbitrarily change depending on the specific h and g values, (3) the apparent increase in granularity of hg, with respect to h and g, is illusory and misleading. Argument is supported by several examples.

Keywords: Bibliometric, Bibliometric Indicators, Bibliometrics, Communication, Composite, Composite Indicator, Composition, G-Index, h-Index, hg-Index, Hirsch Index, Indicator, Indicator Composition, Indicators, Measurement, Ordinal Scale, Recent, Scale, Scale Granularity, Scales, Scales of Measurement, Scientometrics, Substitution

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Full Text: [2011\Scientometrics86, 347.pdf](2011/Scientometrics86,%20347.pdf)

Abstract: There is an evident and rapid trend towards the adoption of evaluation exercises for national research systems for purposes, among others, of improving allocative efficiency in public funding of individual institutions. However the desired macroeconomic aims could be compromised if internal redistribution of government resources within each research institution does not follow a consistent logic: the intended effects of national evaluation systems can result only if a “funds for quality” rule is followed at all levels of decision-making. The objective of this study is to propose a bibliometric methodology for: (i) large-scale comparative evaluation of research performance by individual scientists, research groups and departments within research institution, to inform selective funding allocations; and (ii) assessment of strengths and weaknesses by field of research, to inform strategic planning and control. The proposed methodology has been applied to the hard science disciplines of the Italian university research system for the period 2004-2006.

Keywords: Adoption, Assessment, Bibliometric, Bibliometric Indicators, Bibliometrics, Control, Decision Making, Decision-Making, Efficiency, Evaluation, Exercises, Field, Funding, Institutions, Italy, Logic, Methodology, Output, Performance, Planning, Public, Redistribution, Research, Research Assessment Exercises, Research Funding, Research Performance, Resources, Science, Strategic, Strategic Planning, Systems, Trend, University

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Full Text: [2011\Scientometrics86, 365.pdf](2011/Scientometrics86,%20365.pdf)

Abstract: the trend to use administrative health care databases as research material is increasing but not well explored. Taiwan’s National Health Insurance Research Database (NHIRD), one of the largest administrative health care databases around the world, has been used widely in academic studies. This study analyzed 383 NHIRD studies published between 2000 and 2009 to quantify the effects on overall growth, scholar response, and spread of the study fields. The NHIRD studies expanded rapidly in both quantity and quality since the first study was published in 2000. Researchers usually collaborated to share knowledge, which was crucial to process the NHIRD data. However, once the fundamental problem had been overcome, success to get published became more reproducible. NHIRD studies were also published diversely in a growing number of journals. Both general health and clinical science studies benefited from NIIIRD. In conclusion, this new research material widely promotes scientific production in a greater magnitude. The experience of Taiwan’s NHIRD should encourage national- or institutional-level data holders to consider re-using their administrative databases for academic purposes.

Keywords: Administrative Health Care Database, Bibliometric Analysis, Bibliometrics, Care, Clinical, Data, Database, Databases, Epidemiologic Research, Experience, First, General, Growth, Health, Health Care, Journals, Knowledge, Knowledge Growth, National Health Insurance Research Database, Pharmacoepidemiology, Quality, Research, Research Material, Science, Scientific Production, Secondary Data Sources, Trend, World

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Full Text: [2011\Scientometrics86, 381.pdf](2011/Scientometrics86,%20381.pdf)

Abstract: Inventions combine technological features. When features are barely related, burdensomely broad knowledge is required to identify the situations that they share. When features are overly related, burdensomely broad knowledge is required to identify the situations that distinguish them. Thus, according to my first hypothesis, when features are moderately related, the costs of connecting and costs of synthesizing are cumulatively minimized, and the most useful inventions emerge. I also hypothesize that continued experimentation with a specific set of features is likely to lead to the discovery of decreasingly useful inventions; the earlier-identified connections reflect the more common consumer situations. Covering data from all industries, the empirical analysis provides broad support for the first hypothesis. Regressions to test the second hypothesis are inconclusive when examining industry types individually. Yet, this study represents an exploratory investigation, and future research should test refined hypotheses with more sophisticated data, such as that found in literature-based discovery research.

Keywords: Analysis, Connections, Costs, Count Data, Data, Discovery, Dynamic, First, Indicators, Innovative Activities, Inventions, Investigation, Knowledge, Lead, Learning-Curve, Linkage, Literature-Based Discovery, Opportunity Recognition, Patent Citations, Patents, Performance, Relatedness, Research, Science-and-Technology, Search, Support

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Full Text: [2011\Scientometrics86, 405.pdf](2011/Scientometrics86,%20405.pdf)

Abstract: the aim of this study is to use the Japanese university employee list (published by Kojunsha) to compile a database of teacher transferrals in higher education (HM-DB) at 9 points in time over the 21-year period from 1988 to 2008, and then to use this database to assess and analyze the status of national university teachers immediately before and after assuming office as professors in order to gain some understanding of the transferral mechanisms of teachers at Japan’s national universities. From the results of cross-tabulation analysis, it has become clear that a growing proportion of transfers involving the appointment of professors involve movements between very similar universities (transferral blocking phenomenon), and that there is a growing tendency for professorial appointments to involve a migration from universities with a lower share of published research papers to universities with a higher share. Also, by constructing a log-linear model and performing a residual analysis, we have found that although these trends are clearly apparent, they do not yet have a great deal of influence.

Keywords: Analysis, Appointment of Professors To National Universities, Cross Tabulation, Database, Education, Higher Education, Log Linear Model, Mechanisms, Migration, Model, Papers, Promotion, Research, Transferral, Trends, Understanding, Universities, University

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Full Text: [2011\Scientometrics86, 431.pdf](2011/Scientometrics86,%20431.pdf)

Abstract: As an adaptation to its new environment, universities have engaged in various organisational innovations and taken a more active role in the orientation of the researcher. The emerging institutional management imposes specific constraints and opportunities for researchers. Thus, the impact of institutional membership, notably on the different institutional policies, is increasingly a dominant force in academic working lives. However, some scholars have argued that the context of researchers remains an Ivory Tower situation, where academic working life is defined through the twin discourse of academic freedom and professional autonomy. This article analyses the activities of research faculty members funded by the Natural Sciences and Engineering Research Council of Canada, in comparison to the theories that contribute to the explanation of researchers’ behaviour. By using intra-class correlation, which is based on a multi-level analysis of the variance distribution, we find that the grouping effect is still small. In other words, despite the emerging constraints and opportunities determined by their institutional context, researchers still exist in an Ivory Tower, where the explanation of their behaviour is still a matter of individual differences.

Keywords: Adaptation, Analyses, Analysis, Autonomy, Behaviour, Canada, Comparison, Context, Correlation, Discourse, Distribution, Engineering, Environment, Explanation, Faculty, Force, Freedom, Higher-Education, Impact, Institutional Management, Intellectual Property, Ivory Tower, Life, Management, Multi-Level Variance Analysis, Natural, Nested, Policies, Research, Research Productivity, Research Selectivity, Research University, Role, Sciences, Small, Spin-Offs, Structure, Time Allocation, Triple-Helix Indicators, Twin, UK Universities, Universities

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Full Text: [2011\Scientometrics86, 449.pdf](2011/Scientometrics86,%20449.pdf)

Abstract: Disciplines vary in the types of communicative genres they use to disseminate knowledge and citing patterns used within these genres. However, citation analyses have predominately relied on the references and citations of one type of communicative genre. It is argued that this is particularly problematic for studies of interdisciplinarity, where analyses bias the disciplines that communicate using the genre under investigation. This may lead to inaccurate or incomplete results in terms of fully understanding the interrelationships between disciplines. This study analyzes a set of 15,870 references from 97 US dissertations, in order to demonstrate the difference in discipline and author rankings, based on the genre under investigation. This work encourages future work that takes into account multiple citing and cited works, especially where indicators of interdisciplinarity are used for the allocation of resources or ranking of scholars.

Keywords: Allocation, Analyses, Bias, Citation, Citation Analysis, Citations, Collaboration, Communicative Genres, Disciplinarity, Indicators, Interdisciplinarity, Investigation, Knowledge, LC Class, Lead, Map, Networks, Ranking, Rankings, References, Resources, Science, Understanding, US, Work

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Full Text: [2011\Scientometrics86, 463.pdf](2011/Scientometrics86,%20463.pdf)

Abstract: This article analyzes some of the most popular scientific journals in the Manufacturing field from the point of view of four bibliometric indicators: the ISI impact factor (ISI-IF), The Hirsch (h) index-for-journal, the total number of citations and the h-spectrum. h-spectrum is a novel tool based on h, making it possible to (i) identify a reference profile of the typical authors of a journal, (ii) compare different journals and (iii) provide a rough indication of their “bibliometric positioning” in the scientific community. Results of this analysis can be helpful for guiding potential authors and members of the scientific community in the Manufacturing area. of particular interest is the construction of maps based on h-spectrum and IST-IF to compare journals and monitor their bibliometric positioning over time. A large amount of empirical data are presented and discussed.

Keywords: Analysis, Authors, Bibliometric, Bibliometric Indicators, Bibliometric Positioning, Bibliometrics, Citations, Community, Construction, Data, Distributions, Field, h-Index, Hirsch, Hirsch Index, Hirsch Spectrum, Hirsch-Index, Impact, Impact Factor, Indication, Indicators, ISI, Journal, Journal Authors, Journals, Manufacturing, Manufacturing Journal, Potential, Reference, Scientific Journals, Tail

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Full Text: [2011\Scientometrics86, 487.pdf](2011/Scientometrics86,%20487.pdf)

Abstract: This study presents a historical overview of the International Conference on Human Robot Interaction (HRI). It summarizes its growth, internationalization and collaboration. Rankings for countries, organizations and authors are provided. Furthermore, an analysis of the military funding for HRI papers is performed. Approximately 20% of the papers are funded by the US Military. The proportion of papers from the US is around 65% and the dominant role of the US is only challenged by the strong position of Japan, in particular by the contributions by AIR.

Keywords: Air, Analysis, Authors, Bibliometrics, Collaboration, Conference, First, Funding, Google Scholar, Growth, HRI, Impact, Index, Internationalization, Japan, Military, Papers, Rankings, Reflection, Role, Science, US

? Glänzel, W. and Zhou, P. (2011), Publication activity, citation impact and bi-directional links between publications and patents in biotechnology. *Scientometrics*, **86** (2), 505-525.

Full Text: [2011\Scientometrics86, 505.pdf](2011/Scientometrics86,%20505.pdf)

Abstract: the study focuses on publication activity, citation impact and citation links between publications and patents in biotechnology. The European Union (EU), US, Japan and China are the most important global players. However, the landscape is changing since the EU and the US are losing ground because of challenges from a group of emerging economies. National profiles differ between the two groups of main players and upcoming countries; the focus on red biotechnology in the US and Europe is contrasted by propensity for white and green technology in Asia. Furthermore, the subject profile of biotechnology papers citing patents and cited by patents as well as the relationship between patent citations and citation impact in scientific literature is explored. Papers that cite patents tend to reflect propensity towards white biotechnology while patent-cited publications have a higher relative share in red biotechnology. No significant difference concerning the citation impact of publications ‘citing patents’ and ‘not citing patents’ can be found. This is contrasted by the observation that patent-cited papers perform distinctly better in terms of standard bibliometric indicators than comparable publications that are not linked to technology in this direction.

Keywords: Asia, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Biology, Biotechnology, China, Citation, Citation Impact, Citations, Eu, Europe, European Union, Germany, Impact, Indicators, International Collaboration, Japan, Knowledge-Base, Landscape, Literature, Observation, Papers, Patent, Patent Citation, Patent Citations, Patents, Profiles, Publication, Publication Activity, Publications, Red Biotechnology, Science Fields, Science-Technology Linkage, Scientific Literature, Standard, Statistics, Technology, US

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Full Text: [2011\Scientometrics86, 527.pdf](2011/Scientometrics86,%20527.pdf)

Abstract: Academic research groups are treated as complex systems and their cooperative behaviour is analysed from a mathematical and statistical viewpoint. Contrary to the naive expectation that the quality of a research group is simply given by the mean calibre of its individual scientists, we show that intra-group interactions play a dominant role. Our model manifests phenomena akin to phase transitions which are brought about by these interactions, and which facilitate the quantification of the notion of critical mass for research groups. We present these critical masses for many academic areas. A consequence of our analysis is that overall research performance of a given discipline is improved by supporting medium-sized groups over large ones, while small groups must strive to achieve critical mass.

Keywords: Agence D’Evaluation De La Recherche Et De L’Enseignement Superieur, Analysis, Behaviour, Complex Systems, Critical Mass in Research, Dependency, Dynamics, Model, Notion, Performance, Phase Transitions, Quality, Quality of, Quantification, Research, Research Assessment Exercise, Research Excellence Framework, Research Funding, Research Performance, Research Policy, Research Quality, Role, Size, Small, Systems

Notes: TTopic, CCountry

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Full Text: [2011\Scientometrics86, 541.pdf](2011/Scientometrics86,%20541.pdf)

Abstract: the HIV/AIDS pandemic is of international interest with the 2008 Nobel Prize in physiology or medicine having being awarded for the discovery of the virus that causes AIDS. South Africa has a particular interest in the field of HIV/AIDS research as it is the country with the largest number of HIV infections in the world and the issue has created a number of political and scientific debates. This investigation identifies the state of HIV/AIDS related research in South Africa vis-a-vis the rest of the world using evaluative scientometrics in order to inform relevant policy. South Africa is identified as producing an increasing number of HIV/AIDS related publications, making it one of the most prolific fields in the country. The rest of the world appears to have stabilized its research efforts after the development of highly active antiretroviral therapies. The USA is identified as the main producer of HIV/AIDS research while Europe appears to under-emphasise the issue. Comparison of the world’s most prolific universities with those in South Africa identifies that the latter has a fragmented system. A number of policy issues are discussed.

Keywords: Africa, Aid, Aids, Country, Development, Discovery, Europe, Field, Highly Active, HIV, HIV Infections, HIV, AIDS, Human Immunodeficiency Virus, Infections, International, Investigation, Medicine, Physiology, Policy, Publications, Research, Science Policy, Scientometrics, South Africa, State, Universities, USA, World

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Full Text: [2011\Scientometrics86, 553.pdf](2011/Scientometrics86,%20553.pdf)

Abstract: the CiteSeer digital library is a useful source of bibliographic information. It allows for retrieving citations, co-authorships, addresses, and affiliations of authors and publications. In spite of this, it has been relatively rarely used for automated citation analyses. This article describes our findings after extensively mining from the CiteSeer data. We explored citations between authors and determined rankings of influential scientists using various evaluation methods including citation and in-degree counts, HITS, PageRank, and its variations based on both the citation and collaboration graphs. We compare the resulting rankings with lists of computer science award winners and find out that award recipients are almost always ranked high. We conclude that CiteSeer is a valuable, yet not fully appreciated, repository of citation data and is appropriate for testing novel bibliometric methods.

Keywords: Analyses, Authors, Bibliometric, Bibliometric Methods, Citation, Citation Analysis, Citations, Citeseer, Collaboration, Communities, Computer-Science Literature, Data, Evaluation, Evaluation Methods, Google Scholar, Information, Journals, Mar, Methods, Mining, Networks, Pagerank, Publications, Ranking, Rankings, Science, Source, Testing, Web

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Full Text: [2011\Scientometrics86, 563.pdf](2011/Scientometrics86,%20563.pdf)

Abstract: the criteria for the evaluation of scientific journals have changed from characteristics of its contents to citations of articles. Among many problems associated with citation-based evaluation methods are that it is applicable only to a limited number of journals, preferential selection of citable documents, differential values to citations, time duration for assessment, etc. The proposed index, Aggregated Citations of Cited Articles (ACCA), is calculated based on citations data, derived from only of cited articles, and therefore can be validated from standard database. While giving more importance to citations, the number of cited articles published in a journal also has some influence in the new index. The calculated values are consistent with time and can be used to back-track the status of a journal in its past and for continued evaluation. The new Index ensures neutrality, qualitative and quantitative hierarchy and consistency in the estimation of journal ranking.

Keywords: Acca, Assessment, Characteristics, Citation, Citations, Consistency, Criteria, Data, Database, Duration, Evaluation, Evaluation Methods, Impact Factor, Impact-Factor, Index, Journal, Journal Evaluation, Journals, Mar, Methods, Qualitative, Rank, Ranking, Science, Scientific Journals, Standard, Tool

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Full Text: [2011\Scientometrics86, 575.pdf](2011/Scientometrics86,%20575.pdf)

Abstract: In 1989 the Spanish Government established an individual retrospective research evaluation system (RES) for public researchers. Policy makers have associated the establishment of this evaluation system with the significant increase in the volume of scientific publications attributed to Spain over the last decades. In a similar vein to the analyses of other country cases, some scholars have also claimed that the growth of Spain’s international scientific publications is a result of the establishment of the new evaluation system. In this paper, we provide a methodological revision of the validity threats in previous research, including some interrupted time-series analyses and control groups to investigate the effects of this policy instrument on the number of papers produced by Spanish authors. In the years following the establishment of the evaluation system, the results indicate a considerable increase in the number of papers attributed to Spanish authors among those eligible for evaluation (the “treated” group), but also in the control groups. After testing various alternative explanations, we conclude that the growth in Spanish publications cannot be attributed indisputably to the effect of the establishment of the RES, but rather to the increase of expenditure and number of researchers in the Spanish R&D system along with some maturation effects. We take this case as an example of the need to improve and refine methodologies and to be more cautious when attributing effects to research evaluation mechanisms at the national level.

Keywords: Alternative, Analyses, Assumptions, Authors, CNEAI, Control, Control Groups, Countries, Country, Effects of Evaluations, Evaluation, Growth, Impact, Indicators, International, Interrupted Time Series, Mar, Maturation, Mechanisms, Methodologies, Papers, Performance, Policy, Public, Publication, Publications, Quasi-Experimental Design, Regression Artifacts, Research, Research Evaluation, Research Evaluation Systems, Science, Scientific Production, Scientific Publications, Spain, Spain, Spanish, Systems, Testing, Time Series, Validity, Volume

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Full Text: [2011\Scientometrics86, 593.pdf](2011/Scientometrics86,%20593.pdf)

Abstract: the aim of this paper is to identify the research status quo on pervasive and ubiquitous computing via scientometric analysis. Information visualization and knowledge domain visualization techniques were adopted to determine how the study of pervasive and ubiquitous computing has evolved. A total of 5,914 papers published between 1995 and 2009 were retrieved from the Web of Science with a topic search of pervasive or ubiquitous computing. CiteSpace is a java application for analyzing and visualizing a wide range of networks from bibliographic data. By use of it, we generated the subject category network to identify the leading research fields, the research power network to find out the most productive countries and institutes, the journal co-citation map to identify the distribution of core journals, the author co-citation map to identify key scholars and their co-citation patterns, the document co-citation network to reveal the ground-breaking literature and detect the co-citation clusters on pervasive and ubiquitous computing, and depicted the hybrid network of keywords and noun phrases to explore research foci on pervasive and ubiquitous computing over the entire span 1995-2009.

Keywords: 21st-Century, Analysis, Application, Author Cocitation, Co-Citation, Co-Citation Cluster Analysis, Cocitation, Context, Data, Distribution, Document Co-Citation Analysis, Domain-Analysis, Hybrid, Information-Science, Intellectual Structure, Journal, Journals, Knowledge, Literature, Mar, Mobile, Network, Networks, Papers, Pervasive and Ubiquitous Computing, Power, Research, Research Foci, Science, Scientific Literature, Scientometric, Techniques, Visualization, Web of Science

Notes: UUniversity

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Full Text: [2011\Scientometrics86, 613.pdf](2011/Scientometrics86,%20613.pdf)

Abstract: This study used a bibliometric method to find quantitative evidence of publication and citing patterns within UK academia. The publications of a random sample of UK research-active academics for each of the years 2003 and 2008-were collected and analysed to gather data regarding referencing practices, along with any identifiable trends between the 2 years. References were categorised by type of material to show the proportions of each type used. Comparisons between the 2 years showed that the use of journal articles had increased. There was also an increase in the average number of publications per author. A large number of authors had no publications in the target years.

Keywords: Analysis, Authors, Bibliometric, Citation, Cited References, Data, Disciplinary Differences, Evidence, Humanities, Journal, Journal Articles, Mar, Monographs, Multiple Authorship, Philosophy, Practices, Publication, Publication Behaviour, Publications, Random Sample, References, Referencing, Research Assessment, Social-Sciences, Sociology, Trends, UK

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Full Text: [2011\Scientometrics86, 629.pdf](2011/Scientometrics86,%20629.pdf)

Abstract: Policy makers, at various levels of governance, generally encourage the development of research collaboration. However the underlying determinants of collaboration are not completely clear. In particular, the literature lacks studies that, taking the individual researcher as the unit of analysis, attempt to understand if and to what extent the researcher’s scientific performance might impact on his/her degree of collaboration with foreign colleagues. The current work examines the international collaborations of Italian university researchers for the period 2001-2005, and puts them in relation to each individual’s research performance. The results of the investigation, which assumes co-authorship as proxy of research collaboration, show that both research productivity and average quality of output have positive effects on the degree of international collaboration achieved by a scientist.

Keywords: Analysis, Bibliometrics, Co-Authorship, Co-Authorships, Coauthorship, Collaboration, Collaborations, Development, Governance, Impact, International, Internationalization, Investigation, Italy, Literature, Mar, Methodology, Performance, Policy, Productivity, Quality, Quality of, Research, Research Collaboration, Research Collaboration, Research Performance, Research Productivity, Scientific Performance, Universities, University, Work

Notes: UUniversity

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Full Text: [2011\Scientometrics86, 645.pdf](2011/Scientometrics86,%20645.pdf)

Abstract: Yearly publication counts of research institutions and universities continue to be a widely-used parameter to assess their research productivity, and such evaluations have been successfully used to analyze the influence of research support policies at various levels. This study was designed to analyze the yearly number of articles having an Akdeniz University address and that appeared in the Web of Science databases from 1996 to 2009. Time series analysis of the number of published articles was used to determine the impact of alterations in the number of faculty members and research funding as well as changes in the institutional and country-wide research support policies and encouragement mechanisms. It was observed that alterations in both the number of faculty members who are active in research and the total amount of research funding each year may explain the general pattern published articles. However, there is a period with significant deviations from the trend predicted by these relationships. This period, corresponding to the years 2002-2008, is discussed in terms of the effects of policy changes which may have positive and negative contributions to the predicted pattern. Mathematical analysis of publication time series, together with parameters expected to affect research output, may provide valuable insight into the effectiveness of research support mechanisms.

Keywords: Analysis, Articles, Changes, Databases, Effectiveness, Faculty, Funding, General, Impact, Institutions, Mar, Mechanisms, Pattern, Policies, Policy, Productivity, Publication, Publication Counts, Research, Research Funding, Research Productivity, Research Support, Science, Support, Time Series, Time-Series Analysis, Trend, Turkey, Universities, University, Web of Science

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Full Text: [2011\Scientometrics86, 657.pdf](2011/Scientometrics86,%20657.pdf)

Abstract: This paper aims to reveal the relationship and structure of library and information science (LIS) journals in China. 24 core LIS journals in China are selected and the relevant data of journal co-citation are retrieved from Chinese Journal Full-Text Database constructed by China National Knowledge Infrastructure during the period of 1999-2009. By calculating mean co-citation frequencies and correlation coefficients, we find that there is a strong relationship among LIS journals in China. Utilizing the methods of cluster analysis, multidimensional scaling analysis and factor analysis, we analyze the data of journal co-citation. LIS journals in China are divided into four clusters. The relatedness among journals is shown manifestly through their locations in the two-dimensional map. A three-factor solution is obtained with the factor loading of each journal. Finally, we interpret and discuss the results to get some conclusions and also expect to describe the network characters of journal co-citation in future research.

Keywords: Analysis, China, Chinese, Citation, Cluster, Cluster Analysis, Co-Citation, Co-Citation Analysis, Cocitation, Constructed, Correlation, Data, Factor Analysis, Information, Information Science, Intellectual Space, Journal, Journal Co-Citation, Journal Co-Citation Analysis, Journals, Library and Information Science, LIS, LIS Journals, Loading, Mar, Methods, Multidimensional, Multidimensional Scaling, Multivariate Statistical Analysis, Network, Research, Scaling, Science, Solution, Structure

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Full Text: [2011\Scientometrics86, 671.pdf](2011/Scientometrics86,%20671.pdf)

Abstract: the f-value is a new indicator that measures the importance of a research article by taking into account all citations received, directly and indirectly, up to depth n. The f-value considers all information present in a Citation Graph in order to produce a ranking of the articles. Apart from the mathematical equation that calculates the f-value, we also present the corresponding algorithm with its implementation, plus an experimental comparison of f-value with two known indicators of an article’s scientific importance, namely, the number of citations and the Page Rank for citation analysis. Finally, we discuss the similarities and differences among the indicators.

Keywords: Algorithm, Analysis, Citation, Citation Analysis, Citation Graph, Citations, Comparison, Experimental, f-Value, h-Index, Impact, Implementation, Indicator, Indicators, Information, Mar, Output, Page Rank, Publication, Ranking, Research, Scientific Impact

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Full Text: [2011\Scientometrics86, 687.pdf](2011/Scientometrics86,%20687.pdf)

Abstract: Technology analysis is a process which uses textual analysis to detect trends in technological innovation. Co-word analysis (CWA), a popular method for technology analysis, encompasses (1) defining a set of keyword or key phrase patterns which are represented in technology-dependent terms, (2) generating a network that codifies the relations between occurrences of keywords or key phrases, and (3) identifying specific trends from the network. However, defining the set of keyword or key phrase patterns heavily relies on effort of experts, who may be expensive or unavailable. Furthermore defining keyword or key phrase patterns of new or emerging technology areas may be a difficult task even for experts. To solve the limitation in CWA, this research adopts a property-function based approach. The property is a specific characteristic of a product, and is usually described using adjectives; the function is a useful action of a product, and is usually described using verbs. Properties and functions represent the innovation concepts of a system, so they show innovation directions in a given technology. The proposed methodology automatically extracts properties and functions from patents using natural language processing. Using properties and functions as nodes, and co-occurrences as links, an invention property-function network (IPFN) can be generated. Using social network analysis, the methodology analyzes technological implications of indicators in the IPFN. Therefore, without predefining keyword or key phrase patterns, the methodology assists experts to more concentrate on their knowledge services that identify trends in technological innovation from patents. The methodology is illustrated using a case study of patents related to silicon-based thin film solar cells.

Keywords: Analysis, Approach, Case Study, Citations, Co-Word Analysis, Concentrate, Experts, Function, Functions, Indicators, Innovation, Knowledge, Limitation, Mar, Methodology, Natural, Natural Language Processing, Network, Network Analysis, Patent Analysis, Patent Mining, Patents, Property, Relations, Research, Services, Social, Social Network Analysis, Solar Cells, Technological Innovation, Technological Trend, Technology, Technology Analysis, Thin Film, Trends

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Full Text: [2011\Scientometrics86, 705.pdf](2011/Scientometrics86,%20705.pdf)

Abstract: This article studies interdisciplinarity and the intellectual base of 34 literature journals using citation data from Web of Science. Data from two time periods, 1978-1987 and 1998-2007 were compared to reveal changes in the interdisciplinary citing of monographs. The study extends the analysis to non-source publications; using the classification of monographs to show changes in the intellectual base. There is support for increased interdisciplinary citing of sources, especially to the social sciences, and changes in the intellectual base reflect this. The results are explained using theories on the intellectual and social organization of scientific fields and the use of bibliometric methods on the humanities is discussed. The article demonstrates how citation analysis can provide insights into the communication patterns and intellectual structure of scholarly fields in the arts and humanities.

Keywords: Analysis, Arts-And-Humanities, Bibliometric, Bibliometric Methods, Changes, Citation, Citation Analysis, Classification, Communication, Data, Humanities, Index, Intellectual Structure, Interdisciplinarity, Interdisciplinary, Journals, Library, Literature, Literature Studies, Mar, Methods, Organization, Publications, Science, Sciences, Social, Social Sciences, Social-Sciences, Sources, Structure, Support, Web of Science

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Full Text: [2011\Scientometrics86, 727.pdf](2011/Scientometrics86,%20727.pdf)

Abstract: This paper describes the different forms of and tries to give reasons for international scientific collaboration in general. It focuses on eleven countries in the Asia-Pacific region by evaluating their national research output with the help of bibliometric indicators in particular. Over two million journal articles published by these countries between 1998 and 2007 in ISI-listed periodicals are analyzed. Discipline-specific publication and citation profiles reveal national strengths and weaknesses in the different research domains. The exponential increase in publication output by China over the last few years is astonishing, but in terms of visibility, i.e. citation rates, China cannot keep up with leading science nations, remaining below the world average. A discipline-specific analysis shows that Chinese authors took an active part in more than a quarter of all articles and reviews published in the field of materials science in 2007, while their contribution to medical research is very low. Co-publication networks among the eleven countries are generated to observe the development of cooperation bonds in the region. Applying Salton’s measure of international collaboration strength, an above-average strengthening of scientific collaboration in the Asia-Pacific region can be observed.

Keywords: Analysis, Asia Pacific, Asia-Pacific Research Area, Authors, Bibliometric, Bibliometric Indicators, China, Chinese, Citation, Collaboration, Cooperation, Country Level Study, Development, Discipline Specific Publication Profiles, Field, Forms, General, Indicators, International, Journal, Journal Articles, Mar, Measure, Medical, Medical Research, Nations, Networks, Periodicals, Profiles, Publication, Rates, Region, Research, Reviews, Science, Scientific Collaboration, Scientific Cooperation, Strength, Visibility, World

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Full Text: [2011\Scientometrics86, 747.pdf](2011/Scientometrics86,%20747.pdf)

Abstract: Better research quality not only inspires scholars to continue their research, but also increases the possibility of higher research budgets from sponsors. Given the importance of research quality, this study proposes that utilizing social capital (i.e., research collaboration) might be a promising avenue to achieve better research quality. In addition, as every scholar has his or her own expertise and knowledge, the diversity of collaborating members might be an extra resource for reinforcing research quality. The purpose of this study is to investigate the impact of research collaboration and member diversity on research quality, including the number of citations, the impact factor, and the size of the research award. To explore unknown associations, the author adopts two data sources, that is, the Social Science Citation Index database and academic database of a university, to verify the hypotheses. The results show that a higher intensity at which scholars are embedded in a collaboration network, results in higher research quality. However, member diversity does not seem to be a major concern during the organization of a research group. Research quality is not affected, regardless of whether a scholar collaborates with different or the same co-authors.

Keywords: Articles, Citation, Citations, Co-Authors, Collaboration, Collaboration Networks, Data, Database, Diversity, Exploitation, Exploration, Exploration and Exploitation, Impact, Impact Factor, Impacts, Information-Systems Research, Knowledge, Knowledge Creation, Mar, Member Diversity, Network, Networks, Organization, Outcomes, Perspective, Purpose, Quality, Research, Research Collaboration, Research Quality, Science, Science Citation Index, Size, Social, Social Capital, Social Network, Social Networks, Social Science Citation Index, Socialization, Sources, University

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Full Text: [2011\Scientometrics86, 763.pdf](2011/Scientometrics86,%20763.pdf)

Abstract: This study analyzed the use of acknowledgements in medical articles published in five countries (Venezuela, Spain, France, UK and USA) from 1950 to 2010. for each country, we selected 54 papers (18 research papers, 18 reviews and 18 case reports), evenly distributed over six decades, from two medical journals with the highest impact factors. Only papers written by native speakers in the national language were included. The evolution of the frequency and length of acknowledgments was analyzed. of 270 articles studied, 127 (47%) had acknowledgments. The presence of acknowledgments was associated with country (p = 0.001), this section being more common and longer in US and UK journals. Acknowledgments were most common in research papers (70 vs. 40% in case reports and 31% in reviews, p < 0.001). Reviews without acknowledgments were significantly more common than those with (69 vs. 31%), but there was no trend in case reports. Altogether, articles with acknowledgments predominated only after 2000. Since the frequency of use of acknowledgments remained stable over time in US and UK journals but increased in non-Anglophone journals, the overall increase is attributed to the change in non-English publications. Authors acknowledged sub-authorship more in English language journals than in those published in the national language in France, Spain and Venezuela. However, the practice of acknowledging is increasing in non-Anglophone journals. We conclude that the concept of intellectual indebtedness does not only differ from one geographical context to another, but also over time and from one academic genre to another.

Keywords: Acknowledgment, Acknowledgments, Approach, Articles, Authorship, Case Reports, Collaboration, Context, Country, Diachronic, Discourse, Dissertation Acknowledgments, Distributed, English, Evolution, France, Genre, Genre, Impact, Impact Factors, Journals, Length, Mar, Medical, Medical Journals, Medicine, Papers, Patterns, Practice, Publications, Research, Research Article, Researchers, Review Article, Reviews, Social-Sciences, Spain, Spanish, Trend, UK, US, USA

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Full Text: [2011\Scientometrics86, 785.pdf](2011/Scientometrics86,%20785.pdf)

Abstract: In the assessment of success of new analgesic drugs over the past 50 years (Kissin, Anesth Analg 110:780-789, 2010) we observed a difference in the publication response to a new drug between biomedical journals in general and top journals: number of published articles on a drug increased (and declined) more rapidly in the top journals. Based on this phenomenon we present a new publication indicator-the Top Journal Selectivity Index (TJSI). It represents the ratio between the number of all types of articles in the top 20 biomedical journals and the number of articles in all (> 5,000) journals covered by MEDLINE, over 5 years after a drug’s introduction. Ten analgesics developed during the period 1986-2009 were selected for analysis. Three publication indices were used for assessment: the number of all types of articles presented in MEDLINE, the number of articles covering only randomized controlled trials (RCT), and the Top Journal Selectivity Index. We also assessed the success score in the development of these analgesics based on the following criteria: novelty of molecular target, analgesic efficacy, and response by the pharmaceutical market. The relationships between the publication indices and analgesic’s success score were determined with the use of the Pearson correlation coefficient. Positive relationship was found only with the Top Journal Selectivity Index (r = 0.876, p < 0.001). We suggest that this index can predict success in drug development at least in the field of analgesics.

Keywords: Analgesic, Analgesics, Analysis, Assessment, Bibliometric, Bibliometric Indicator, Bibliometrics, Biomedical, Biomedical Journals, Correlation, Correlation Coefficient, Criteria, Development, Drug, Drug Development, Drugs, Efficacy, Field, General, Impact Factor, Index, Indicator, Indices, Journal, Journals, Mar, Market, Metaanalysis, Migraine, New Drugs, Novelty, Pain, Publication, Randomized, Randomized Controlled Trials, RCT, Topic-Specific Publications, Trials

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Full Text: [2011\Scientometrics87, 1.pdf](2011/Scientometrics87,%201.pdf)

Abstract: This study examines the identity and development of the management information systems (MIS) field through a scientometric lens applied to three major global, regional and national conferences: International Conference on Information Systems (ICIS), Pacific Asia Conference on Information Systems (PACIS) and Administrative Sciences Association of Canada Annual Conference (ASAC). It adapts the conference stakeholder approach to the construction of the identity of the MIS discipline and analyzes the proceedings of these three conferences. The findings suggest that the MIS field has been evolving in terms of collaborative research and scholarly output and has been gradually moving towards academic maturity. The leading MIS conference contributors tend to establish loyalty to a limited number of academic meetings. At the same time, relatively low levels of repeat publication in the proceedings of ICIS, PACIS and ASAC were observed. It was suggested that Lotka’s and Yule-Simon’s bibliometric laws may be applied to measure and predict the degree of conference delegate loyalty.

Keywords: Approach, Asac, Asia, Authorship, Bibliometric, Canada, Citation, Collaborative Research, Conference, Conferences, Construction, Development, Diversity, Field, ICIS, Identity Crisis, Impact, Information, Information Systems, Laws, Lotka’s Law, Lotkas Law, Loyalty, Management, Management Information, Management Information Systems, Measure, MIS, Pacis, Patterns, Productivity, Productivity, Publication, Regional, Research, Scholarly Output, Science, Scientific Collaboration, Scientometric, Systems, Yule-Simon’S Law

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Full Text: [2011\Scientometrics87, 14.pdf](2011/Scientometrics87,%2014.pdf)

Abstract: the paper is concerned with analysing what makes a great journal great in the sciences, based on quantifiable Research Assessment Measures (RAM). Alternative RAM are discussed, with an emphasis on the Thomson Reuters ISI Web of Science database (hereafter ISI). Various ISI RAM that are calculated annually or updated daily are defined and analysed, including the classic 2-year impact factor (2YIF), 5-year impact factor (5YIF), Immediacy (or 0-year impact factor (0YIF)), Eigenfactor, Article Influence, C3PO (Citation Performance Per Paper Online), h-Index, Zinfluence, PI-BETA (Papers Ignored-By Even the Authors), Impact Factor Inflation (IFI), and three new RAM, namely Historical Self-citation Threshold Approval Rating (H-STAR), 2 Year Self-citation Threshold Approval Rating (2Y-STAR), and Cited Article Influence (CAI). The RAM data are analysed for the 6 most highly cited journals in 20 highly-varied and well-known ISI categories in the sciences, where the journals are chosen on the basis of 2YIF. The application to these 20 ISI categories could be used as a template for other ISI categories in the sciences and social sciences, and as a benchmark for newer journals in a range of ISI disciplines. In addition to evaluating the 6 most highly cited journals in each of 20 ISI categories, the paper also highlights the similarities and differences in alternative RAM, finds that several RAM capture similar performance characteristics for the most highly cited scientific journals, determines that PI-BETA is not highly correlated with the other RAM, and hence conveys additional information regarding research performance. In order to provide a meta analysis summary of the RAM, which are predominantly ratios, harmonic mean rankings are presented of the 13 RAM for the 6 most highly cited journals in each of the 20 ISI categories. It is shown that emphasizing the impact factor, specifically the 2-year impact factor, of a journal to the exclusion of other informative RAM can lead to a distorted evaluation of journal performance and influence on different disciplines, especially in view of inflated journal self citations.

Keywords: 2Y-Star, Alternative, Analysis, Application, Article Influence, C3PO, Characteristics, Citation, Citations, Cited Article Influence, Data, Database, Eigenfactor, Eigenfactor(TM) Metrics, Evaluation, First, h Index, h-Index, H-Star, IFI, Immediacy, Impact, Impact Factor, Impact Factors, Indexes, Information, ISI, ISI Web of Science, Journal, Journals, Lead, Meta-Analysis, Performance, Pi-Beta, Rankings, Research, Research Assessment Measures (RAM), Research Performance, Science, Sciences, Scientific Journals, Self, Self-Citations, Social, Social Sciences, Template, Web of Science, Zinfluence

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Full Text: [2011\Scientometrics87, 41.pdf](2011/Scientometrics87,%2041.pdf)

Abstract: Ranking of 91 countries based on the Technology Achievement Index 2009 (TAI-09) (2009 refers to the year in which most of data collection was carried out.) is reported. Originally proposed in 2002, the TAI is a composite indicator which aggregates national technological capabilities and performance in terms of creation/diffusion of new technologies, diffusion of old technologies and development of human skills. In addition to the overall ranking of 91 countries, rankings in each sub-dimension of the Index are also reported. Comparative analysis of TAI ranking of 56 countries, common to the present and previous study of 2002 under similar conditions, is quite instructive and indicates shifts in technological scenario of these countries even over a relatively short period of 5-6 years. A simple concept based on Standard Deviation approach, as an indication of the technological spread or otherwise, is proposed for the first time. Application of this concept to 56 common countries is reported.

Keywords: Achievement, Aggregates, Analysis, Approach, Collection, Comparative Study, Composite, Data, Data Collection, Development, Diffusion, First, Human, Human Skills, Index, Indication, Indicator, Nations, Performance, Ranking, Rankings, Scenario, Technologies, Technology Achievement Index, Technology Capability, Technology Capability Spread, Technology Creation, Technology Development, Technology Diffusion

? Acosta, M., Coronado, D., Ferrandiz, E. and Leon, M.D. (2011), Factors affecting inter-regional academic scientific collaboration within Europe: the role of economic distance. *Scientometrics*, **87** (1), 63-74.

Full Text: [2011\Scientometrics87, 63.pdf](2011/Scientometrics87,%2063.pdf)

Abstract: This paper offers some insights into scientific collaboration (SC) at the regional level by drawing upon two lines of inquiry. The first involves examining the spatial patterns of university SC across the EU-15 (all countries belonging to the European Union between 1995 and 2004). The second consists of extending the current empirical analysis on regional SC collaboration by including the economic distance between regions in the model along with other variables suggested by the extant literature. The methodology relies on co-publications as a proxy for academic collaboration, and in order to test the relevance of economic distance for the intensity of collaboration between regions, we put forward a gravity equation. The descriptive results show that there are significant differences in the production of academic scientific papers between less-favoured regions and core regions. However, the intensity of collaboration is similar in both types of regions. Our econometric findings suggest that differences in scientific resources (as measured by R&D expenditure) between regions are relevant in explaining academic scientific collaborations, while distance in the level of development (as measured by per capita GDP) does not appear to play any significant role. Nevertheless, other variables in the analysis, including geographical distance, specialization and cultural factors, do yield significant estimated coefficients, and this is consistent with the previous literature on regional SC.

Keywords: Academic Scientific Collaboration, Analysis, Center-Periphery, Co-Authorship, Co-Authorships, Collaboration, Collaborations, Cultural, Development, Economic, Economic Distance, Europe, European Union, First, Gravity Equation, International Collaboration, Literature, Methodology, Model, Papers, Patterns, Proximity, Regional, Relevance, Resources, Role, Science, Scientific Collaboration, University

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Full Text: [2011\Scientometrics87, 75.pdf](2011/Scientometrics87,%2075.pdf)

Abstract: We studied the effect on journal impact factors (JIF) of citations from documents labeled as articles and reviews (usually peer reviewed) versus citations coming from other documents. In addition, we studied the effect on JIF of the number of citing records. This number is usually different from the number of citations. We selected a set of 700 journals indexed in the SCI section of JCR that receive a low number of citations. The reason for this choice is that in these instances some citations may have a greater impact on the JIF than in more highly-cited journals. After excluding some journals for different reasons, our sample consisted of 674 journals. We obtained data on citations that contributed to the JIF for the years 1998-2006. In general, we found that most journals obtained citations that contribute to the impact factor from documents labeled as articles and reviews. In addition, in most of journals the ratio between citations that contributed to the impact factor and citing records was greater than 80% in all years. Thus, in general, we did not find evidence that citations that contributed to the impact factor were dependent on non-peer reviewed documents or only a few citing records.

Keywords: Choice, Citation-Index, Citations, Citing Records, Data, Evidence, General, Impact, Impact Factor, Impact Factors, Journal, Journal Impact, Journal Impact Factor, Journal Impact Factors, Journals, Labeled Editorial Material, Peer-Reviewed, Records, Reviews, SCI

? Bartneck, C. and Kokkelmans, S. (2011), Detecting h-Index manipulation through self-citation analysis. *Scientometrics*, **87** (1), 85-98.

Full Text: [2011\Scientometrics87, 85.pdf](2011/Scientometrics87,%2085.pdf)

Abstract: the h-Index has received an enormous attention for being an indicator that measures the quality of researchers and organizations. We investigate to what degree authors can inflate their h-Index through strategic self-citations with the help of a simulation. We extended Burrell’s publication model with a procedure for placing self-citations, following three different strategies: random self-citation, recent self-citations and h-manipulating self-citations. The results show that authors can considerably inflate their h-Index through self-citations. We propose the q-index as an indicator for how strategically an author has placed self-citations, and which serves as a tool to detect possible manipulation of the h-Index. The results also show that the best strategy for an high h-Index is publishing papers that are highly cited by others. The productivity has also a positive effect on the h-Index.

Keywords: Analysis, Authors, h Index, h-Index, Indicator, Manipulation, Model, Papers, Procedure, Productivity, Publication, Publishing, q-Index, Quality, Quality of, Recent, Science, Self-Citation, Self-Citations, Simulation, Stochastic-Model, Strategic, Strategy

? Mattsson, P., Sundberg, C.J. and Laget, P. (2011), Is correspondence reflected in the author position? A bibliometric study of the relation between corresponding author and byline position. *Scientometrics*, **87** (1), 99-105.

Full Text: [2011\Scientometrics87, 99.pdf](2011/Scientometrics87,%2099.pdf)

Abstract: Bibliometric indicators are increasingly used to fund and evaluate scientific research. Since the number of authors in a paper and the number of has increased it is difficult to determine the individual contribution of authors. Suggested approaches include the study of author position or the corresponding author. Our findings show that the corresponding author is most likely to appear first and then last in the byline. The results are dependent on number of authors in a paper and national differences exist. This underscores the need to take into account both the number of authors on a paper and their position in the byline to be accurate when measuring author contribution.

Keywords: Author Impact, Author Position, Authors, Bibliometric, Bibliometric Indicators, Bibliometric Study, Co-Authorship, Corresponding Author, First, Indicators, Research, Scientific Research, Senior Authors

? Quesada, A. (2011), Further characterizations of the Hirsch Index. *Scientometrics*, **87** (1), 107-114.

Full Text: [2011\Scientometrics87, 107.pdf](2011/Scientometrics87,%20107.pdf)

Abstract: the Hirsch Index is a number that synthesizes a researcher’s output. It is defined as the maximum number h such that the researcher has h papers with at least h citations each. Four characterizations of the Hirsch Index are suggested. The most compact one relies on the interpretation of the index as providing the number of valuable papers in an output and postulates three axioms. One, only cited papers can be valuable. Two, the index is strongly monotonic: if output x has more papers than output y and each paper in x has more citations than the most cited paper in y, then x has more valuable papers than y. and three, the minimum amount of citations under which a paper becomes valuable is different for each paper.

Keywords: Axiomatic Characterization, Characterizations, Citations, Hirsch, Hirsch Index, Index, Minimum, Papers, Publications, Scientific Productivity Index

? Zhao, D.Z. and Strotmann, A. (2011), Intellectual structure of stem cell research: A comprehensive author co-citation analysis of a highly collaborative and multidisciplinary field. *Scientometrics*, **87** (1), 115-131.

Full Text: [2011\Scientometrics87, 115.pdf](2011/Scientometrics87,%20115.pdf)

Abstract: This study is an attempt to approach the intellectual structure of the stem cell research field 2004-2009 through a comprehensive author co-citation analysis (ACA), and to contribute to a better understanding of a field that has been brought to the forefront of research, therapy and political and public debates, which, hopefully, will in turn better inform research and policy. Based on a nearly complete and clean dataset of stem cell literature compiled from PubMed and Scopus, and using automatic author disambiguation to further improve results, we perform an exclusive all-author ACA of the 200 top-ranked researchers of the field by fractional citation count. We find that, despite the theoretically highly interdisciplinary nature of the field, stem cell research has been dominated by a few central medical research areas-cancer and regenerative medicine of the brain, the blood, the skin, and the heart-and a core of cell biologists trying to understand the nature and the molecular biology of stem cells along with biotechnology researchers investigating the practical identification, isolation, creation, and culturing of stem cells. It is also remarkably self-contained, drawing only on a few related areas of cell biology. This study also serves as a baseline against which the effectiveness of a range of author-based bibliometric methods and indicators can be tested, especially when based on less comprehensive datasets using less optimal analysis methods.

Keywords: All Author Aca, All-Author, Analysis, Approach, Author Co-Citation Analysis, Author Cocitation Analysis, Bibliometric, Bibliometric Methods, Bibliometrics, Biology, Biomedical Research, Biotechnology, Blood, Brain, Citation, Citation Analysis, Co-Citation, Co-Citation Analysis, Cocitation, Effectiveness, Field, Identification, Indicators, Information-Science, Intellectual Structure, Interdisciplinary, Literature, Medical, Medical Research, Medicine, Methods, Molecular Biology, Multidisciplinary, Policy, Public, Publications, Pubmed, Regenerative Medicine, Research, Research Policy, Scholarly Communication, Scholarly Communication, Scientific Collaboration, Scopus, Skin, Stem Cell, Stem Cell Research, Stem Cells, Structure, Therapy, Understanding, Web

? Guns, R., Liu, Y.X. and Mahbuba, D. (2011), Q-measures and betweenness centrality in a collaboration network: A case study of the field of informetrics. *Scientometrics*, **87** (1), 133-147.

Full Text: [2011\Scientometrics87, 133.pdf](2011/Scientometrics87,%20133.pdf)

Abstract: We study global and local Q-measures, as well as betweenness centrality, as indicators of international collaboration in research. After a brief review of their definitions, we introduce the concepts of external and internal inter-group geodesics. These concepts are applied to a collaboration network of 1129 researchers from different countries, which is based on publications in bibliometrics, informetrics, webometrics, and scientometrics (BIWS in short) from the period 1990-2009. It is thus illustrated how international collaboration (among authors from different countries) in BIWS is carried out. Our results suggest that average scores for local Q-measures are typically higher, indicating a relatively low degree of international collaboration in BIWS. The dominating form of international collaboration is bilateral, whereas multilateral collaboration is relatively rare in the field of BIWS. We also identify and visualize the most important global and local actors. Dividing the entire period in four 5-year periods, it is found that most international collaboration in the field has happened in the last time slice (2005-2009). A comparison of the different time slices reveals the non-linear growth of the indicators studied and the international expansion of the field.

Keywords: Authors, Betweenness, Bibliometrics, Case Study, Co-Author Collaborative Network, Collaboration, Comparison, Disambiguation, Evolvement of Network, External Inter-Group Geodesic, Field, Global Q-Measure, Globalization, Growth, Indicators, Informetrics, Internal Inter-Group Geodesic, International, Local, Local Q-Measure, Network, Publications, Research, Review, Scientometrics, Webometrics

? Kliegl, R. and Bates, D. (2011), International collaboration in psychology is on the rise. *Scientometrics*, **87** (1), 149-158.

Full Text: [2011\Scientometrics87, 149.pdf](2011/Scientometrics87,%20149.pdf)

Abstract: There has been a substantial increase in the percentage for publications with co-authors located in departments from different countries in 12 major journals of psychology. The results are evidence for a remarkable internationalization of psychological research, starting in the mid 1970s and increasing in rate at the beginning of the 1990s. This growth occurs against a constant number of articles with authors from the same country; it is not due to a concomitant increase in the number of co-authors per article. Thus, international collaboration in psychology is obviously on the rise.

Keywords: Authors, Co-Authors, Collaboration, Country, Evidence, Growth, Historical Trend, International, International Collaboration, Internationalization, Journals, Linear Mixed Model, Psychological Publications, Psychology, Publications, Research

? Zhao, Q.J. and Guan, J.C. (2011), International collaboration of three ‘giants’ with the G7 countries in emerging nanobiopharmaceuticals. *Scientometrics*, **87** (1), 159-170.

Full Text: [2011\Scientometrics87, 159.pdf](2011/Scientometrics87,%20159.pdf)

Abstract: Nanobiopharmaceuticals is a hopeful research domain from recent scientific advances with massive marketable potential. Although some researchers have studied international collaboration from some aspects, few articles are as comprehensive as this article to consider international cooperation from so many different aspects. We lay more emphasis on international collaboration in the field of nanobiopharmaceuticals involving China. Incremental citation impact values show that in order to move forward and improve the overall competitiveness in the field, China requires to carry out more international collaboration in the field, especially with USA, Germany, and England. Startlingly, multinational collaboration does not sway Chinese citation impact as much as we anticipate in the field. China has reached the first rank in the world in terms of publication amount per year in the field in 2009. Few papers about international collaboration compare small world phenomenon. We use small world quotient to find that it is important for Chinese international co-authors to strengthen to cultivate a cooperation networks in which a node’s partners are also buddies to each other.

Keywords: Advances, China, Chinese, Citation, Citation Impact, Co-Authors, Co-Authorship, Collaboration, Cooperation, Disciplinary, England, Field, First, Germany, Impact, International, International Collaboration, International Cooperation, Nanobiopharmaceuticals, Nanotechnology, Networks, Papers, Potential, Publication, Publications, Rank, Recent, Research, Small, Small World, USA, World

? Rousseau, R. (2011), Comments on the modified collaborative coefficient. *Scientometrics*, **87** (1), 171-174.

Full Text: [2011\Scientometrics87, 171.pdf](2011/Scientometrics87,%20171.pdf)

Abstract: It is shown that the observations made in a recent contribution by Savanur and Srikanth (Scientometrics 84:365-371, 2010) are not new. On the contrary much more refined collaboration measures have been proposed already in 1991 by Egghe.

Keywords: Collaboration, Collaborative Coefficient, Egghe’s Requirements for Collaboration Measures, Modified, Recent, Scale Invariance, Scientometrics

? Zheng, J., Zhao, Z.Y., Zhang, X., Chen, D.Z., Huang, M.H., Lei, X.P., Zhang, Z.Y., Zhao, Y.H. and Liu, R.S. (2011), Industry evolution and key technologies in China based on patent analysis. *Scientometrics*, **87** (1), 175-188.

Full Text: [2011\Scientometrics87, 175.pdf](2011/Scientometrics87,%20175.pdf)

Abstract: Patents are the manifestation of the industry’s research and development (R&D) endeavor; therefore, this paper studies the industry evolution of and key technologies in China from the perspective of patent analysis. Patents in six types of industries, including Chemical (excluding Drugs), Computers and Communications, Drugs and Medical, Electrical and Electronics (E&E), Mechanical, and Others are analyzed in this study. Findings from the analysis show a steady increase of US granted utility patents in China as well as percentage of these patents in the world over the period between 2003 and 2008. All the above industries in China have been growing rapidly during this period, which is very different from the global industry development. Despite the rapid development, the citation rates of these patents have been low, reflecting a need for improvement in the quality of patents and R&D performance for these six industries in China in order to exert more influence in the industry world. The analysis on patents also reveals China’s industry distribution to be similar to the global industry distribution, with the exception of E&E industry which weights over one third of the total patents in technologies. The E&E industry is also the field with largest economic growth which rises more rapidly after 2006 with a sudden increase of patents in USPC 361. Detailed tracking of the key technology evolution reveals that 90% of the newly issued patents in USPC 361 after 2006 are owned by Foxconn Technology Co., Ltd, pointing to an unbalanced R&D environment in China’s E&E industry sector. By providing the insight into the evolution of China’s industrial and technological development through the perspective of patent analysis, this paper hopes to provide an objective statistic reference for future policy directions and academic researches.

Keywords: Analysis, China, Citation, Co, Development, Distribution, E&E, Economic, Environment, Evolution, Field, Germany, Growth, Improvement, Industry Type, Key Technology, Patent, Patent Analysis, Patents, Performance, Policy, Quality, Quality of, Rapid Development, Rates, Reference, Research, Research and Development, Science, Sector, Technologies, Technology, US, USPC 361, Utility, World

? Campanario, J.M. (2011), Empirical study of journal impact factors obtained using the classical two-year citation window versus a five-year citation window. *Scientometrics*, **87** (1), 189-204.

Full Text: [2011\Scientometrics87, 189.pdf](2011/Scientometrics87,%20189.pdf)

Abstract: In this article I study characteristics of the journal impact factor (JIF) computed using a 5-year citation window as compared with the classical JIF computed using a 2-year citation window. Since 2007 ISI-Thomson Reuters has published the new 5-year impact factor in the JCR database. I studied changes in the distribution of JIFs when the citation window was enlarged. The distributions of journals according their 5-year JIFs were very similar all years studied, and were also similar to the distribution according to the 2-year JIFs. In about 72% of journals, the JIF increased when the longer citation window was used. Plots of 5-year JIFs against rank closely followed a beta function with two exponents. Thus, the 5-year JIF seems to behave very similarly to the 2-year JIF. The results also suggest that gains in JIF with the longer citation window tend to distribute similarly in all years. Changes in these gains also tend to distribute similarly from 1 year to the following year.

Keywords: Changes, Characteristics, Citation, Citation Window, Database, Distribution, Function, Impact, Impact Factor, Impact Factors, Journal, Journal Impact, Journal Impact Factor, Journal Impact Factors, Journals, Quality, Rank, Science

Notes: UUniversity

? Fakhree, M.A.A. and Jouyban, A. (2011), Scientometric analysis of the major Iranian medical universities. *Scientometrics*, **87** (1), 205-220.

Full Text: [2011\Scientometrics87, 205.pdf](2011/Scientometrics87,%20205.pdf)

Abstract: Nowadays, scientometrics has become an important field of study to monitor the progresses in scientific performance of a research group, a department, a university etc. A number of scientometrical studies have been done about Iranian scientific outcome in recent years. But there is no comparison between major Iranian medical universities. In this study, by using Scopus as search engine, the scientific outcomes of the Iran University of Medical Sciences, Isfahan University of Medical Sciences, Mashhad University of Medical Sciences, Shahid Beheshti University of Medical Sciences, Shiraz University of Medical Sciences, Tabriz University of Medical Sciences, and Tehran University of Medical Sciences have been compared with each other. These universities were compared by the number of published articles per year, number of citations received per year, number of citations received per year per article, total H-indices, top ten authors, and top ten journals. The results of this study show that the order of the studied universities in research performance is as follow: Tehran > Shiraz = Shahid Beheshti > Isfahan = Iran > Tabriz = Mashhad universities of medical sciences. In addition, the data of Tehran University of Medical Sciences as the top medical university of Iran was compared with some of top medical universities around the world.

Keywords: Analysis, Authors, Citations, Comparison, Data, Engine, Field, Iran, Journals, Medical, Number of Article, Outcome, Outcomes, Performance, Recent, Research, Research Performance, Sciences, Scientific Performance, Scientometric, Scientometrics, Scopus, Universities, University, University of Medical Science, World

? Nakamura, H., Suzuki, S., Hironori, T., Kajikawa, Y. and Sakata, I. (2011), Citation lag analysis in supply chain research. *Scientometrics*, **87** (2), 221-232.

Full Text: [2011\Scientometrics87, 221.pdf](2011/Scientometrics87,%20221.pdf)

Abstract: Interdisciplinary research is expected to contribute to industrial and economic development. However, due to expansion of knowledge and the fragmentation of research fields, knowledge dissemination among different research fields is rare and we need a methodology for measuring such dissemination and promoting it. In this paper, we introduce a citation lag analysis of inter- and intra-clusters extracted by citation network analysis as a new indicator to represent the speed of knowledge diffusion in subfields of a research field. A case study was performed within supply chain research to investigate knowledge integration among its subfields. Based on the analysis, we discuss knowledge structure and reciprocal influence of subfields in supply chain research. This study contributes to offering a new approach for analyzing and understanding the development of boundary spanning research.

Keywords: Agile, Analysis, Approach, Boundary Spanning, Case Study, Citation, Citation Network, Coordination, Demand Uncertainty, Development, Diffusion, Economic, Economic Development, Field, Fragmentation, Indicator, Information, Integration, Interdisciplinarity, Interdisciplinary, Knowledge, Knowledge Diffusion, Management, Methodology, Network, Network Analysis, Product, Research, Research on Research, Science, Structure, Supply Chain, Technology, Understanding

? Sobkowicz, P. (2011), Simulations of opinion changes in scientific communities. *Scientometrics*, **87** (2), 233-250.

Full Text: [2011\Scientometrics87, 233.pdf](2011/Scientometrics87,%20233.pdf)

Abstract: We present a computer model of opinion changes in a scientific community. The study takes into account two mechanisms of opinion formation for individual scientists: influence of coworkers with whom there is direct interaction and cumulative influence of the subject literature. We analyze the evolution of relative popularity of different competing theories, depending on their accuracy in describing observed phenomena and on current social support of the theory. We include such aspects as finite lifetime of publication impact and tendency to ‘defend’ one’s own opinions, especially if they were already published. A special class of publications, delivering crucial observational or experimental data, which may revolutionize the scientific worldview is considered. The goal of the model is to discover which conditions lead to quick domination of one theory over others, or, conversely, in which situations one may expect several explanations to co-exist.

Keywords: Accuracy, Agent Based Societies, Article Decay, Bells Theorem, Changes, Community, Cumulative, Data, Evolution, Experimental, Experimental Tests, Impact, Information, Interaction, Lead, Literature, Mechanisms, Metascience, Model, Models, Networks, Observational, Opinion Formation, Opinions, Publication, Publications, Quantum-Mechanics, Selective Exposure, Social, Social Simulations, Social Support, Support, Theory

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Full Text: [2011\Scientometrics87, 251.pdf](2011/Scientometrics87,%20251.pdf)

Abstract: This study aims to investigate the influence of different patterns of collaboration on the citation impact of Harvard University’s publications. Those documents published by researchers affiliated with Harvard University in WoS from 2000-2009, constituted the population of the research which was counted for 124,937 records. Based on the results, only 12% of Harvard publications were single author publications. Different patterns of collaboration were investigated in different subject fields. In all 22 examined fields, the number of co-authored publications is much higher than single author publications. In fact, more than 60% of all publications in each field are multi-author publications. Also, the normalized citation per paper for co-authored publications is higher than that of single author publications in all fields. In addition, the largest number of publications in all 22 fields were also published through inter-institutional collaboration and were as a result of collaboration among domestic researchers and not international ones. In general, the results of the study showed that there was a significant positive correlation between the number of authors and the number of citations in Harvard publications. In addition, publications with more number of institutions have received more number of citations, whereas publications with more number of foreign collaborators were not much highly cited.

Keywords: Authors, Case Study, Citation, Citation Impact, Citations, Collaboration, Collaboration Patterns, Correlation, Field, General, Harvard University, Impact, Institutions, International, International Scientific Collaboration, Model, Population, Publications, Quality, Records, Research, Research Collaboration, University

? Khan, G.F., Moon, J., Park, H.W., Swar, B. and Rho, J.J. (2011), A socio-technical perspective on e-government issues in developing countries: A scientometrics approach. *Scientometrics*, **87** (2), 267-286.

Full Text: [2011\Scientometrics87, 267.pdf](2011/Scientometrics87,%20267.pdf)

Abstract: Many researchers have analyzed e-government literature as a whole or a specific area to focus on statistical methodologies, lessons learnt, or problem related to the area. However, no investigation from socio-technical perspective on e-government issues, in developing countries (DCs), has been carried out. Utilizing scientometrics approach, we analyzed and synthesized e-government (EG) literature that deals with the issues/topics in developing countries from the lens of socio-technical theory (STT). 145 articles from 7 core e-government journals published during the last decade were selected and reviewed for analyzing e-government literature related to developing countries. The growth pattern of e-government literature showed that e-government studies pertaining developing countries issues/topics have rapidly increased during the last decade; covering a range of topics/issues studied from socio-technical aspects. We found that e-government literature in developing countries has somewhat adopted a balanced approach and is moving away from a merely theoretical or conceptual bases toward an empirical foundation; however, the literature lacked depth and balance in terms of issues/topics discussed and methodologies applied. In the light of the findings, strengths, limitations, and future directions for e-government research in developing countries are discussed.

Keywords: Africa, Approach, Challenges, Core E-Government Journals, Developing, Developing Countries, E-Government Issues, Topics, E-Government Research, Growth, Investigation, Journals, Lessons, Literature, Methodologies, Pattern, Research, Scientometrics, Scientometrics Approach, Sector, Shape of E-Government Literature, Socio-Technical Theory, Systems, Theory

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Full Text: 2011\Scientometrics87, 287.pdf

Abstract: We present a mathematical derivation of the scale-dependence of the h-Index. This formula can be used in two cases: one where the units are scale-dependent and one where the units are not scale-dependent. Examples are given.

Keywords: h Index, h-Index, h-Type Index, Hirsch-Index, Indices, Scale

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Full Text: [2011\Scientometrics87, 293.pdf](2011/Scientometrics87,%20293.pdf)

Abstract: the aim of peer review is to separate the wheat from the chaff for publication and research funding. In the excessive competition, this mechanism would only select the wheat of mainstream. Up to now, almost all discussions on the consequence of the short-comings of peer review are limited to qualitatively description. I propose a model of “peer-group-assessed-grant-based-funding-system” combined with tenure system and over-competitive research funding review process. It is the first on the quantitatively investigation which dramatizes the current short-comings of the process. My simulation shows that it takes about two or three generations of researchers for the mainstream of a complicated research topic obtaining monopoly supremacy, with only the aid of the mechanism the model described. Based on the computation results, suggestions are proposed to avoid loss of self-correction capability on popularity determined single research direction which could be wrong on very complicated research topics.

Keywords: Competition, Computation, Excessive Competition, First, Funding, Innovation, Investigation, Mainstream, Mathematical Model, Mechanism, Model, Peer Review, Peer-Review, Publication, Research, Research Funding, Review, Review Process, Simulation, Tenure

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Full Text: [2011\Scientometrics87, 303.pdf](2011/Scientometrics87,%20303.pdf)

Abstract: Data from 1,581 faculty members affiliated with 98 doctoral-granting Communication programs in the United States were analyzed to determine normative publication rates and predictors of position centrality in the faculty hiring network. The Communication Institute for Online Scholarship (CIOS) database was used to measure publication frequency in refereed journals. Position centrality was measured using a Communication program’s relative position in the hiring network as established by Barnett, Danowski, Feeley, and Stalker (2010). The average publication frequencies by academic rank were as follows: assistant professors averaged 2.29 articles (N = 441, SD = 3.29); associate professors averaged 6.69 articles (N = 497, SD = 5.77); professors averaged 10.92 articles (N = 542, SD = 12.09). Results from multiple regression analyses indicate the number of publications for faculty members and position centrality of where one earned his or her doctoral degree significantly predicted current position centrality. Publication numbers for one’s advisor and year of earned doctorate did not emerge as significant predictors of position centrality.

Keywords: Advisor, Analyses, Centrality, Communication, Database, Education, Faculty, Hiring, Journals, Measure, Multiple Regression, N, Network, Networks, Ph.D.S, Placement, Political-Science, Predictors, Publication, Publications, Rank, Rates, Regression, Research Productivity, Speech-Communication, United States

? Onyancha, O.B. and Maluleka, J.R. (2011), Knowledge production through collaborative research in sub-Saharan Africa: How much do countries contribute to each other’s knowledge output and citation impact? *Scientometrics*, **87** (2), 315-336.

Full Text: [2011\Scientometrics87, 315.pdf](2011/Scientometrics87,%20315.pdf)

Abstract: This paper examines co-authorship of research articles in Thomson Reuters citation indexes in order to assess knowledge co-production in selected sub-Saharan African countries. Two indicators, namely publications and citations, were analysed to establish the patterns of knowledge co-production and its scientific impact, respectively. The study found that knowledge production through collaborative research among sub-Saharan African countries is minimal and contributes only a small percentage when compared to collaboration between sub-Saharan African countries and their foreign counterparts. Similarly, the scientific impact of international collaboration was higher than that of continental collaboration. Countries belonging to the same geographic region contributed to each other’s knowledge production more frequently than they did to the countries outside their region. It is recommended that, for knowledge co-production in sub-Saharan Africa to improve, various measures such as encouraging student and staff exchange, hosting more regional conferences and encouraging research networks need to be put in place.

Keywords: Africa, Citation, Citation Impact, Citation Indexes, Citations, Co-Authorship, Coauthorship, Collaboration, Collaborative Research, Conferences, Impact, Indicators, International, Knowledge, Knowledge Production, Networks, Patterns, Publications, Region, Regional, Research, Research Collaboration, Science, Scientific Impact, Sector, Small, Student, Sub-Saharan Africa, Thomson-Reuters, Universities

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Full Text: [2011\Scientometrics87, 337.pdf](2011/Scientometrics87,%20337.pdf)

Abstract: A review of 649 PhDs undertaken by Swedish nurses and midwives found no evidence that they stop publishing in English after their PhD. The proportion of 70% for any publication in English was similar to that of MDs. A higher proportion of male than female nurses were high publishers of six or more (52% vs. 23%) and eight or more papers (44% vs. 14%) in a 5 year period. The standard of the PhDs of Swedish nurses was comparable to those of other biomedical PhDs and was consistent in pattern over the past two decades. The gender pattern of external examiners of female nurses evolved in that 1992-94, 75% were men, during 1996-97, 54% were men and from 2000 onwards 46% were men. Nurses were examined by foreign examiners in 20% of examinations. They came primarily from Norway and USA.

Keywords: Biomedical, Demographics, Evidence, External Examiners, Female, Gender, Gender Differences, Male, Men, Midwives, Norway, Nurses, Nurses and Midwives, Papers, Pattern, Phd, Publication, Publication Pattern, Publishing, Review, Standard, Sweden, Thesis, USA

? Larcombe, A.N. and Voss, S.C. (2011), Self-citation: comparison between Radiology, European Radiology and Radiology for 1997-1998. *Scientometrics*, **87** (2), 347-356.

Full Text: [2011\Scientometrics87, 347.pdf](2011/Scientometrics87,%20347.pdf)

Abstract: This study investigates the incidence of self-citation (authors citing their own work) for scholarly articles in ten journals published by the American Physiological Society. We analysed authorship and referencing practices of all original research articles published in the first ordinary issue of each journal in both 2000 and 2010, comprising 271 and 212 articles, respectively. Self-citation is common in these journals and represents a total of 17.75% of all citations. Only 9 (1.86%) of the articles analysed did not self-cite. Author position significantly influenced the rate of self-citation with last authors being self-cited significantly more than any other author. This was likely a result of the cumulative nature of scientific research within a specific discipline and the necessary desire to promote ones own work for associated academic benefit. The country in which the work was conducted also influenced the rate of self-citation, with last authors based in North America self-citing more than last authors from Asian countries. A comparison of self-citation rates between decades (2000 and 2010) revealed an increase in the number of authors and number of citations per article between 2000 and 2010, however the mean percentage of self-cited articles did not differ between the years. Finally, there were no differences in the percentage of self-citation between the different journals analysed.

Keywords: American Physiological Society Journals, Asian, Author Position, Authors, Authorship, Bibliometric Analysis, Citations, Comparison, Country, Cumulative, First, Impact, Incidence, Journal, Journals, Macro, North, North America, Practices, Rates, Referencing, Research, Scientific Research, Self-Citation, Work

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Full Text: [2011\Scientometrics87, 357.pdf](2011/Scientometrics87,%20357.pdf)

Abstract: Measuring the intellectual diversity encoded in publication records as a proxy to the degree of interdisciplinarity has recently received considerable attention in the science mapping community. The present paper draws upon the use of the Stirling index as a diversity measure applied to a network model (customized science map) of research profiles, proposed by several authors. A modified version of the index is used and compared with the previous versions on a sample data set in order to rank top Hungarian research organizations (HROs) according to their research performance diversity. Results, unexpected in several respects, show that the modified index is a candidate for measuring the degree of polarization of a research profile. The study also points towards a possible typology of publication portfolios that instantiate different types of diversity.

Keywords: Authors, Community, Data, Diversity, Diversity Index, Hungary, Index, Interdisciplinarity, ISI Subject Categories, Mapping, Measure, Model, Modified, Network, Performance, Polarization Index, Profiles, Publication, Rank, Records, Research, Research Organizations, Research Performance, Science, Science Mapping, Version

? Small, H. (2011), Interpreting maps of science using citation context sentiments: A preliminary investigation. *Scientometrics*, **87** (2), 373-388.

Full Text: [2011\Scientometrics87, 373.pdf](2011/Scientometrics87,%20373.pdf)

Abstract: It is proposed that citation contexts, the text surrounding references in scientific papers, be analyzed in terms of an expanded notion of sentiment, defined to include attitudes and dispositions toward the cited work. Maps of science at both the specialty and global levels are used as the basis of this analysis. Citation context samples are taken at these levels and contrasted for the appearance of cue word sets, analyzed with the aid of methods from corpus linguistics. Sentiments are shown to vary within a specialty and can be understood in terms of cognitive and social factors. Within-specialty and between-specialty co-citations are contrasted and in some cases suggest a correlation of sentiment with structural location. for example, the sentiment of “uncertainty” is important in interdisciplinary co-citation links, while “utility” is more prevalent within the specialty. Suggestions are made for linking sentiments to technical terms, and for developing sentiment “baselines” for all of science.

Keywords: 2 Disciplines, Analysis, Attitudes, Citation, Citation Contexts, Clusters, Co-Citation, Cocitation, Context, Corpus Linguistics, Correlation, Developing, Global, Interdisciplinary, Investigation, Location, Maps of Science, Methods, Notion, Papers, References, Science, Sentiment Analysis, Social, Specialty, Work

? Delanghe, H., Sloan, B. and Muldur, U. (2011), European research policy and bibliometric indicators, 1990-2005. *Scientometrics*, **87** (2), 389-398.

Full Text: [2011\Scientometrics87, 389.pdf](2011/Scientometrics87,%20389.pdf)

Abstract: This paper describes and analyses the role played in the development of bibliometric indicators-and the use made of bibliometric indicators for policy purposes-by the European Commission’s Directorate-General Research in the period 1990-2005.

Keywords: Analyses, Bibliometric, Bibliometric Indicators, Development, European Commission, European Paradox, European Research Area, Evaluation, Excellence, Framework Programme, Indicators, Policy, Research, Research Policy, Role

? Abramo, G., D’Angelo, C.A. and Di Costa, F. (2011), A national-scale cross-time analysis of university research performance. *Scientometrics*, **87** (2), 399-413.

Full Text: [2011\Scientometrics87, 399.pdf](2011/Scientometrics87,%20399.pdf)

Abstract: Research policies in the more developed nations are ever more oriented towards the introduction of productivity incentives and competition mechanisms intended to increase efficiency in research institutions. Assessments of the effects of these policy interventions on public research activity often neglect the normal, inherent variation in the performance of research institutions over time. In this work, we propose a cross-time bibliometric analysis of research performance by all Italian universities in two consecutive periods (2001-2003 and 2004-2008) not affected by national policy interventions. Findings show that productivity and impact increased at the level of individual scientists. At the level of university, significant variation in the rank was observed.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometrics, Competition, Cross-Time Analysis, Effects, Efficiency, Impact, Incentives, Institutions, Interventions, Mechanisms, National Scale, Nations, Neglect, Normal, Performance, Policies, Policy, Productivity, Public, Rank, Research, Research Assessment, Research Institutions, Research Performance, Research Productivity, Universities, University, Work

? Glänzel, W., Schubert, A., Thijs, B. and Debackere, K. (2011), A priori vs. a posteriori normalisation of citation indicators. The case of journal ranking. *Scientometrics*, **87** (2), 415-424.

Full Text: [2011\Scientometrics87, 415.pdf](2011/Scientometrics87,%20415.pdf)

Abstract: Two paradigmatic approaches to the normalisation of citation-impact measures are discussed. The results of the mathematical manipulation of standard indicators such as citation means, notably journal Impact Factors, (called a posteriori normalisation) are compared with citation measures obtained from fractional citation counting (called a priori normalisation). The distributions of two subfields of the life sciences and mathematics are chosen for the analysis. It is shown that both methods provide indicators that are useful tools for the comparative assessment of journal citation impact.

Keywords: Analysis, Assessment, Characteristic Scores and Scales, Charts, Citation, Citation Measures, Immediacy Index, Impact, Impact Factor, Indicators, Journal, Journal Impact Measures, Journal Ranking, Life, Life Sciences, Methods, Normalisation, Output, Ranking, Relative Indicators, Research Performance, Sciences, Standard

? Tsai, H.H. (2011), Research trends analysis by comparing data mining and customer relationship management through bibliometric methodology. *Scientometrics*, **87** (3), 425-450.

Full Text: [2011\Scientometrics87, 425.pdf](2011/Scientometrics87,%20425.pdf)

Abstract: There are few comprehensive studies and categorization schemes to discuss the characteristics for both data mining and customer relationship management (CRM) although they have already become more important recently. Using a bibliometric approach, this paper analyzes data mining and CRM research trends from 1989 to 2009 by locating headings “data mining” and “customer relationship management” or “CRM” in topics in the SSCI database. The bibliometric analytical technique was used to examine these two topics in SSCI journals from 1989 to 2009, we found 1181 articles with data mining and 1145 articles with CRM. This paper implemented and classified data mining and CRM articles using the following eight categories-publication year, citation, country/territory, document type, institute name, language, source title and subject area-for different distribution status in order to explore the differences and how data mining and CRM technologies have developed in this period and to analyze data mining and CRM technology tendencies under the above result. Also, the paper performs the K-S test to check whether the analysis follows Lotka’s law. The research findings can be extended to investigate author productivity by analyzing variables such as chronological and academic age, number and frequency of previous publications, access to research grants, job status, etc. In such a way characteristics of high, medium and low publishing activity of authors can be identified. Besides, these findings will also help to judge scientific research trends and understand the scale of development of research in data mining and CRM through comparing the increases of the article author. Based on the above information, governments and enterprises may infer collective tendencies and demands for scientific researcher in data mining and CRM to formulate appropriate training strategies and policies in the future. This analysis provides a roadmap for future research, abstracts technology trends and facilitates knowledge accumulations so that data mining and CRM researchers can save some time since core knowledge will be concentrated in core categories. This implies that the phenomenon “success breeds success” is more common in higher quality publications.

Keywords: Bibliometric Methodology, Crm, Customer Relationship Management, Data Mining, Framework, Impact, Implementation, Knowledge, Lotka Law, Neural-Networks, Perspective, Research Trend Analysis, Scientific Productivity

? Furukawa, T., Shirakawa, N. and Okuwada, K. (2011), Quantitative analysis of collaborative and mobility networks. *Scientometrics*, **87** (3), 451-466.

Full Text: [2011\Scientometrics87, 451.pdf](2011/Scientometrics87,%20451.pdf)

Abstract: This study proposes a quantitative analysis of researcher mobility (i.e. transfer from one institution to another) and collaborative networks on the basis of author background data extracted from biographical notes in scientific articles to identify connections that are not revealed via simple co-authorship analysis. Using a top-ranked journal in the field of computer vision, we create a layered network that describes various aspects of author backgrounds, demonstrating a geographical distribution of institutions. We classify networks according to various dimensions including authors, institutions and countries. The results of the quantitative analysis indicate that mobility networks extend beyond the typical collaborative networks describing institutional and international relationships. We also discuss sectoral collaboration considering the mobility networks. Our findings indicate a limitation of collaborative analysis based on bibliometric data and the importance of tracing researcher mobility within potential networks to identify the true nature of scientific collaboration.

Keywords: Author Backgrounds, Centrality, Co-Author Networks, Coauthorship Networks, Collaborative Networks, Evolution, Industry, Innovation, Journal, Knowledge, Researcher Mobility, Scientific Collaboration, Scientific Collaboration, Social Network, Technology, Triple-Helix

? Waltman, L., van Eck, N.J., van Leeuwen, T.N., Visser, M.S. and van Raan, A.F.J. (2011), Towards a new crown indicator: An empirical analysis. *Scientometrics*, **87** (3), 467-481.

Full Text: [2011\Scientometrics87, 467.pdf](2011/Scientometrics87,%20467.pdf)

Abstract: We present an empirical comparison between two normalization mechanisms for citation-based indicators of research performance. These mechanisms aim to normalize citation counts for the field and the year in which a publication was published. One mechanism is applied in the current so-called crown indicator of our institute. The other mechanism is applied in the new crown indicator that our institute is currently exploring. We find that at high aggregation levels, such as at the level of large research institutions or at the level of countries, the differences between the two mechanisms are very small. At lower aggregation levels, such as at the level of research groups or at the level of journals, the differences between the two mechanisms are somewhat larger. We pay special attention to the way in which recent publications are handled. These publications typically have very low citation counts and should therefore be handled with special care.

Keywords: Bibliometric Indicator, Charts, Citation, Citation Impact, Crown Indicator, Field, Journals, Normalization, Relative Indicators, Research Performance

? Larivière, V., Vignola-Gagné, E., Villeneuve, C., Gélinas, P. and Gingras, Y. (2011), Sex differences in research funding, productivity and impact: An analysis of Quebec university professors. *Scientometrics*, **87** (3), 483-498.

Full Text: [2011\Scientometrics87, 483.pdf](2011/Scientometrics87,%20483.pdf)

Abstract: Using the entire population of professors at universities in the province of Quebec (Canada), this article analyzes the relationship between sex and research funding, publication rates, and scientific impact. Since age is an important factor in research and the population pyramids of men and women are different, the role of age is also analyzed. The article shows that, after they have passed the age of about 38, women receive, on average, less funding for research than men, are generally less productive in terms of publications, and are at a slight disadvantage in terms of the scientific impact (measured by citations) of their publications. Various explanations for these differences are suggested, such as the more restricted collaboration networks of women, motherhood and the accompanying division of labour, women’s rank within the hierarchy of the scientific community and access to resources as well as their choice of research topics and level of specialization.

Keywords: Age, Bibliometric Indicators, Canada, Collaboration, Collaboration, Gender-Differences, Humanities, Output, Publication Productivity, Quebec, Research Funding, Research Impact, Research Productivity, Scientific Productivity, Sex, Social-Sciences, Specialization, Universities, Visibility

? Abramo, G. and D’Angelo, C.A. (2011), Evaluating research: From informed peer review to bibliometrics. *Scientometrics*, **87** (3), 499-514.

Full Text: [2011\Scientometrics87, 499.pdf](2011/Scientometrics87,%20499.pdf)

Abstract: National research assessment exercises are becoming regular events in ever more countries. The present work contrasts the peer-review and bibliometrics approaches in the conduct of these exercises. The comparison is conducted in terms of the essential parameters of any measurement system: accuracy, robustness, validity, functionality, time and costs. Empirical evidence shows that for the natural and formal sciences, the bibliometric methodology is by far preferable to peer-review. Setting up national databases of publications by individual authors, derived from Web of Science or Scopus databases, would allow much better, cheaper and more frequent national research assessments.

Keywords: Bibliometrics, Decision Support Systems, Indicators, Peer Review, Research Assessment, Research Productivity

? Prathap, G. (2011), The Energy-Exergy-Entropy (or EEE) sequences in bibliometric assessment. *Scientometrics*, **87** (3), 515-524.

Full Text: [2011\Scientometrics87, 515.pdf](2011/Scientometrics87,%20515.pdf)

Abstract: Bibliometric research assessment has matured into a quantitative phase using more meaningful measures and analogies. In this paper, we propose a thermodynamic analogy and introduce what are called the energy, exergy and entropy terms associated with a bibliometric sequence. This can be displayed as time series (variation over time), or in event terms (variation as papers are published) and also in the form of phase diagrams (energy-exergy-entropy representations). It is exergy which is the most meaningful single number scalar indicator of a scientist’s performance while entropy then becomes a measure of the unevenness (disorder) of the publication portfolio.

Keywords: Bibliometrics, Energy, Entropy, Exergy, Index, P-Index, S = E - X, X = Ic

? Bjurstrom, A. and Polk, M. (2011), Climate change and interdisciplinarity: A co-citation analysis of IPCC Third Assessment Report. *Scientometrics*, **87** (3), 525-550.

Full Text: [2011\Scientometrics87, 525.pdf](2011/Scientometrics87,%20525.pdf)

Abstract: This study addresses whether interdisciplinarity is a prominent feature of climate research by means of a co-citation analysis of the IPCC Third Assessment Report. The debate on interdisciplinarity and bibliometric measures is reviewed to operationalize the contested notion of interdisciplinarity. The results, based on 6417 references of the 96 most frequently used journals, demonstrate that the IPCC assessment of climate change is best characterized by its multidisciplinarity where the physical, biological, bodily and societal dimensions are clearly separated. Although a few fields and journals integrate a wide variety of disciplines, integration occurs mainly between related disciplines (narrow interdisciplinarity) which indicate an overall disciplinary basis of climate research. It is concluded that interdisciplinarity is not a prominent feature of climate research. The significance of this finding is explored, given that the problem scope of climate change necessitates interdisciplinarity. Ways to promote interdisciplinarity are suggested by way of conclusion.

Keywords: Bibliometrics, Climate Research, Disciplines, Global Environmental-Change, Interdisciplinary, Intergovernmental Panel, International Collaboration, IPCC, Knowledge, Multidisciplinary, Nanotechnology, Networks, Science, Sustainable Development, Transdisciplinarity

? Chuang, K.Y., Wang, M.H. and Ho, Y.S. (2011), High-impact papers presented in the subject category of water resources in the essential science indicators database of the institute for scientific information. *Scientometrics*, **87** (3), 551-562.

Full Text: [2011\Scientometrics87, 551.pdf](2011/Scientometrics87,%20551.pdf); [2011\Scientometrics-Chuang-1.pdf](2011/Scientometrics-Chuang-1.pdf); [2011\Scientometrics-Chuang.pdf](2011/Scientometrics-Chuang.pdf)

Abstract: the Essential Science Indicators (ESI) database is widely used to evaluate institutions and researchers. The objective of this study was to analyze trends and characteristics of papers in the subject category of water resources in the ESI database of the Institute for Scientific Information (ISI). Distributions of document type, language of publication, scientific output, and publication of journals are reported in this article. Five indicators (the number and ranking of total papers, first-author papers, correspondingauthor papers, independent papers, and collaborative papers) were applied to evaluate country, institute, and author performances. In addition, the numbers of authors cited, numbers of institutes cited, numbers of countries cited, and numbers of subject areas cited were also used to evaluate ESI papers. Results showed that 265 papers, all written in English, were listed in 27 journals in the field of water resources. A review paper was more likely to be included in the ESI than a research paper. Journal of Hydrology published the most papers. The USA and UK were the two leading nations. ESI papers published in the US were more likely to involve inter-institutional collaboration than papers published in the UK. The University of Arizona was the most productive institute. Some papers that were almost excluded from the ESI database appear to have consistently received annual high frequencies of citation. Perhaps the 10 year criterion for inclusion in the ESI should be reassessed.

Keywords: Bibliometric Analysis, Biosorption, Citation Analysis, Climate-Change, ESI, European-Union, Hirsch-Index, Indicators, Journals, Model, Number of Countries Cited, Number of Institutes Cited, Number of Subject Areas Cited, Research Performance, Trends

? Wang, J. and Shapira, P. (2011), Funding acknowledgement analysis: An enhanced tool to investigate research sponsorship impacts: the case of nanotechnology. *Scientometrics*, **87** (3), 563-586.

Full Text: [2011\Scientometrics87, 563.pdf](2011/Scientometrics87,%20563.pdf)

Abstract: There is increasing interest in assessing how sponsored research funding influences the development and trajectory of science and technology. Traditionally, linkages between research funding and subsequent results are hard to track, often requiring access to separate funding or performance reports released by researchers or sponsors. Tracing research sponsorship and output linkages is even more challenging when researchers receive multiple funding awards and collaborate with a variety of differentially-sponsored research colleagues. This article presents a novel bibliometric approach to undertaking funding acknowledgement analysis which links research outputs with their funding sources. Using this approach in the context of nanotechnology research, the article probes the funding patterns of leading countries and agencies including patterns of cross-border research sponsorship. We identify more than 91,500 nanotechnology articles published worldwide during a 12-month period in 2008-2009. About 67% of these publications include funding acknowledgements information. We compare articles reporting funding with those that do not (for reasons that may include reliance on internal core-funding rather than external awards as well as omissions in reporting). While we find some country and field differences, we judge that the level of reporting of funding sources is sufficiently high to provide a basis for analysis. The funding acknowledgement data is used to compare nanotechnology funding policies and programs in selected countries and to examine their impacts on scientific output. We also examine the internationalization of research funding through the interplay of various funding sources at national and organizational levels. We find that while most nanotechnology funding is nationally-oriented, internationalization and knowledge exchange does occur as researchers collaborate across borders. Our method offers a new approach not only in identifying the funding sources of publications but also in feasibly undertaking large-scale analyses across scientific fields, institutions and countries.

Keywords: Basic Research, Bibliometrics, Citation, Funding, Funding Acknowledgement Analysis, Grants, Information-Science, Money, Nanotechnology, Publications, Research Funding, Research Outputs, Research Sponsorship

? Jeremic, V., Bulajic, M., Martic, M. and Radojicic, Z. (2011), A fresh approach to evaluating the academic ranking of world universities. *Scientometrics*, **87** (3), 587-596.

Full Text: [2011\Scientometrics87, 587.pdf](2011/Scientometrics87,%20587.pdf)

Abstract: the aim of this article is to present new ideas in evaluating Shanghai University’s Academic Ranking of World Universities (ARWU). One issue frequently put forth in various publications is that the Shanghai rankings are sensitive to the relative weight they attribute to each variable. As a possible remedy to this issue, the statistical I-distance method is proposed to be used. Based on a sample containing the top 100 ranked universities, the results show a significant correlation with the official ARWU list. However, some inconsistencies concerning European universities have been noticed and elaborated upon.

Keywords: Arwu, Classification, Fatal Attraction, Ranking of Universities, Statistical Methods, the I-Distance Method, Universities

? Cabanac, G. (2011), Accuracy of inter-researcher similarity measures based on topical and social clues. *Scientometrics*, **87** (3), 597-620.

Full Text: [2011\Scientometrics87, 597.pdf](2011/Scientometrics87,%20597.pdf)

Abstract: Scientific literature recommender systems (SLRSs) provide papers to researchers according to their scientific interests. Systems rely on inter-researcher similarity measures that are usually computed according to publication contents (i.e., by extracting paper topics and citations). We highlight two major issues related to this design. The required full-text access and processing are expensive and hardly feasible. Moreover, clues about meetings, encounters, and informal exchanges between researchers (which are related to a social dimension) were not exploited to date. In order to tackle these issues, we propose an original SLRS based on a threefold contribution. First, we argue the case for defining inter-researcher similarity measures building on publicly available metadata. Second, we define topical and social measures that we combine together to issue socio-topical recommendations. Third, we conduct an evaluation with 71 volunteer researchers to check researchers’ perception against socio-topical similarities. Experimental results show a significant 11.21% accuracy improvement of socio-topical recommendations compared to baseline topical recommendations.

Keywords: Combining Full-Text, Experiment, Human Perception, Index, Information-Retrieval, Literature, Literature Review, Measurement, Network Analysis, Perception, Recommendation, Recommender Systems, Similarity Among Researchers, Small-World Problem, Social Clues, Topical Clues

? Todeschini, R. (2011), The j-index: A new bibliometric index and multivariate comparisons between other common indices. *Scientometrics*, **87** (3), 621-639.

Full Text: [2011\Scientometrics87, 621.pdf](2011/Scientometrics87,%20621.pdf)

Abstract: A new bibliometric index is proposed, trying to preserve the advantages of the h-Index and to overcome its disadvantages. Multivariate comparisons among 18 bibliometric indices are performed by using Hasse Diagram Technique (HDT) and Principal Component Analysis (PCA). The comparisons were performed on some artificial data sets, three of them well known in literature. The obtained results seems to highlight some interesting properties of the new index and also reveals some relevant relationships among the considered bibliometric indices.

Keywords: Bibliometric Indices, h-Index, h-Index, Hasse Diagrams, J-Index, Literature, Output, PCA

? Abramo, G., Cicero, T. and D’Angelo, C.A. (2011), The dangers of performance-based research funding in non-competitive higher education systems. *Scientometrics*, **87** (3), 641-654.

Full Text: [2011\Scientometrics87, 641.pdf](2011/Scientometrics87,%20641.pdf)

Abstract: An increasing number of nations allocate public funds to research institutions on the basis of rankings obtained from national evaluation exercises. Therefore, in non-competitive higher education systems where top scientists are dispersed among all the universities, rather than concentrated among a few, there is a high risk of penalizing those top scientists who work in lower-performance universities. Using a 5 year bibliometric analysis conducted on all Italian universities active in the hard sciences from 2004 to 2008, this work analyzes the distribution of publications and relevant citations by scientists within the universities, measures the research performance of individual scientists, quantifies the intensity of concentration of top scientists at each university, provides performance rankings for the universities, and indicates the effects of selective funding on the top scientists of low-ranked universities.

Keywords: Bibliometric Analysis, Bibliometrics, Italy, Performance Variability, Performance-Based Research Funding, Research Assessment Exercises, Top Scientists, University, University-Research

? Czerwon, H.J. (2011), Jan Vlachy (1937-2010) Obituary. *Scientometrics*, **87** (3), 655-656.

Full Text: [2011\Scientometrics87, 655.pdf](2011/Scientometrics87,%20655.pdf)

? Ortega, J.L. (2011), Collaboration patterns in patent networks and their relationship with the transfer of technology: the case study of the CSIC patents. *Scientometrics*, **87** (3), 657-666.

Full Text: [2011\Scientometrics87, 657.pdf](2011/Scientometrics87,%20657.pdf)

Abstract: the aim of this article is to observe differences between research areas when it comes to establish collaboration ties with local, national or international partners. It also intends to determine in what extent the collaboration can influence the patent transfer. A collaboration network between CSIC researchers and their external collaborators was built. Several statistical tests were used to find significant differences between research areas. A multiple regression model was also utilized in order to know what type of collaboration is more successful to transfer a patent. The results show that there are two well defined groups. A “Bio” group with a high international collaboration pattern but less national participation; and a “Physicist” group supported by a high proportion of national partners but with few international connections. The regression analysis found that the national collaboration is the variable that most increase the patent transfer.

Keywords: Collaboration, Collaboration Pattern, Exploration, Multiple Regression Model, Patent Licensing, Research Areas, Scientometrics

? Geraci, M. and Esposti, M. (2011), Where do Italian universities stand? An in-depth statistical analysis of national and international rankings. *Scientometrics*, **87** (3), 667-681.

Full Text: [2011\Scientometrics87, 667.pdf](2011/Scientometrics87,%20667.pdf)

Abstract: In a previous article (Degli Esposti and Geraci. Bulletin of Italian Politics, 2011), we presented an historical survey of the university reform laws that took place in Italy in the last 30 years. On that occasion, we stressed how important is merit evaluation for academics and their institutions, especially in view of the much debated but not yet implemented ‘Gelmini’ reform with its long awaited new regulation for accessing academic positions (concorsi) and for determining individual weight in financial resource allocation among universities. Here, we present and compare several rankings used to evaluate the prestige and merit of Italian universities. We also consider alternative approaches to academic rankings that highlight peculiar aspects of the universities in Italy which cannot be reasonably accounted for by other international rankings. Finally, we propose a new approach that combines both national and international standing of Italian universities. It is hoped that this study will provide practical guidance to policy makers for establishing the criteria upon which merit should be assessed.

Keywords: Correlation, h-Index, Higher Education, Italy, Principal Component Analysis, Ranking, Reform Law

? Egghe, L. (2011), The impact factor rank-order distribution revisited. *Scientometrics*, **87** (3), 683-685.

Full Text: [2011\Scientometrics87, 683.pdf](2011/Scientometrics87,%20683.pdf)

Keywords: Iceberg Hypothesis

? Krampen, G., von Eye, A. and Schui, G. (2011), Forecasting trends of development of psychology from a bibliometric perspective. *Scientometrics*, **87** (3), 687-694.

Full Text: [2011\Scientometrics87, 687.pdf](2011/Scientometrics87,%20687.pdf)

Abstract: Bibliometric data on psychology publications from 1977 through 2008 are modeled and forecasted for the 10 years following 2008. Data refer to the raw frequencies of the PsycINFO (94% English-language, mainly Anglo-American publications) and the English-language documents of PSYNDEX (publications from the German-speaking countries). The series were modelled by way of exponential smoothing. In contrast to Single Moving Average methods which do not weigh observations, exponential smoothing assigns differential weights to observations. Weights reflect the distance from the most recent data point. Results suggest strongly expanding publication activities which can be represented by exponential functions. In addition, forecasted publication activities, estimated based on psychology publication frequencies in the past, show positive bibliometric trends in the Anglo-American research community. These trends go in parallel the bibliometric trends for the English-language publications of German-speaking authors. However, while positive trends were forecasted for all psychological subdisciplines of the Anglo-American publication database PsycINFO, negative bibliometric trends were estimated for English-language publications from German-speaking authors in 6 out of 20 subdisciplines.

Keywords: Bibliometry, Field, Forecasted Developmental Trends, History of Psychology, Psychology, Scientometry

? Wang, M.Y., Yu, G. and Yu, D.R. (2011), Mining typical features for highly cited papers. *Scientometrics*, **87** (3), 695-706.

Full Text: [2011\Scientometrics87, 695.pdf](2011/Scientometrics87,%20695.pdf)

Abstract: In this paper, we discuss the application of the data mining tools to identify typical features for highly cited papers (HCPs). By integrating papers’ external features and quality features, the feature space used to model HCPs was established. Then, a series of predictor teams were extracted from the feature space with rough set reduction framework. Each predictor team was used to construct a base classifier. Then the five base classifiers with the highest classification performance and larger diversity on whole were selected to construct a multi-classifier system (MCS) for HCPs. The combination prediction model obtained better performance than models of a single predictor team. 11 typical prediction features for HCPs were extracted on the basis of the MCS. The findings show that both the papers’ inner quality and external features, mainly represented as the reputation of the authors and journals, contribute to generation of HCPs in future.

Keywords: Behavior, Citation Counts, Citation Network, Data Mining, Highly Cited Papers, Network, References, Science

? Tang, L. and Shapira, P. (2011), China-US scientific collaboration in nanotechnology: Patterns and dynamics. *Scientometrics*, **88** (1), 1-16.

Full Text: [2011\Scientometrics88, 1.pdf](2011/Scientometrics88,%201.pdf)

Abstract: This paper examines the rapid growth of China in the field of nanotechnology and the rise of collaboration between China and the US in this emerging domain. Chinese scientific papers in nanotechnology are analyzed to indicate overall trends, leading fields and the most prolific institutions. Patterns of China-US nanotechnology paper co-authorship are examined over the period 1990-2009, with an analysis of how these patterns have changed over time. The paper combines bibliometric analysis and science mapping. We find rapid development in the number of China-US co-authored nanotechnology papers as well as structural changes in array of collaborative nanotechnology sub-fields. Implications for both China and the US of this evolving relationship are discussed.

Keywords: Bibliometric, Bibliometric Analysis, China, China-Us Scientific Collaboration, Co-Authorship, Coauthorship, Collaboration, Cooperation, Development, Growth, International Collaboration, Nanoscience, Nanotechnology, Papers, Publications, Science Mapping, Science-and-Technology, Self-Organization, Trends, US

? Liesch, P.W., Hakanson, L., McGaughey, S.L., Middleton, S. and Cretchley, J. (2011), The evolution of the international business field: A scientometric investigation of articles published in its premier journal. *Scientometrics*, **88** (1), 17-42.

Full Text: [2011\Scientometrics88, 17.pdf](2011/Scientometrics88,%2017.pdf)

Abstract: Macro-environmental trends such as technological changes, declining trade and investment barriers, and globalizing forces impacting both markets and production worldwide point to the heightened importance of international business (IB) and the relevance of IB research today. Despite this, a leading scholar has expressed concerns that the IB research agenda could be ‘running out of steam’ (Buckley, Journal of International Business Studies 33(2):365-373, 2002), prompting on-going introspection within the IB field. We contribute to this debate by investigating the evolution of the IB field through a scientometric examination of articles published in its premier journal, the Journal of International Business Studies (JIBS) from 1970 until 2008. We introduce a new analytical tool, Leximancer, to the fields of international business and scientometry. We show an evolution from an initial and extended emphasis on macro-environmental issues to a more recent focus on micro-economic, firm-level ones with the multinational enterprise (MNE) as an organizational form enduring throughout the entire period. We observe a field that has established a justifiable claim for relevance, participating actively in the interdisciplinary exchange of ideas.

Keywords: Concepts, Evolution, Future, Impact, International Business, Jibs, Journal, Korea, Leximancer, Network, Relevance, Research, Research Agenda, Scholarly Field, State, Strategies

? Shibayama, S. (2011), Distribution of academic research funds: A case of Japanese national research grant. *Scientometrics*, **88** (1), 43-60.

Full Text: [2011\Scientometrics88, 43.pdf](2011/Scientometrics88,%2043.pdf)

Abstract: Drawing on a database of the competitive research funds in the Japanese academia, this study examines the distribution of research grants at the university and individual levels. The data indicates high inequality at the university level and slightly lower inequality at the individual level. Over the last three decades, the total grant budget has greatly increased and an increasing number of researchers have received the funds. Simultaneously, large-size grants have become more common and multiple awarding (i.e., one researcher receives more than one grant simultaneously) has become more frequent. These changes taken together, the level of inequality has not been changed substantially. The extent of inequality largely differs between scientific fields; especially high in basic natural sciences and relatively low in social sciences. A close examination of inequality over researchers’ career indicates different patterns of transition between fields and cohorts. Finally, both at the university and individual levels, the funding distribution is found more unequal than the distribution of publications as an output indicator.

Keywords: Academia, Funding, Inequality, NIH, Publications, Research, Research Grant, Science, Social Sciences, University

? Ko, Y.M., Cho, S.R. and Park, Y.S. (2011), A study on the optimization of KCI-based index (Kor-Factor) in evaluating Korean journals. *Scientometrics*, **88** (1), 61-71.

Full Text: [2011\Scientometrics88, 61.pdf](2011/Scientometrics88,%2061.pdf)

Abstract: This study describes the development process of Kor-Factor, which is a novel composite evaluation index that was developed to promote Korean domestic academic journals. As more data accumulate, the Kor-Factor’s optimization process was modified in an attempt to address possible drawbacks of the original form; the result is presented in this study. This study compares Kor-Factor with the Impact Factor, which is the most well-known single element evaluation index. We found that Kor-Factor demonstrates a better power of differentiation and a greater capacity to reflect the reputability of key journals. The modified Kor-Factor, which has been developed through an optimization process, reveals a greater power of differentiation than the original Kor-Factor; however, the modified version has less capacity to reflect reputability. The evaluation elements of the modified Kor-Factor are better and are more evenly reflected on the index value than those of the original version. Finally, we propose the establishment of an appropriate data measurement period for the actual application of the index.

Keywords: Citations, Composite Index, Development, Evaluation, Evaluation Factor, Evaluation Index, Impact, Journal Indicator, Journals, Kor-Factor, Measurement, Science

? Chen, Z.F. and Guan, J.C. (2011), Mapping of biotechnology patents of China from 1995-2008. *Scientometrics*, **88** (1), 73-89.

Full Text: [2011\Scientometrics88, 73.pdf](2011/Scientometrics88,%2073.pdf)

Abstract: the patents of China in biotechnology in the United States Patent and Trademark Office during 1995-2008 have been analyzed in this paper with the help of bibliometrics and social network analysis techniques. The analysis has been carried out from several perspectives including total patent output of industries, universities and public research institutes (PRIs) and their positions in the knowledge network, the main innovators and their interactions, the collaboration among Chinese regions and the collaborations from abroad. The results show that though with some improvements, the patent performance of Chinese organizations and regions in biotechnology still need to be improved. The connections between Chinese innovators are not very cohesive and they depend heavily on foreign knowledge, especial knowledge from U. S. multinational firms and universities. The important innovators of China in this field are mainly PRIs and universities. More and stronger firm innovators, especially large and powerful multinational companies, are strongly needed for the nation’s biotechnology industry.

Keywords: Bibliometric Analysis, Bibliometrics, China, Collaboration, Innovation, Innovation Performance, Korea, Network Forms, Organization, Patent, Research, Social Network, Social Network Analysis

? Ouimet, M., Bedard, P.O. and Gelineau, F. (2011), Are the h-Index and some of its alternatives discriminatory of epistemological beliefs and methodological preferences of faculty members? the case of social scientists in Quebec. *Scientometrics*, **88** (1), 91-106.

Full Text: [2011\Scientometrics88, 91.pdf](2011/Scientometrics88,%2091.pdf)

Abstract: This exploratory study aims at answering the following research question: Are the h-Index and some of its derivatives discriminatory when applied to rank social scientists with different epistemological beliefs and methodological preferences? This study reports the results of five Tobit and two negative binomial regression models taking as dependent variable the h-Index and six of its derivatives, using a dataset combining bibliometric data collected with the PoP software with cross-sectional data of 321 Quebec social scientists in Anthropology, Sociology, Social Work, Political Science, Economics and Psychology. The results reveal an epistemological/methodological effect making positivists and quantitativists globally more productive than constructivists and qualitativists.

Keywords: Bibliometric, Cross-Sectional Survey, Economics, Epistemology, Google Scholar, h Index, h-Index, Individual Researchers, Mechanisms, Psychology, Publish or Perish, Quebec, Research, Research Performance, Social Sciences, Social Scientists

? Abbas, A.M. (2011), Weighted indices for evaluating the quality of research with multiple authorship. *Scientometrics*, **88** (1), 107-131.

Full Text: [2011\Scientometrics88, 107.pdf](2011/Scientometrics88,%20107.pdf)

Abstract: Devising an index to measure the quality of research is a challenging task. In this paper, we propose a set of indices to evaluate the quality of research produced by an author. Our indices utilize a policy that assigns the weights to multiple authors of a paper. We have considered two weight assignment policies: positionally weighted and equally weighted. We propose two classes of weighted indices: weighted h-indices and weighted citation h-cuts. Further, we compare our weighted h-indices with the original h-Index for a selected set of authors. As opposed to h-Index, our weighted h-indices take into account the weighted contributions of individual authors in multi-authored papers, and may serve as an improvement over h-Index. The other class of weighted indices that we call weighted citation h-cuts take into account the number of citations that are in excess of those required to compute the index, and may serve as a supplement to h-Index or its variants.

Keywords: Authors, Authorship, Citation, Citations, Credit, h Index, h-Index, Multiple Authors, Output, Papers, Policies, Policy, Publication, Quality of Publication, Research, Weighted Index

? An, X.Y. and Wu, Q.Q. (2011), Co-word analysis of the trends in stem cells field based on subject heading weighting. *Scientometrics*, **88** (1), 133-144.

Full Text: [2011\Scientometrics88, 133.pdf](2011/Scientometrics88,%20133.pdf)

Abstract: In this paper, co-word analysis is used to analyze the evolvement in stem cell field. Articles in the stem cell journals are downloaded from PubMed for analysis. Terms selection is one of the most important steps in co-word analysis, so the useless and the general subject headings are removed firstly, and then the major subject headings and minor subject headings are weighted respectively. Then, improved information entropy is exploited to select the subject headings with the experts consulting. Hierarchical cluster analysis is used to cluster the subject headings and the strategic diagram is formed to analyze the evolutionary trends in the stem cell field.

Keywords: Co-Word Analysis, Information, Information Entropy, Journals, Pubmed, Research Front, Strategic Diagram, Subject Heading Weighting

? Costas, R. and Bordons, M. (2011), Do age and professional rank influence the order of authorship in scientific publications? Some evidence from a micro-level perspective. *Scientometrics*, **88** (1), 145-161.

Full Text: [2011\Scientometrics88, 145.pdf](2011/Scientometrics88,%20145.pdf)

Abstract: Scientific authorship has important implications in science since it reflects the contribution to research of the different individual scientists and it is considered by evaluation committees in research assessment processes. This study analyses the order of authorship in the scientific output of 1,064 permanent scientists at the Spanish CSIC (WoS, 1994-2004). The influence of age, professional rank and bibliometric profile of scientists over the position of their names in the byline of publications is explored in three different research areas: Biology and Biomedicine, Materials Science and Natural Resources. There is a strong trend for signatures of younger researchers and those in the lower professional ranks to appear in the first position (junior signing pattern), while more veteran or highly-ranked ones, who tend to play supervisory functions in research, are proportionally more likely to sign in the last position (senior signing pattern). Professional rank and age have an effect on authorship order in the three fields analysed, but there are inter-field differences. Authorship patterns are especially marked in the most collaboration-intensive field (i.e. Biology and Biomedicine), where professional rank seems to be more significant than age in determining the role of scientists in research as seen through their authorship patterns, while age has a more significant effect in the least collaboration-intensive field (Natural Resources).

Keywords: Age Analysis, Assessment, Authorship, Bibliometric, Bibliometrics, Biomedicine, Collaboration, Csic, Evaluation, Gender, Impact, Individual Level Analysis, Micro-Level Analysis, Multiple Authorship, Order of Authorship, Patterns, Productivity, Professional, Publications, Research, Researchers, Science, Scientific Publications, Trend, Young Scientists

? Varga, A.V. (2011), Measuring the semantic integrity of scientific fields: A method and a study of sociology, economics and biophysics. *Scientometrics*, **88** (1), 163-177.

Full Text: [2011\Scientometrics88, 163.pdf](2011/Scientometrics88,%20163.pdf)

Abstract: the paper introduces a concept for measuring the interpretive fragmentation of scientific fields by the analysis of their citation networks. Transitive closure in two-mode networks is the basis of the proposed measurement. To test the validity of the concept two analyses are presented. One compares the integrity of two social sciences, sociology and economics, and a natural science, biophysics. The results are in line with the widely held opinion, that because of the lack in cumulative and consensual knowledge production mechanisms the social sciences are more disintegrated. Sociology is considerably more fragmented then economics, as the different paradigm structure of these disciplines would predict. As a second test, the fragmentation of scholarly communication inside and between the sub-fields of sociology is measured. The results correctly indicate that meaning making processes are taking place inside invisible colleges.

Keywords: Ambiguity, Citation, Citation Analysis, Citation Networks, Economics, Integration, Meaning, Measurement, Network Analysis, Paradigms, Social Sciences

? Zavadskas, E.K., Kirvaitis, R. and Dagiene, E. (2011), Scientific publications released in the Baltic States. *Scientometrics*, **88** (1), 179-190.

Full Text: [2011\Scientometrics88, 179.pdf](2011/Scientometrics88,%20179.pdf)

Abstract: the article focuses on evolution of scientific publications released in the Baltic States (Lithuania, Latvia and Estonia) and refers to international databases that contain scientific papers produced over the last 20 years of independence. The countries share the same history of restoration of independence after 40 years of occupation. The article shall specifically focus on the period of post EU accession in 2004. It will discuss the contribution of Kaunas University of Technology, Vilnius Gediminas Technical University, Riga Technical University and Tallinn University of Technology to the total number of publications in these countries. The investigation was based on databases of Thomson Reuters Web of Science, Essential Science Indicators and Journal Citation Report. Additionally, it employed the Scimago ranking system based on Scopus database. Data analysis also involved similar indices that provide the number of papers and their citation results as well as the average number of citations per paper.

Keywords: Baltic States, Citation, Citation Analysis, Citations, Databases, History, Indicators, Output, Papers, Publication Analysis, Publication on Engineering, Publications, Ranking, Research Journal, Scientific Publication, Scientific Publications, Scopus, Technical Universities, University, Web of Science

? Lin, F. (2011), A study on power-law distribution of hostnames in the URL references. *Scientometrics*, **88** (1), 191-198.

Full Text: [2011\Scientometrics88, 191.pdf](2011/Scientometrics88,%20191.pdf)

Abstract: the power-law distribution and the Garfield’s Law of Concentration of journal citation have long been verified by empirical data. As a relatively new type of reference, the URL references are cited more and more frequently in the scientific papers and their distribution is proved to fit for the Garfield’s Law of Concentration too. In this article, we collect three URL references datasets extracted from papers written by researchers belonging to three big research groups : Chinese Academy of Sciences, Max Planck Institute, and the whole Chinese scientific researchers. Through the curve-fitting with SPSS and contrast the results with the judgment standard of power-law distribution, we verify that there also exists power-law distribution in the citation frequency of hostnames in these three URL references datasets. and our experimental results show that the range of power exponent in the journal references and the URL references are different. Started from the concrete empirical procedures and the final experimental results, we analyze four factors that may lead to this difference between journal references and URL references: the sample size, the sampling method, the concentration of citation and the type property of citation.

Keywords: Citation, Citation Distribution, Citations, Hostname Citation Frequency, Index, Journal, Law, Model, Papers, Power-Law Distribution, Rank Distributions, Research, Url Reference

? Bouabid, H. (2011), Revisiting citation aging: A model for citation distribution and life-cycle prediction. *Scientometrics*, **88** (1), 199-211.

Full Text: [2011\Scientometrics88, 199.pdf](2011/Scientometrics88,%20199.pdf)

Abstract: the study of citation distribution provides retrospective and prospective picture of the evolving impact of a corpus of publications on knowledge community. All distribution models agree on the rise of the number of citations in the first years following the publication to reach a peak and then tend to be less cited when time passes. However, questions such as how long it will continue being cited and what is objectively the rate of the decline remain unanswered. Built up of simple polynomial function, the proposed model is proven to be suitable to represent the observed citation distribution over time and to interestingly identify with accuracy when the major loss of citations happens. I calculate from the model the ‘residual citations’ representing the citations kept after a long time period after publication year. I demonstrate that the residual citations may be greater than or equal to zero, meaning that the ‘life-cycle’ of the corpus is infinite, contrary to what some researches termed to be around 21 years. This model fits the observed data from SCI according to R-sq which is greater than 98.9%. Rather, it is very simple and easy to implement and can be used by not highly-skilled scientometric users. Finally, the model serves as a citation predictive tool for a corpus by determining the citations that would obtain at any time of its life-cycle.

Keywords: Behavior, Citation, Citation Aging, Citation Distribution, Citation-Prediction, Citations, Impact, ISI-Data, Life-Cycle, Life-Time, Model, Observed Citations, Obsolescence, Oecd-Countries, Publication, Publication Delays, Publications, SCI, Science

? Yoon, J. and Kim, K. (2011), Identifying rapidly evolving technological trends for R&D planning using SAO-based semantic patent networks. *Scientometrics*, **88** (1), 213-228.

Full Text: [2011\Scientometrics88, 213.pdf](2011/Scientometrics88,%20213.pdf)

Abstract: Patents constitute an up-to-date source of competitive intelligence in technological development; thus, patent analysis has been a vital tool for identifying technological trends. Patent citation analysis is easy to use, but fundamentally has two main limitations: (1) new patents tend to be less cited than old ones and may miss citations to contemporary patents; (2) citation-based analysis cannot be used for patents in databases which do not require citations. Naturally, citation-based analysis tends to underestimate the importance of new patents and may not work in rapidly-evolving industries in which technology life-cycles are shortening and new inventions are increasingly patented worldwide. As a remedy, this paper proposes a patent network based on semantic patent analysis using subject-action-object (SAO) structures. SAO structures represent the explicit relationships among components used in a patent, and are considered to represent key concepts of the patent or the expertise of the inventor. Based on the internal similarities between patents, the patent network provides the up-to-date status of a given technology. Furthermore, this paper suggests new indices to identify the technological importance of patents, the characteristics of patent clusters, and the technological capabilities of competitors. The proposed method is illustrated using patents related to synthesis of carbon nanotubes. We expect that the proposed procedure and analysis will be incorporated into technology planning processes to assist experts such as researchers and R&D policy makers in rapidly-evolving industries.

Keywords: Bibliometrics, Citation, Citation Analysis, Citation Network, Citations, Databases, Development, Diffusion, Indicators, Natural Language Processing (NLP), Natural-Language, Opportunities, Patent, Patent Mining, Patent Network, Patents, Policy, Research and Development (R&D) Trend, Semantic Patent Similarity, Similarity, Small World, Subject-Action-Object (SAO) Structures

? Abramo, G., D’Angelo, C.A. and Di Costa, F. (2011), National research assessment exercises: the effects of changing the rules of the game during the game. *Scientometrics*, **88** (1), 229-238.

Full Text: [2011\Scientometrics88, 229.pdf](2011/Scientometrics88,%20229.pdf)

Abstract: National research evaluation exercises provide a comparative measure of research performance of the nation’s institutions, and as such represent a tool for stimulating research productivity, particularly if the results are used to inform selective funding by government. While a school of thought welcomes frequent changes in evaluation criteria in order to prevent the subjects evaluated from adopting opportunistic behaviors, it is evident that the “rules of the game” should above all be functional towards policy objectives, and therefore be known with adequate forewarning prior to the evaluation period. Otherwise, the risk is that policy-makers will find themselves faced by a dilemma: should they reward universities that responded best to the criteria in effect at the outset of the observation period or those that result as best according to rules that emerged during or after the observation period? This study verifies if and to what extent some universities are penalized instead of rewarded for good behavior, in pursuit of the objectives of the “known” rules of the game, by comparing the research performances of Italian universities for the period of the nation’s next evaluation exercise (2004-2008): first as measured according to criteria available at the outset of the period and next according to those announced at the end of the period.

Keywords: Assessment, Bibliometric Indicators, Bibliometrics, Evaluation, Evaluation Criteria, Italy, Performance-Based Research Funding, Policy, Research, Research Assessment Exercises, Research Evaluation, Research Performance, Universities, University

? Breschi, S. and Malerba, F. (2011), Assessing the scientific and technological output of EU Framework Programmes: Evidence from the FP6 projects in the ICT field. *Scientometrics*, **88** (1), 239-257.

Full Text: [2011\Scientometrics88, 239.pdf](2011/Scientometrics88,%20239.pdf)

Abstract: This paper provides a quantitative assessment of the scientific and technological productivity of FP6 projects by exploiting a new database on articles and patents resulting from EU funded projects. Starting from the FP6, the design of the European technology policy has undergone significant changes with the introduction of new funding instruments aimed at achieving a “critical mass” of resources. Our empirical results provide support to the concerns, expressed by several observers, regarding the fact that the new funding instruments may have resulted in artificially “too large” research consortia. The available empirical evidence shows that scientific productivity increases with the number of participants following a U-inverted shape, thereby indicating the existence of decreasing marginal returns to an increase in the size of research consortia. A second key result of the paper is related to the existence of significant differences of performance among funding instruments. In particular, after accounting for the larger amount of resources allocated to them, Integrated Projects perform less well in terms of scientific output than both STRePs and Networks of Excellence and they do not exhibit a superior performance than STRePs in terms of patent applications.

Keywords: Assessment, Bibliometric Analysis, Framework Programme, Patent, Policy, Research, Research Consortia, Scientific and Technological Performance

? Choi, D.G., Lee, H. and Sung, T.K. (2011), Research profiling for ‘standardization and innovation’. *Scientometrics*, **88** (1), 259-278.

Full Text: [2011\Scientometrics88, 259.pdf](2011/Scientometrics88,%20259.pdf)

Abstract: This paper addresses the profiling of research papers on ‘standardization and innovation’-exploring major topics and arguments in this field. Drawing on 528 papers retrieved from the database, Web of Science, we employed trend, factor, and clustering analyses to demonstrate that the standardization and innovation research has continuously grown from publication of 13 papers in 1995 to 68 papers in 2008; the majority of these papers have been published in the six subject group domains of management, economics, environment, chemistry, computer science, and telecommunications. Technology innovation management specialty journals are the most central sources favorable for these themes. We also present an exploratory taxonomy that offers nine topical clusters to demonstrate the contextual structures of standardization and innovation. The implications of our results for ongoing consistent policy and future research into standardization and innovation are discussed.

Keywords: Bibliometrics, Clustering Analysis, Dominant Designs, Economics, Empirical-Analysis, Environment, Industry Standards, Information-Systems, Innovation, Intellectual Property-Rights, Journals, Papers, Performance, Policy, Publication, Publication Analysis, Quality Standards, Research, Research Papers, Research Profiling, Science-and-Technology, Setting Organizations, Standardization, Taxonomy, Technical Innovations, Trend, Web of Science

? Franceschini, F. and Maisano, D. (2011), Proposals for evaluating the regularity of a scientist’s research output. *Scientometrics*, **88** (1), 279-295.

Full Text: [2011\Scientometrics88, 279.pdf](2011/Scientometrics88,%20279.pdf)

Abstract: Evaluating the career of individual scientists according to their scientific output is a common bibliometric problem. Two aspects are classically taken into account: overall productivity and overall diffusion/impact, which can be measured by a plethora of indicators that consider publications and/or citations separately or synthesise these two quantities into a single number (e.g. h-Index). A secondary aspect, which is sometimes mentioned in the rules of competitive examinations for research position/promotion, is time regularity of one researcher’s scientific output. Despite the fact that it is sometimes invoked, a clear definition of regularity is still lacking. We define it as the ability of generating an active and stable research output over time, in terms of both publications/quantity and citations/diffusion. The goal of this paper is introducing three analysis tools to perform qualitative/quantitative evaluations on the regularity of one scientist’s output in a simple and organic way. These tools are respectively (1) the PY/CY diagram, (2) the publication/citation Ferrers diagram and (3) a simplified procedure for comparing the research output of several scientists according to their publication and citation temporal distributions (Borda’s ranking). Description of these tools is supported by several examples.

Keywords: Bibliometric, Borda’s Method, Citation, Citation Regularity, Citation, Publication Distribution, Citations, Ferrers Diagram, h Index, h-Index, h-Index, Individual Scientist, Journals, Publication, Publication Regularity, Publications, Ranking, Research, Research Evaluation, Research Output

? Glänzel, W. and Thijs, B. (2011), Using ‘core documents’ for the representation of clusters and topics. *Scientometrics*, **88** (1), 297-309.

Full Text: [2011\Scientometrics88, 297.pdf](2011/Scientometrics88,%20297.pdf)

Abstract: the notion of ‘core documents’, first introduced in the context of co-citation analysis and later re-introduced for bibliographic coupling, refers to the representation of the core of a publication set according to given criteria. In the present study, the notion of core documents is extended to the combination of citation-based and textual links. It is shown that core documents defined this way can be used to represent and describe document clusters and topics at different levels of aggregation. Methodology is illustrated using the example of two ISI Subject Categories selected from applied and social sciences.

Keywords: Bibliographic, Bibliographic Coupling, Cluster Analysis, Combined Cocitation, Core Documents, Hybrid Clustering, Methodology, Publication, Science, Social Sciences, Text Mining, Word Analysis

? Leite, P., Mugnaini, R. and Leta, J. (2011), A new indicator for international visibility: exploring Brazilian scientific community. *Scientometrics*, **88** (1), 311-319.

Full Text: [2011\Scientometrics88, 311.pdf](2011/Scientometrics88,%20311.pdf)

Abstract: Brazilian science has increased fast during the last decades. An example is the increasing in the country’s share in the world’s scientific publication within the main international databases. But what is the actual weight of international publications to the whole Brazilian productivity? In order to respond this question, we have elaborated a new indicator, the International Publication Ratio (IPR). The data source was Lattes Database, a database organized by one of the main Brazilian S&T funding agency, which encompasses publication data from 1997 to 2004 of about 51,000 Brazilian researchers. Influences of distinct parameters, such as sectors, fields, career age and gender, are analyzed. We hope the data presented may help S&T managers and other S&T interests to better understand the complexity under the concept scientific productivity, especially in peripheral countries in science, such as Brazil.

Keywords: Age, Brazil, Brazilian Science, Databases, Impact, Index, International Publication Ratio, Productivity, Profile, Publication, Publications, Researchers, Science, Scientific Publication, Scientific Publications, Technology, Visibility, Women

? Ravallion, M. and Wagstaff, A. (2011), On measuring scholarly influence by citations. *Scientometrics*, **88** (1), 321-337.

Full Text: [2011\Scientometrics88, 321.pdf](2011/Scientometrics88,%20321.pdf)

Abstract: Bibliometric measures based on citations are widely used in assessing the scientific publication records of authors, institutions and journals. Yet currently favored measures lack a clear theoretical foundation and are known to have counter-intuitive properties. The paper proposes a new approach that is grounded on a theoretical “influence function,” representing explicit prior beliefs about how citations reflect influence. Conditions are derived for robust qualitative comparisons of influence-conditions that can be implemented using readily-available data. Two examples are provided, one using the world’s top-10 economics department, the other using the top-10 economics journals.

Keywords: Authors, Bibliometric, Citations, Economics, Economics Departments, Economics Journals, G-Index, h-Index, Inequality, Journals, Publication, Ranking, Scientific Influence, Scientific Publication

? Bensman, S.J. (2011), The publish or perish book: Your guide to effective and responsible citation analysis. *Scientometrics*, **88** (1), 339-342

Full Text: [2011\Scientometrics88, 339.pdf](2011/Scientometrics88,%20339.pdf)

Keywords: Citation, Citation Analysis, Google Scholar, Impact, Journals, Scopus

? Gao, X., Guan, J.C. and Rousseau, R. (2011), Mapping collaborative knowledge production in China using patent co-inventorships. *Scientometrics*, **88** (2), 343-362.

Full Text: [2011\Scientometrics88, 343.pdf](2011/Scientometrics88,%20343.pdf)

Abstract: Only a few cases of systematic empirical research have been reported investigating collaborative knowledge production in China and its implications for China’s national and regional innovation system. Using Chinese patent data in the US Patent and Trademark Office (USPTO), this paper examines the geographic variations in intraregional, inter-regional and international knowledge exchanges of China from 1985 to 2007. Degree centrality reveals that intraregional and international collaborations are the main channels of knowledge exchange for the provinces and municipalities of China while inter-regional knowledge exchange is relatively weak. Besides, over the two decades, the knowledge exchange network has been expanding (connecting an increasing number of provinces and countries), becoming more decentralized (increasing number of hubs) and more cohesive (more linkages). A blockmodel analysis further reveals that the inter-regional network of China begins to show characteristics of a core-periphery structure. The most active knowledge exchange occurs between members of the core block composed by the most advanced provinces while the members of the peripheral block from less favored regions have few or no local and extra-local knowledge exchange. Building a strong knowledge transfer network would much improve the innovation capacities in less favored regions and help them break out from their “locked-in” development trajectories.

Keywords: Authorship, China, Development, Diffusion, Exploration, Geographical Proximity, Innovation, Innovation System, Knowledge Exchange, Knowledge Transfer, Networks, Patent, Regions, Research, Scientific Collaboration, Spillovers, Universities, US

? Egghe, L. (2011), The influence of random removal of sources and items on the h-Index. *Scientometrics*, **88** (2), 363-370.

Full Text: [2011\Scientometrics88, 363.pdf](2011/Scientometrics88,%20363.pdf)

Abstract: If we have two information production processes with the same h-Index, random removal of items causes one system to have a higher h-Index than the other system while random removal of sources causes the opposite effect. In a Lotkaian framework we prove formulae for the h-Index in case of random removal of items and in case of random removal of sources. In conclusion, we warn for the use of the h-Index in case of incomplete data sets.

Keywords: h Index, h-Index, Hirsch-Index, Hirsch-Index, Information, Items, Random Removal, Sources, Transformations

? Andersen, J.P. and Hammarfelt, B. (2011), Price revisited: On the growth of dissertations in eight research fields. *Scientometrics*, **88** (2), 371-383.

Full Text: [2011\Scientometrics88, 371.pdf](2011/Scientometrics88,%20371.pdf)

Abstract: This paper studies the production of dissertations in eight research fields in the natural sciences, the social sciences and the humanities. In using doctoral dissertations it builds on De Solla Prices seminal study which used PhD dissertations as one of several indicators of scientific growth (Price, Little science, big science, 1963). Data from the ProQuest: Dissertations and Theses database covering the years 1950-2007 are used to depict historical trends, and the Gompertz function was used for analysing the data. A decline in the growth of dissertations can be seen in all fields in the mid-eighties and several fields show only a modest growth during the entire period. The growth profiles of specific disciplines could not be explained by traditional dichotomies such as pure/applied or soft/hard, but rather it seems that the age of the discipline appears to be an important factor. Thus, it is obvious that the growth of dissertations must be explained using several factors emerging both inside and outside academia. Consequently, we propose that the output of dissertations can be used as an indicator of growth, especially in fields like the humanities, where journal or article counts are less applicable.

Keywords: Dissertations, Growth of Science, History of Science, Journal, Models, Publication Analysis, Research, Social Sciences

? Albarran, P., Crespo, J.A., Ortuno, I. and Ruiz-Castillo, J. (2011), The skewness of science in 219 sub-fields and a number of aggregates. *Scientometrics*, **88** (2), 385-397.

Full Text: [2011\Scientometrics88, 385.pdf](2011/Scientometrics88,%20385.pdf)

Abstract: This paper studies evidence from Thomson Scientific (TS) about the citation process of 3.7 million articles published in the period 1998-2002 in 219 Web of Science (WoS) categories, or sub-fields. Reference and citation distributions have very different characteristics across sub-fields. However, when analyzed with the Characteristic Scores and Scales (CSS) technique, which is replication and scale invariant, the shape of these distributions over three broad categories of articles appears strikingly similar. Reference distributions are mildly skewed, but citation distributions with a 5-year citation window are highly skewed: the mean is 20 points above the median, while 9-10% of all articles in the upper tail account for about 44% of all citations. The aggregation of sub-fields into disciplines and fields according to several aggregation schemes preserve this feature of citation distributions. It should be noted that when we look into subsets of articles within the lower and upper tails of citation distributions the universality partially breaks down. On the other hand, for 140 of the 219 sub-fields the existence of a power law cannot be rejected. However, contrary to what is generally believed, at the sub-field level the scaling parameter is above 3.5 most of the time, and power laws are relatively small: on average, they represent 2% of all articles and account for 13.5% of all citations. The results of the aggregation into disciplines and fields reveal that power law algebra is a subtle phenomenon.

Keywords: Characteristic Scores, Citation, Citation Analysis, Citations, Distributions, Indicators, Networks, Power Laws, Research Performance, Scales, Scientific Performance, Scores, Statistics, Web of Science

? Lv, P.H., Wang, G.F., Wan, Y., Liu, J., Liu, Q. and Ma, F.C. (2011), Bibliometric trend analysis on global graphene research. *Scientometrics*, **88** (2), 399-419.

Full Text: [2011\Scientometrics88, 399.pdf](2011/Scientometrics88,%20399.pdf)

Abstract: Graphene is a rising star as one of the promising materials with many applications. Its global literature increased fast in recent years. In this work, bibliometric analysis and knowledge visualization technology were applied to evaluate global scientific production and developing trend of graphene research. The data were collected from 1991 to 2010 from the Science Citation Index database, Conference Proceeding Citation Index database and Derwent Innovation Index database integrated by Thomson Reuters. The published papers from different subjects, journals, authors, countries and keywords distributed in several aspects of research topics proved that graphene research increased rapidly over past 20 years and boosted in recent 5 years. The distinctions in knowledge map show that the clusters distributed regularly in keywords of applied patents in recent 5 years due to the potential applications of graphene research gradually found. The analytical results provided several key findings of bibliometrics trend.

Keywords: Authors, Bibliometric, Bibliometric Analysis, Bibliometrics, Carbon-Films, Citation, Co-Authorship, Co-Words, Conference, Epitaxial Graphene, Graphene, Innovation, Journals, Knowledge Mapping, Literature, Papers, Research, Research Trend, Science, Science Citation Index, Trend

? Campanario, J.M. and Coslado, M.A. (2011), Benford’s law and citations, articles and impact factors of scientific journals. *Scientometrics*, **88** (2), 421-432.

Full Text: [2011\Scientometrics88, 421.pdf](2011/Scientometrics88,%20421.pdf)

Abstract: First order digits in data sets of natural and social data often follow a distribution called Benford’s law. We studied the number of articles published, citations received and impact factors of all journals indexed in the Science Citation Index from 1998 to 2007. We tested their compliance with Benford’s law. Citations data followed Benford’s law remarkably well in all years studied. However, for the data on the numbers of articles, the differences between the values predicted by Benford’s law and the observed values were always statistically significant. This was also the case for most data for impact factors.

Keywords: Articles, Benford Law, Citation, Citations, Compliance, Impact, Impact Factor, Journals, Science Citation Index

? Chen, Y.S. (2011), Using patent analysis to explore corporate growth. *Scientometrics*, **88** (2), 433-448.

Full Text: [2011\Scientometrics88, 433.pdf](2011/Scientometrics88,%20433.pdf)

Abstract: This study applies patent analysis to discuss the influences of the three aspects of patent trait-a firm’s revealed technology advantage in its most important technological field (RTA(MIT)), relative patent position in its most important technological field (RPPMIT), and patent share in its most important technological field (PSMIT)-upon corporate growth and discusses the moderation effect of relative growth rate of its most important technological field (RGR(MIT)) in the American pharmaceutical industry. The results demonstrate that the three relationships between corporate growth and the three aspects of patent trait are positive, and verify that RGR(MIT) moderates the three relationships. This study suggests that pharmaceutical companies should enhance their R&D capabilities, the degree of leading position, and concentration of R&D investment in their most important technological fields to increase their growth. Finally, this study classifies the pharmaceutical companies into four types, and provides some suggestions to them.

Keywords: Citations, Companies, Competences, Corporate Growth, Development Performance, Firm, Market Value, Patent, Patent Analysis, Patent Share (PS), Pharmaceutical Companies, Pharmaceutical-Industry, Portfolios, Productivity, Relative Patent Position (RPP), Research-And-Development, Revealed Technology Advantage (RTA)

? Barnett, G.A., Huh, C., Kim, Y. and Park, H.W. (2011), Citations among communication journals and other disciplines: A network analysis. *Scientometrics*, **88** (2), 449-469.

Full Text: [2011\Scientometrics88, 449.pdf](2011/Scientometrics88,%20449.pdf)

Abstract: This article describes the results of a network analysis based on the citation among Communication journals and those academic disciplines that are cited by those journals labeled as “Communication” by the Web of Science. The results indicate that the journals indexed solely as Communication rather than those also tagged as another social science are more central in the citation network. Further, a cluster analysis of the cited disciplines revealed three groupings, a micro psychological cluster, a macro socio-political group and a woman’s studies clique. A two-mode network analysis found that the most central Communication journals cited multiple clusters, while the peripheral journals cited only one, suggesting that the structure of influence on the field of Communication is more complex than suggested by Park and Leydesdorff (Scientometrics 81(1):157-175, 2009). Also, the results indicate that the macro cluster is about twice as influential as the micro cluster, rather than as Park and Leydesdorff suggest that Psychology is the discipline’s primary influence.

Keywords: Association, Centrality, Citation, Citation Analysis, Citations, Communication, Field, Journals, Network Analysis, Patterns, Primary, Psychology, Science, Scientometrics, Web of Science

? Toivanen, H. and Ponomariov, B. (2011), African regional innovation systems: Bibliometric analysis of research collaboration patterns 2005-2009. *Scientometrics*, **88** (2), 471-493.

Full Text: [2011\Scientometrics88, 471.pdf](2011/Scientometrics88,%20471.pdf)

Abstract: Understanding the nature and dynamics of Africa’s collaborative research networks is critical for building and integrating the African innovation system. This paper investigates the collaborative structure of the African research systems, with focus on regions and integration. Drawing on a bibliometric analysis of co-authorship of African research publications in 2005-2009, we propose an empirically derived grouping of African research community into three distinct research regions: Southern-Eastern, Western, and Northern. The three regions are established and defined in terms of active co-authorship clusters within Africa, as well as through co-authorship links with non-African countries and regions. We examine co-authorship links both at the national and city levels in order to provide a robust and nuanced empirical basis for the three African research regions. The collaboration patterns uncovered cast light on the emerging innovation systems in Africa by pointing out the differing national, regional, and global roles of countries and cities within collaborative research networks. Lack of research capabilities is the primary factor arresting the development of African innovation systems, but our analysis also suggests that Africa’s internal research collaboration suffers from structural weaknesses and uneven integration. We also identify that South Africa, and some emerging new research hubs, hold critical networking function for linking African researchers.

Keywords: Africa, Bibliometric, Bibliometric Analysis, Co-Authorship, Coauthorship, Collaboration, Development, Innovation, Innovation Systems, Primary, Publications, Research, Science

? van Raan, A.F.J., van Leeuwen, T.N. and Visser, M.S. (2011), Severe language effect in university rankings: Particularly Germany and France are wronged in citation-based rankings. *Scientometrics*, **88** (2), 495-498.

Full Text: [2011\Scientometrics88, 495.pdf](2011/Scientometrics88,%20495.pdf)

Abstract: We applied a set of standard bibliometric indicators to monitor the scientific state-of-arte of 500 universities worldwide and constructed a ranking on the basis of these indicators (Leiden Ranking 2010). We find a dramatic and hitherto largely underestimated language effect in the bibliometric, citation-based measurements of research performance when comparing the ranking based on all Web of Science (WoS) covered publications and on only English WoS covered publications, particularly for Germany and France.

Keywords: Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Language of Publication, Publications, Ranking, Research, Research Performance, Science, University, University Rankings, Web of Science

? Leydesdorff, L. (2011), “Structuration” by intellectual organization: the configuration of knowledge in relations among structural components in networks of science. *Scientometrics*, **88** (2), 499-520.

Full Text: [2011\Scientometrics88, 499.pdf](2011/Scientometrics88,%20499.pdf)

Abstract: Using aggregated journal-journal citation networks, the measurement of the knowledge base in empirical systems is factor-analyzed in two cases of interdisciplinary developments during the period 1995-2005: (i) the development of nanotechnology in the natural sciences and (ii) the development of communication studies as an interdiscipline between social psychology and political science. The results are compared with a case of stable development: the citation networks of core journals in chemistry. These citation networks are intellectually organized by networks of expectations in the knowledge base at the specialty (that is, above-journal) level. The “structuration” of structural components (over time) can be measured as configurational information. The latter is compared with the Shannon-type information generated in the interactions among structural components: the difference between these two measures provides us with a measure for the redundancy generated by the specification of a model in the knowledge base of the system. This knowledge base incurs (against the entropy law) to variable extents on the knowledge infrastructures provided by the observable networks of relations.

Keywords: Anticipatory Systems, Citation, Citation Networks, Communication, Configuration, Development, Dynamics, Dynamics, Industry, Information, Interaction Information, Japan, Journal, Journals, Knowledge, Meaning, Measurement, Model, Redundancy, Self-Organization, Synergy

? Sakr, S. and Alomari, M. (2011), A decade of database research publications: A look inside. *Scientometrics*, **88** (2), 521-533.

Full Text: [2011\Scientometrics88, 521.pdf](2011/Scientometrics88,%20521.pdf)

Abstract: the database management technology has played a vital role in the advancements of the information technology field. Database researchers are one of the key players and main sources to the growth of the database systems. They are playing a foundational role in creating the technological infrastructure from which database advancements evolve. We analyze the database research publications of nine top-tier and prestigious database research venues. In particular, we study the publications of four major core database technology conferences (SIGMOD, VLDB, ICDE, EDBT), two main theoretical database conferences (PODS, ICDT) and three database journals (TODS, VLDB Journal, TKDE) over a period of 10 years (2001-2010). Our analysis considers only regular papers as we do not include short papers, demo papers, posters, tutorials or panels into our statistics. In this study, we report the list of the authors with the highest number of publications for each conference/journal separately and in combined. We analyze the preference of the database research community towards publishing their work in prestigious conferences or major database journals. We report about the most successful co-authorship relationships in the database research community in the last decade. Finally, we analyze the growth in the number of research publications and the size of the research community in the last decade.

Keywords: Authors, Citation Analysis, Co-Authorship, Coauthorship, Database Research Venues, h-Index, Information, Journal, Journals, Output, Papers, Publications, Publishing, Research, Science, Statistics, Top Publishers

? Hennemann, S., Wang, T. and Liefner, I. (2011), Measuring regional science networks in China: A comparison of international and domestic bibliographic data sources. *Scientometrics*, **88** (2), 535-554.

Full Text: [2011\Scientometrics88, 535.pdf](2011/Scientometrics88,%20535.pdf)

Abstract: Bibliographic databases are frequently used and analysed for the purpose of assessing the capacity and performance of individual researchers or entire research systems. Many of the advantages and disadvantages are the subject of continued discussion in the relevant literature, although only rarely with respect to the regional dimension of scientific publication activity. The importance of the regional dimension of science is reflected in many theoretical concepts, ranging from innovation system theories to territorial cluster concepts and learning regions. This article makes use of the extensive information found in bibliographic data and assesses the reliability of this information as a proxy indicator for the spatial dimension of scientific collaboration in emerging economies. This is undertaken using the example of the emerging field of biotechnology in China from 2000 onwards. Two data sets have been prepared: (1) the frequently used ISI Web of Knowledge database (SCI-Expanded) and (2) the domestic Chinese Chongqing VIP database. Both data sources were analysed using a variety of bibliometric and network scientific methods. The structural and topological similarity of networks, built from co-authorship data, is apparent between the two databases. At an abstract level, general network forces are present, resulting in similar network sizes, clustering, or assortativity. However, introducing additional complexity through regional subdivision reveals many differences between the two data sources that must be accounted for in the analytic design of future scientometric research in dynamic spaces.

Keywords: Bibliographic, Bibliometric, Biotechnology, China, Citation-Index, Co-Authorship, Coauthorship, Collaboration, Database Comparison, Databases, Emergence, Information, Innovation, Journals, Knowledge, Learning, Literature, Nanoscience, Publication, Publications, Regional Science Networks, Research, Research Collaboration, Research Performance, Scientific Publication, Spatial Scientometrics, Technical-Papers, Technology

? Prathap, G. (2011), Quasity, when quantity has a quality all of its own-toward a theory of performance. *Scientometrics*, **88** (2), 555-562.

Full Text: [2011\Scientometrics88, 555.pdf](2011/Scientometrics88,%20555.pdf)

Abstract: Quality, Quantity, Performance,aEuro broken vertical bar An unresolved challenge in performance evaluation in a very general context that goes beyond scientometrics, has been to determine a single indicator that can combine quality and quantity of output or outcome. Toward this end, we start from metaphysical considerations and propose introducing a new name called Quasity to describe those quantity terms which incorporate a degree of quality and best measures the output. The product of quality and quasity then becomes an energy term which serves as a performance indicator. Lessons from kinetics, bibliometrics and sportometrics are used to build up this theme.

Keywords: Bibliometrics, Energy-Index, Evaluation, Index, Kinetics, P-Index, Performance, Quality, Quantity, Quasity, Scientometrics, X = Lo = L(2)I

? Lopez-Illescas, C., de Moya-Anegon, F. and Moed, H.F. (2011), A ranking of universities should account for differences in their disciplinary specialization. *Scientometrics*, **88** (2), 563-574.

Full Text: [2011\Scientometrics88, 563.pdf](2011/Scientometrics88,%20563.pdf)

Abstract: A bibliometric analysis of the 50 most frequently publishing Spanish universities shows large differences in the publication activity and citation impact among research disciplines within an institution. Gini Index is a useful measure of an institution’s disciplinary specialization and can roughly categorize universities in terms of general versus specialized. A study of the Spanish academic system reveals that assessment of a university’s research performance must take into account the disciplinary breadth of its publication activity and citation impact. It proposes the use of graphs showing not only a university’s article production and citation impact, but also its disciplinary specialization. Such graphs constitute both a warning and a remedy against one-dimensional approaches to the assessment of institutional research performance.

Keywords: Academic Systems, Assessment, Bibliometric, Bibliometric Analysis, Bibliometrics, Citation, Citation Impact, Disciplinary Specialization, Graphs, Impact, Institutional Research Performance, Publication, Publishing, Ranking, Research, Research Performance, Spanish Academic System, University Rankings

? Kumar, R., Tripathi, R.C. and Tiwari, M.D. (2011), A case study of impact of patenting in the current developing economies in Asia. *Scientometrics*, **88** (2), 575-587.

Full Text: [2011\Scientometrics88, 575.pdf](2011/Scientometrics88,%20575.pdf)

Abstract: In the current scenario of the global economy and race for the next Asian super power, overall economic strength of the two countries, India and China, is a most debated topic. The future role of intellectual property protection especially in the form of patent system and the growth of industrialization for these two developing economies in ASIA may prove to be crucial over all other assets. In the current development scene of the changing global market supported by intangible asset of inventions protected mainly through the patents is emerging to play an important role. This paper elaborates the statistical research on patents granted/filed in the US Patent and Trade Mark office (US-PTO), PCT of WIPO and in the home countries over last 35 years of aforesaid two Asian countries. It is found that the economic and technological growth of both of the countries may make main difference primarily based on the level of patenting activity by them.

Keywords: Asia, China, Development, Economic Growth, Global Trading, Impact, Industrial Development, Innovations, Intellectual Property-Rights, Patent, Patents and IPR’s, Research, Statistical, US

? Kissin, I. and Bradley, E.L. (2011), Top Journals Selectivity Index: Is it acceptable for drugs beyond the field of analgesia? *Scientometrics*, **88** (2), 589-597.

Full Text: [2011\Scientometrics88, 589.pdf](2011/Scientometrics88,%20589.pdf)

Abstract: To predict the success of an analgesic drug we have suggested a bibliometric indicator, the Top Journals Selectivity Index (TJSI) (Kissin, Scientometrics, 86:785-795, 2011). It represents the ratio (as %) between the number of all types of articles on a particular drug in the top 20 biomedical journals and the number of articles on that drug in all (> 5,000) journals covered by MEDLINE over the first 5 years after a drug’s introduction. for example, the highest TJSI score among analgesics was that of sumatriptan, the most successful drug for the treatment of migraine. The aim of this study was to demonstrate that TJSI may be used not only in the field of analgesics, but also for various other categories of drugs. The study tested two hypotheses. First, the difference between the most successful and less successful drugs in any pharmacological class can be reliably detected by TJSI. Second, drugs with TJSI indicators as high as that of sumatriptan can be found among other pharmacological classes as well. Drugs from various pharmacological classes approved by the Federal Drug Administration (FDA) during the 10-year period, 1980-1989, were used in this study. Two groups of 10 drugs were selected to test the first hypothesis. One group included the most successful (breakthrough) drugs; the other included less successful drugs matched with the breakthrough drugs according to mechanism of action. The difference between the two groups was compared using three publication indices: the TJSI, the number of all types of articles on a drug in journals presented by MEDLINE (AJI), and the number of articles covering only randomized controlled trials (RCT). It was found that TJSI can detect the difference between the two groups of drugs better than the two other indices. TJSI detected the difference between a breakthrough drug and its less successful counterpart at least 69% of the time with 95% confidence. With the other two indices the difference was not distinguishable from random chance. Some of the breakthrough drugs (zidovudine, omeprazole, lovastatin) have TSJIs as high or even higher than that of sumatriptan (19.2 vs. 23.0, 21.4, and 20.6, respectively). In conclusion, TJSI can be useful not only in the field of analgesics, but also with drugs belonging to other pharmacological classes.

Keywords: Bibliometric, Bibliometrics, Biomedical, Biomedical Journals, Drugs, Impact Factor, Journals, Publication, Randomized Controlled Trials, Scientometrics, Topic-Specific Publications

? Abramo, G., D’Angelo, C.A. and Viel, F. (2011), The field-standardized average impact of national research systems compared to world average: the case of Italy. *Scientometrics*, **88** (2), 599-615.

Full Text: [2011\Scientometrics88, 599.pdf](2011/Scientometrics88,%20599.pdf)

Abstract: the study presents a time-series analysis of field-standardized average impact of Italian research compared to the world average. The approach is purely bibliometric, based on census of the full scientific production from all Italian public research organizations active in 2001-2006 (hard sciences only). The analysis is conducted both at sectorial level (aggregated, by scientific discipline and for single fields within disciplines) and at organizational level (by type of organization and for single organizations). The essence of the methodology should be replicable in all other national contexts. Its offers support to policy-makers and administrators for strategic analysis aimed at identifying strengths and weaknesses of national research systems and institutions.

Keywords: Areas, Bibliometric, Bibliometrics, Field-Standardized Impact, Impact, Italy, Methodology, Productivity, Public Research Organizations, Research, Research Evaluation, Research Performance, Science, Scientific Impact

Notes: FField

? Fu, J.Y., Zhang, X., Zhao, Y.H., Huang, M.H. and Chen, D.Z. (2011), Bibliometric analysis of complementary and alternative medicine research over three decades. *Scientometrics*, **88** (2), 617-626.

Full Text: [2011\Scientometrics88, 617.pdf](2011/Scientometrics88,%20617.pdf)

Abstract: This study applies bibliometric analysis to investigate the quantity and citation impact of scientific papers in the field of complementary and alternative medicine (CAM). The data are collected from 19 CAM journals in the Science Citation Index Expanded (SCI-E) database during 1980-2009, and 17,002 papers are identified for analysis. The study analyzes the document types, geographical and institutional distribution of the authorship, including international scientific collaboration. This study suggests that the major type of document is original article. The CAM papers are mostly published by North America, East Asia, and European countries, of which publications authored in East Asia are cited most. Country-wise, major contributors of CAM papers are from USA, People’s Republic of China, India, England and Germany. India has the highest CPP value, attracting high attentions in CAM community. This article also finds that international co-authorship in the CAM field has increased rapidly during this period. In addition, internationally collaborated publications generate higher citation impact than papers published by authors from single country. Finally, the research identifies productive institutions in CAM, and China Medical University located in Taiwan is the most productive organization.

Keywords: Alternative Medicine, Authors, Authorship, Bibliometric, Bibliometric Analysis, Cam, China, Citation, Citation Impact, Co-Authorship, Coauthorship, Collaboration, Complementary Medicine, England, Health, Impact, Journals, Papers, Promotion, Publications, Research, Science, Science Citation Index, University

? Gorraiz, J., Gumpenberger, C. and Wieland, M. (2011), Galton 2011 revisited: A bibliometric journey in the footprints of a universal genius. *Scientometrics*, **88** (2), 627-652.

Full Text: [2011\Scientometrics88, 627.pdf](2011/Scientometrics88,%20627.pdf)

Abstract: Commemorating the 100th death anniversary of Francis Galton, this paper is a bibliometric impact analysis of the works of this outstanding scientist and predecessor of scientometrics. Citation analysis was done in Web of Science, Scopus and Google Scholar (Publish or Perish) in order to retrieve the most cited books and journal articles. Additionally references were identified where Galton was rather mentioned than cited in order to analyze the phenomenon of obliteration by incorporation. Finally occurrence counts of Galton’s works in obituaries, Festschrift, the website Galton.org, major encyclopaedias and biographical indexes were compared to citation counts. As an outcome Galton’s works are increasingly cited or mentioned. Obliteration (use of eponyms) applies to one-third of Galton’s works and seems to be typical for fields like mathematics or statistics, whereas citations are more common in psychology. The most cited books and journal articles are also the most mentioned with remarkable correlation. Overall citation analysis and occurrence counting are complementary useful methods for the impact analysis of the works of “giants”.

Keywords: Bibliometric, Citation, Citation Analysis, Citation Counts, Citations, Francis Galton, Google Scholar, Historiometry, History of Science, Impact, Indexes, Journal, Men, Obliteration, Occurrence Counts, Publish or Perish, Science, Scientometrics, Scopus, Statistics, Web of Science

? Jamali, H.R. and Nikzad, M. (2011), Article title type and its relation with the number of downloads and citations. *Scientometrics*, **88** (2), 653-661.

Full Text: [2011\Scientometrics88, 653.pdf](2011/Scientometrics88,%20653.pdf)

Abstract: Title of an article can be descriptive, declarative or a question. It plays important role in both marketing and findability of article. We investigate the impact of the type of article titles on the number of citations and downloads articles receive. Number of downloads and citations for all articles published in six of PLoS (Public Library of Science) journals (2,172 articles) were obtained from PLoS and type of each article’s title (including descriptive, indicative and question) was determined as well as the number of substantive words in title (title length). Statistical difference and correlation tests were carried out. The findings showed that differences exist between articles with different types of titles in terms of downloads and citations, especially articles with question titles tended to be downloaded more but cited less than the others. Articles with longer titles were downloaded slightly less than the articles with shorter titles. Titles with colon tended to be longer and receive fewer downloads and citations. As expected, number of downloads and citations were positively correlated.

Keywords: Article Titles, Articles, Citation, Citations, Colon, Colons, Download, Impact, Journals, Length, Science, Title Length, Words

? Egghe, L. (2011), Problems with “natural selection of academic papers”. *Scientometrics*, **88** (2), 663-667.

Full Text: [2011\Scientometrics88, 663.pdf](2011/Scientometrics88,%20663.pdf)

Abstract: In this short communication we give critical comments on the paper of Perakakis et al. (Scientometrics 85(2):553-559, 2010) on “Natural selection of academic papers”. The criticism mainly focusses on their unbalanced criticism of peer review and their negative evaluation of the link of peer review with commercial publishing.

Keywords: Commercial Publishing, Evaluation, Open Access, Peer Review, Publishing, Review, Scientometrics

? Perakakis, P., Taylor, M., Mazza, M.G. and Trachana, V. (2011), Understanding the role of open peer review and dynamic academic articles: Authors’ reply to “Problems with natural selection of academic papers”. *Scientometrics*, **88** (2), 669-673.

Full Text: [2011\Scientometrics88, 669.pdf](2011/Scientometrics88,%20669.pdf)

Abstract: We welcome the commentary by L. Egghe (Scientometrics, this issue) stimulating discussion on our recent article “Natural selection of academic papers” (NSAP) (Scientometrics, 85(2):553-559, 2010) that focuses on an important modern issue at the heart of the scientific enterprise-the open and continuous evaluation and evolution of research. We are also grateful to the editor of Scientometrics for giving us the opportunity to respond to some of the arguments by L. Egghe that we believe are inaccurate or require further comment.

Keywords: Academic Publishing, Commentary, Developing-Countries, Evaluation, Open Access, Open Peer Review, Peer Review, Research, Review, Science, Scientometrics

? Leydesdorff, L. (2011), Atlas of science: Visualizing what we know. *Scientometrics*, **88** (2), 675-677.

Full Text: [2011\Scientometrics88, 675.pdf](2011/Scientometrics88,%20675.pdf)

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Full Text: [2011\Scientometrics88, 679.pdf](2011/Scientometrics88,%20679.pdf)

Abstract: This paper shows the main lines of research concerning health and women, as registered in the MEDLINE database, broken down into four 10-year periods: 1965-1974, 1975-1984, 1985-1994, and 1995-2005. The units of analysis used were the MEDLINE “MeSH” major terms, processed by means of co-term analysis. for graphic representation, the social network approach was used, with pruning performed by Pathfinder Networks (PFNET), so as to concentrate the displays. Factor analysis was used to group the descriptors and identify the main lines of research involving health and women. The results show that research on Health and Women has increased and undergone significant changes over the past 40 years, yet such studies are not given due importance.

Keywords: Analysis, Author Cocitation Analysis, Co-Term, Female, Gender-Differences, Health, Illness, Management, Maps, MEDLINE, Morbidity, Mortality, PFNET, Research, Science, Sex-Differences, Social, Social Network, Social Networks, Visualization, Women, Word Analysis

? Kosecki, S., Shoemaker, R. and Baer, C.K. (2011), Scope, characteristics, and use of the U.S. Department of Agriculture’s intramural research. *Scientometrics*, **88** (3), 707-728.

Full Text: [2011\Scientometrics88, 707.pdf](2011/Scientometrics88,%20707.pdf)

Abstract: This article presents for the first time a portrait of intramural research conducted by the U.S. Department of Agriculture (USDA). We describe the nature, characteristics, and use of USDA research based on scientometric indicators using patent analysis and three bibliometric methods: publication analysis, citation analysis, and science mapping. Our analyses are intended to be purely descriptive in nature. They demonstrate that USDA maintains several core scientific competencies and its research is much broader than and reaches well beyond traditional agricultural sciences for which it is best known. We illustrate the current status, recent trends, and clear benchmarks for planning and assessing future USDA research across an array of scientific disciplines.

Keywords: Agriculture, Analysis, Bibliometric, Bibliometric Methods, Citation, Citation Analysis, Education, Extension, Federal Research, Impact, Indicators, Intramural Research, Mapping, Patent, Publication, Research, Research Benchmarking, Research Output, Science, Sciences, Traditional, Trends, USDA

? Dorta-González, P. and Dorta-González, M.I. (2011), Central indexes to the citation distribution: A complement to the h-Index. *Scientometrics*, **88** (3), 729-745.

Full Text: [2011\Scientometrics-Dorta.pdf](2011/Scientometrics-Dorta.pdf); [2011\Scientometrics88, 729.pdf](2011/Scientometrics88,%20729.pdf)

Abstract: the citation distribution of a researcher shows the impact of their production and determines the success of their scientific career. However, its application in scientific evaluation is difficult due to the bi-dimensional character of the distribution. Some bibliometric indexes that try to synthesize in a numerical value the principal characteristics of this distribution have been proposed recently. In contrast with other bibliometric measures, the biases that the distribution tails provoke, are reduced by the h-Index. However, some limitations in the discrimination among researchers with different publication habits are presented in this index. This index penalizes selective researchers, distinguished by the large number of citations received, as compared to large producers. In this work, two original sets of indexes, the central area indexes and the central interval indexes, that complement the h-Index to include the central shape of the citation distribution, are proposed and compared.

Keywords: Bibliometric, Bibliometric Indexes, Bibliometric Indicators, Citation, Citation Analysis, Citations, Discrimination, Egghes G, Evaluation, h Index, h-Index, Hirschs h, Impact, Indexes, Output, Publication, Research Career Evaluation, Researchers, Scientific-Research, Success

Notes: CCountry

? Inglesi-Lotz, R. and Pouris, A. (2011), Scientometric impact assessment of a research policy instrument: The case of rating researchers on scientific outputs in South Africa. *Scientometrics*, **88** (3), 747-760.

Full Text: [2011\Scientometrics88, 747.pdf](2011/Scientometrics88,%20747.pdf)

Abstract: the influence of the National Research Foundation’s (NRF) rating system on the productivity of the South African social science researchers is investigated scientometrically for the period from 1981 to 2006. Their output performance is mainly indicated by their research publications. Following international best practice in scientometrics as well as the behavioural reinforcement theory, we employed the “before/after control impact (BACI) method”, as well as the well known econometric breakpoint test as proposed by Chow. We use as control group the publications in the field of clinical medicine. The field is not supported by NRF and hence clinical medicine researchers are not affected by the evaluation and rating system. The findings show a positive impact of the NRF programme on the research outputs of social sciences researchers and the implementation of the programme has increased the relevant population of research articles by an average of 24.5% (during the first 5 years) over the expected number of publication without the programme. The results confirm the scientometric findings of other studies (e. g. that of Nederhof) that ratings promulgate research productivity.

Keywords: Africa, Assessment, Clinical Medicine, Control, Economics, Evaluation, Impact, Incentives, Medicine, Policy, Practice, Productivity, Programs, Publication, Publications, Quasi Experimental Design, Research, Research Policy, Research Productivity, Researchers, Science, Sciences, Scientometrics, Social, Social Sciences, South Africa, Theory

? Wang, X.W., Zhang, X. and Xu, S.M. (2011), Patent co-citation networks of Fortune 500 companies. *Scientometrics*, **88** (3), 761-770.

Full Text: [2011\Scientometrics88, 761.pdf](2011/Scientometrics88,%20761.pdf)

Abstract: This paper provides an overview of the progression of technology structure based on patent co-citation networks. Methods of patent bibliometrics, social network analysis and information visualization are employed to analyze patents of Fortune 500 companies indexed in Derwent Innovations Index, the largest patent database in the world. Based on the co-citation networks, several main technology groups are identified, including Chemicals, Petroleum Refining, Motor Vehicles, Pharmaceuticals, Electronics, etc. Relationships among the leading companies and technology groups are also revealed.

Keywords: Analysis, Bibliometrics, Biotechnology, Classification, Cocitation, Fortune 500, Genetic-Engineering Research, Indicators, Information, Information Visualization, Innovations, Knowledge, Methods, Overview, Patent, Patent Bibliometrics, Patent Co-Citation, Pharmaceuticals, Progression, Sectors, Social, Social Network, Social Network Analysis, System, Technology Structure, Visualization

? Torres-Salinas, D., Moreno-Torres, J.G., Delgado-López-Cózar, E. and Herrera, F. (2011), A methodology for Institution-Field ranking based on a bidimensional analysis: the *IFQ*2*A* index. *Scientometrics*, **88** (3), 771-786.

Full Text: [2011\Scientometrics88, 771.pdf](2011/Scientometrics88,%20771.pdf)

Abstract: the problem of comparing academic institutions in terms of their research production is nowadays a priority issue. This paper proposes a relative bidimensional index that takes into account both the net production and the quality of it, as an attempt to provide a comprehensive and objective way to compare the research output of different institutions in a specific field, using journal contributions and citations. The proposed index is then applied, as a case study, to rank the top Spanish universities in the fields of Chemistry and Computer Science in the period ranging from 2000 until 2009. A comparison with the top 50 universities in the ARWU rankings is also made, showing the proposed ranking is better suited to distinguish among non-elite universities.

Keywords: Academic Rankings, Analysis, ARWU, Bibliometrics, Bidimensional Analysis, Chemistry, Citations, Evaluation Models, h-Index, Higher Education, Highly Cited Papers, Impact, Journal, Methodology, Ranking, Rankings, Research, Research Output, Research Performance Assessment, Research Production, Science, Shanghai Ranking, Spanish Universities, Universities

? Schubert, T. (2011), Assessing the value of patent portfolios: An international country comparison. *Scientometrics*, **88** (3), 787-804.

Full Text: [2011\Scientometrics88, 787.pdf](2011/Scientometrics88,%20787.pdf)

Abstract: Patent counts have been extensionally used to measure the innovative capacities of countries. However, since economic values of patents may differ, simple patent counts may give misleading rankings, if the patents of one country are on average more valuable than those of another. In the literature several methods have been proposed, which shall adjust for these differences. However, often these do not possess a solid economic micro-foundation and therefore are often ad-hoc and arbitrary procedures. In this paper, we intend to present an adjustment method that is based on the analysis of renewal decisions. The method builds on the theoretical model used in Schankerman and Pakes (1986) and Besson (2008) but goes beyond both approaches in that it recovers the important long tail of the value distribution. It also transfers Besson’s (2008) econometric methodology (applicable to the organisational structures of the US Patent and Trademark Office) also to the European Patent Office which is necessary, since each application here may split up into several national patent documents. The analysis is performed for 22 countries. Exemplarily, we find that in the cohort of 1986 patent applications, Danish patents are about 60% more valuable than the average patent. German patents are a bit below average. Japanese patents are of least value. In the cohort of 1996, Danish patents lose some of their lead but are still more valuable than the average. While German are a bit above average, Japanese patents even fall further behind (possibly due to the economic downturn in since the mid of 1990ies).

Keywords: Adjustment, Analysis, Citations, Country Comparison, Differences, Field, Indicators, Japanese, Lead, Literature, Methodology, Model, Patent, Patent Count, Rankings, Renewal Fees, Technology, US, Value

? Huang, M.C., Fang, S.C. and Chang, S.C. (2011), Tracking R&D behavior: Bibliometric analysis of drug patents in the Orange Book. *Scientometrics*, **88** (3), 805-818.

Full Text: [2011\Scientometrics88, 805.pdf](2011/Scientometrics88,%20805.pdf)

Abstract: the Publication Approved Drug Products with Therapeutic Equivalence Evaluations (commonly known as the Orange Book) identifies drug products approved by the United States Food and Drug Administration (USFDA) for safety and effectiveness, and provides substantial information on new drug applications (NDAs) with patent data. To explore the patterns among drug patents in the Orange Book, this study used patent bibliometric analysis. The productivity and impact are presented at the assignee level and applicant level, respectively, and the applicant’s patent portfolio is further discussed. 2,033 drug patents are identified in this current study. Our findings indicate that the applicant’s patent portfolio in the Orange Book is helpful in revealing the technological capability and patent strategy of the pharmaceutical incumbents. By linking drug data and patent information, this current study sheds light on patent research in the pharmaceutical industry.

Keywords: Administration, Analysis, Behavior, Bibliometric, Bibliometric Analysis, Biotechnology, Citations, Drug, Effectiveness, Evaluations, Firms, Genetic-Engineering Research, Impact, Industry, Information, Innovation, Ndas, Orange Book, Patent, Patent Sourcing, Perspective, Pharmaceutical Industry, Pharmaceutical-Industry, Productivity, Research, Safety, Science, Strategy, Technology

? Liu, X.H., Glänzel, W. and De Moor, B. (2011), Hybrid clustering of multi-view data via Tucker-2 model and its application. *Scientometrics*, **88** (3), 819-839.

Full Text: [2011\Scientometrics88, 819.pdf](2011/Scientometrics88,%20819.pdf)

Abstract: With the modern technology fast developing, most of entities can be observed by different perspectives. These multiple view information allows us to find a better pattern as long as we integrate them in an appropriate way. So clustering by integrating multi-view representations that describe the same class of entities has become a crucial issue for knowledge discovering. We integrate multi-view data by a tensor model and present a hybrid clustering method based on Tucker-2 model, which can be regarded as an extension of spectral clustering. We apply our hybrid clustering method to scientific publication analysis by integrating citation-link and lexical content. Clustering experiments are conducted on a large-scale journal set retrieved from the Web of Science (WoS) database. Several relevant hybrid clustering methods are cross compared with our method. The analysis of clustering results demonstrate the effectiveness of the proposed algorithm. Furthermore, we provide a cognitive analysis of the clustering results as well as the visualization as a mapping of the journal set.

Keywords: Analysis, Bibliometric Analysis, Combined Cocitation, Effectiveness, Hybrid, Hybrid Clustering, Information, Journal, Knowledge, Mapping, Model, Multi-View Data, Networks, Publication, Science, Scientific Publication, Singular-Value Decomposition, Tensor, Text, Text Mining, Visualization, Web of Science, Word Analysis, WOS

? Fu, H.Z., Chuang, K.Y., Wang, M.H. and Ho, Y.S. (2011), Characteristics of research in China assessed with Essential Science Indicators. *Scientometrics*, **88** (3), 841-862.

Full Text: [2011\Scientometrics88, 841.pdf](2011/Scientometrics88,%20841.pdf); [2011\Scientometrics-Fu1.pdf](2011/Scientometrics-Fu1.pdf); [2011\Scientometrics-Fu.pdf](2011/Scientometrics-Fu.pdf)

Abstract: To provide an overview of the characteristics of research in China, a bibliometric evaluation of highly cited papers with high-level representation was conducted during the period from 1999 to 2009 based on the Essential Science Indicators (ESI) database. A comprehensive assessment covered overall performance, journals, subject categories, internationally collaborative countries, national inter-institutionally collaborative institutions, and most-cited papers in 22 scientific fields. China saw a strong growth in scientific publications in the last decade, to some extent due to increasing research and development expenditure. China has been more active in ESI fields of chemistry and physics, but more excellent in materials science, engineering and mathematics. Most publications were concerned with the common Science Citation Index subject categories of multidisciplinary chemistry, multidisciplinary materials and science, and physical chemistry. About one half China’s ESC papers were internationally collaborative and the eight major industrialized countries (the USA, Germany, the UK, Japan, France, Canada, Russia, and Italy) played a prominent role in scientific collaboration with China, especially the USA. The Chinese Academy of Sciences took the leading position of institutions with many branches. The “985 Project” stimulated the most productive institutions for academic research with a huge funding injection and the universities in Hong Kong showed good scientific performance. The citation impact of internationally collaborative papers differed among fields and international collaborations made positive contributions to academic research in China.

Keywords: Assessment, Basic Research, Bibliometric, Bibliometric Analysis, Bibliometric Analysis, Canada, China, Citation, Citation Impact, Citation-Classics, Collaboration, Development, ESI, Essential Science Indicator, Evaluation, France, Funding, Germany, Growth, Highly Cited Papers, Highly-Cited, Hong Kong, Impact, Indicators, Italy, Japan, Journals, Overview, Papers, Publications, Research, Research and Development, Research Performance, Science, Science Citation Index, Scientific Collaboration, Scientific Publications, Scientometric Analysis, Sociology, Top-Cited Articles, Trends, UK

? Choi, S., Yoon, J., Kim, K., Lee, J.Y. and Kim, C.H. (2011), SAO network analysis of patents for technology trends identification: A case study of polymer electrolyte membrane technology in proton exchange membrane fuel cells. *Scientometrics*, **88** (3), 863-883.

Full Text: [2011\Scientometrics88, 863.pdf](2011/Scientometrics88,%20863.pdf)

Abstract: This paper suggests a method for Subject-Action-Object (SAO) network analysis of patents for technology trends identification by using the concept of function. The proposed method solves the shortcoming of the keyword-based approach to identification of technology trends, i.e., that it cannot represent how technologies are used or for what purpose. The concept of function provides information on how a technology is used and how it interacts with other technologies; the keyword-based approach does not provide such information. The proposed method uses an SAO model and represents “key concept” instead of “key word”. We present a procedure that formulates an SAO network by using SAO models extracted from patent documents, and a method that applies actor network theory to analyze technology implications of the SAO network. To demonstrate the effectiveness of the SAO network this paper presents a case study of patents related to Polymer Electrolyte Membrane technology in Proton Exchange Membrane Fuel Cells.

Keywords: Actor Network Theory, Analysis, Co-Word Analysis, Co-Word Analysis, Effectiveness, Fields, Function, Information, Level, Model, Network Theory, Patent, Patent Analysis, Patent Mining, Polymer, Product, Research-And-Development, Scientometrics, Technology Subject-Action-Object (SAO), Technology Trends Analysis, Theory, Tool, Trends

? Inanc, O. and Tuncer, O. (2011), The effect of academic inbreeding on scientific effectiveness. *Scientometrics*, **88** (3), 885-898.

Full Text: [2011\Scientometrics88, 885.pdf](2011/Scientometrics88,%20885.pdf)

Abstract: In academia, the term “inbreeding” refers to a situation wherein PhDs are employed in the very same institution that trained them during their doctoral studies. Academic inbreeding has a negative perception on the account that it damages both scientific effectiveness and productivity. In this article, the effect of inbreeding on scientific effectiveness is investigated through a case study. This problem is addressed by utilizing Hirsch Index as a reliable metric of an academic’s scientific productivity. Utilizing the dataset, constructed with academic performance indicators of individuals from the Mechanical and Aeronautical Engineering Departments, of the Turkish Technical Universities, we demonstrate that academic inbreeding has a negative impact on apparent scientific effectiveness through a negative binomial model. This model appears to be the most suitable one for the dataset which is a type of count data. We report chi-square statistics and likelihood ratio test for the parameter alpha. According to the chi-square statistics the model is significant as a whole. The incidence rate ratio for the variable “inbreeding” is estimated to be 0.11 and this ratio tells that, holding all the other factors constant, for the inbred faculty, the h-Index is about 89% lower when compared to the non-inbred faculty. Furthermore, there exists negative and statistically significant correlation with an individual’s productivity and the percentage of inbred faculty members at the very same department. Excessive practice of inbreeding adversely affects the overall productivity. Decision makers are urged to limit this practice to a minimum in order to foster a vibrant research environment. Furthermore, it is also found that scientific productivity of an individual decreases towards the end of his scientific career.

Keywords: Academic Inbreeding, Chi-Square, Effectiveness, Environment, Faculty, h Index, h-Index, Hirsch Index, Hirsch-Index, Impact, Incidence, Likelihood Ratio, Model, Perception, Performance Indicators, Practice, Productivity, Ratio, Research, Scientific Effectiveness, Scientific Productivity, Statistics, Turkish Universities, Universities

? Lapon-Kandelshein, E. and Prebor, G. (2011), Bibliographical research in the study of Hebrew printing: A bibliometric analysis. *Scientometrics*, **88** (3), 899-913.

Full Text: [2011\Scientometrics88, 899.pdf](2011/Scientometrics88,%20899.pdf)

Abstract: the study presents the state of bibliographical research in the discipline of Hebrew printing during a 30-year period, ranging from the latter quarter of the twentieth century until the beginning of the third millennium (1976-2006). Through bibliographical parameters it characterizes the publications dealing with Hebrew printing, examines whether the published material exhibits laws and systematic regularities that are consistent with Bibliometrics, and describes directions in which the field has developed.

Keywords: Analysis, Bibliography, Bibliometric, Bibliometric Analysis, Bibliometrics, Hebrew Printing, Law, Publications, Research, Systematic

? Abramo, G., D’Angelo, C.A. and Di Costa, F. (2011), Research productivity: Are higher academic ranks more productive than lower ones? *Scientometrics*, **88** (3), 915-928.

Full Text: [2011\Scientometrics88, 915.pdf](2011/Scientometrics88,%20915.pdf)

Abstract: This work analyses the links between individual research performance and academic rank. A typical bibliometric methodology is used to study the performance of all Italian university researchers active in the hard sciences, for the period 2004-2008. The objective is to characterize the performance of the ranks of full (FPs), associate and assistant professors (APs), along various dimensions, in order to verify the existence of performance differences among the ranks in general and for single disciplines.

Keywords: Academic Rank, Bibliometric, Bibliometrics, Differences, Italy, Methodology, Productivity, Publication, Research, Research Performance, Research Productivity, Researchers, Sciences, Universities, University

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Full Text: [2011\Scientometrics88, 929.pdf](2011/Scientometrics88,%20929.pdf)

Abstract: the aim of this study was to explore the research trends and the evolution of publications covered on diadromous fish from 1970s to 2010. We conducted a bibliometric analysis on seven patrimonial species: Atlantic salmon (Salmo salar), Brown and Sea trout (Salmon trutta), Allis shad (Alosa alosa), Twaite shad (Alosa fallax), Eel (Anguilla Anguilla), Sea lamprey (Petromyzon marinus) and River lamprey (Lampetra fluviatilis). We used bibliometric techniques on the total number of research (articles, books, and conferences) in all country in function of main fields such as growth/age, reproduction, migration, habitat, aquaculture, diseases, diet, abundance, fisheries, climate change, toxicology, dams/fishways, genetics, taxonomy, modelling, resource management, and stocking. The results revealed a clear difference in the evolution of scientific studies by species and by countries. The analysis comparisons showed the intensity of certain topics by species with the emergence of new ones, the economic impact on sciences and the increased support of conservation plan management for certain species, such as salmon and lamprey in France. This study also emerged that French research is not always consistent with the international trend which suggests the dominance of management systems on scientific studies.

Keywords: Analysis, Anguilla-Anguilla, Atlantic Salmon, Bibliometric, Bibliometric Analysis, Climate Change, Clustering, Conservation, Diadromous Fish, Diet, Ecology, European Eel, Evolution, Fish, France, Genetics, History, Impact, Lampetra-Planeri Bloch, Management, Modelling, Norway, Publications, Reproduction, Research, Research Trends, River, Salmon Salmo-Salar, Sciences, Topics, Trend, Trends

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Full Text: [2011\Scientometrics88, 949.pdf](%3f%20Hu,%20M.C.%20(2011),%20Evolution%20of%20knowledge%20creation%20and%20diffusion:%20the%20revisit%20of%20Taiwan’s%20Hsinchu%20Science%20Park.%20Scientometrics,%2088%20(3),%20949-977)

Abstract: the Hsinchu Science Park in Taiwan has been synonymous with dynamic and flourishing high-tech industries and companies since the 1980s. Using patent citation data, this empirical study shows that Taiwan’s Hsinchu Science Park is a healthy and knowledge-based cluster surrounded by the semiconductor sector, in which external knowledge is continuously playing an important role, while internalized capability is building up quickly; new and extended industrial clusters are being established by the growth of new ventures; and the linkages of capital, manpower, and technology flows are conducted respectively by the large business groups, the NTHU and NCTU, and the ITRI in the region. Subsequent sectors, repeating the successful model created by and catalyzed from the semiconductor sector are flourishing; the thin-film transistor-liquid crystal display (TFT-LCD) and integrated circuit (IC) design sectors have been growing rapidly since the beginning of the 2000s, and the solar photovoltaic and LED (Light-Emitting Diode) sectors emerged quickly in mid-2005. The continuous evolving and growing industries along with the significant increase of value added in the Hsinchu Science Park have demonstrated it is acting as a healthy and vivid innovation region. The policy implications derived from this study can thus shed light, for the Southeast Asian, Latin American or other latecomers, on the strategies for formulating regional research and innovation policies in the process of developing a knowledge-based economy.

Keywords: Catch-Up, Citation, Design, Diffusion, Evolution, Flow, Growth, Industries, Industry, Innovation, Knowledge, Knowledge Flows, Korea, Latin American, Model, Networks, Patent, Patent Citation, Patent Citations, Policies, Policy, Region Innovation System, Research, Research-And-Development, Science, Science Park, Taiwan, Technology, USA

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Full Text: [2011\Scientometrics88, 979.pdf](2011/Scientometrics88,%20979.pdf)

Abstract: This paper by using data envelopment analysis (DEA) and statistical inference evaluates the citation performance of 229 economic journals. The paper categorizes the journals into four main categories (A-D) based on their efficiency levels. The results are then compared to the 27 “core economic journals” as introduced by Diamond (Curr Contents 21(1):4-11, 1989). The results reveal that after more than 20 years Diamonds’ list of “core economic journals” is still valid. Finally, for the first time the paper uses data from four well-known databases (SSCI, Scopus, RePEc, Econlit) and two quality ranking reports (Kiel Institute internals ranking and ABS quality ranking report) in a DEA setting and in order to derive the ranking of 229 economic journals. The ten economic journals with the highest citation performance are Journal of Political Economy, Econometrica, Quarterly Journal of Economics, Journal of Financial Economics, Journal of Economic Literature, American Economic Review, Review of Economic Studies, Journal of Econometrics, Journal of Finance, Brookings Papers on Economic Activity.

Keywords: Analysis, Bootstrap, Citation, Coverage, Data Envelopment Analysis, Databases, Economic Journals, Economics, Google Scholar, Indexes, Indexing Techniques, Indicators, Journal, Journals, Literature, Nonparametric Frontier Models, Ranking, Ranking Journals, Relative Impacts, Review, Scopus, SSCI, Statistical, Web-of-Science

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Full Text: [2011\Scientometrics88, 1003.pdf](2011/Scientometrics88,%201003.pdf)

Abstract: the single publication h-Index, introduced by A. Schubert in 2009 can be applied on all articles in the Hirsch-core of a researcher. In this way one can define the “indirect h-Index” of a researcher.

Keywords: h Index, h-Index, Indirect h-Index, Publication, Single Publication h-Index

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Full Text: [2011\Scientometrics88, 1005.pdf](2011/Scientometrics88,%201005.pdf)

Keywords: Index, Research, Research Output

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Full Text: [2011\Scientometrics88, 1011.pdf](2011/Scientometrics88,%201011.pdf)

Abstract: In reaction to a previous critique (Opthof and Leydesdorff, J Informetr 4(3):423-430, 2010), The Center for Science and Technology Studies (CWTS) in Leiden proposed to change their old “crown” indicator in citation analysis into a new one. Waltman (Scientometrics 87:467-481, 2011a) argue that this change does not affect rankings at various aggregated levels. However, CWTS data is not publicly available for testing and criticism. Therefore, we comment by using previously published data of Van Raan (Scientometrics 67(3):491-502, 2006) to address the pivotal issue of how the results of citation analysis correlate with the results of peer review. A quality parameter based on peer review was neither significantly correlated with the two parameters developed by the CWTS in the past citations per paper/mean journal citation score (CPP/JCSm) or CPP/FCSm (citations per paper/mean field citation score) nor with the more recently proposed h-Index (Hirsch, Proc Natl Acad Sci USA 102(46):16569-16572, 2005). Given the high correlations between the old and new “crown” indicators, one can expect that the lack of correlation with the peer-review based quality indicator applies equally to the newly developed ones.

Keywords: Analysis, Citation, Citation Analysis, Citations, Excellence, h Index, h-Index, Impact, Index, Indicator, Indicators, Journal, Output, Peer Review, Peer-Review, Performance, Quality, Rankings, Review, Science, Scientometrics, Selection, Selection, USA

? Waltman, L., van Eck, N.J., van Leeuwen, T.N., Visser, M.S. and van Raan, A.F.J. (2011), On the correlation between bibliometric indicators and peer review: Reply to Opthof and Leydesdorff. *Scientometrics*, **88** (3), 1017-1022.

Full Text: [2011\Scientometrics88, 1017.pdf](2011/Scientometrics88,%201017.pdf)

Abstract: Opthof and Leydesdorff (Scientometrics, 2011) reanalyze data reported by Van Raan (Scientometrics 67(3):491-502, 2006) and conclude that there is no significant correlation between on the one hand average citation scores measured using the CPP/FCSm indicator and on the other hand the quality judgment of peers. We point out that Opthof and Leydesdorff draw their conclusions based on a very limited amount of data. We also criticize the statistical methodology used by Opthof and Leydesdorff. Using a larger amount of data and a more appropriate statistical methodology, we do find a significant correlation between the CPP/FCSm indicator and peer judgment.

Keywords: Bibliometric, Bibliometric Indicator, Bibliometric Indicators, Citation, Citation Analysis, Correlation, Hand, Index, Methodology, Peer Review, Peer-Review, Review, Scientometrics, Statistical

? Teixeira, A.A.C. (2011), Mapping the (in)visible college(s) in the field of entrepreneurship. *Scientometrics*, **89** (1), 1-36.

Full Text: [2011\Scientometrics89, 1.pdf](2011/Scientometrics89,%201.pdf)

Abstract: Despite the vitality and dynamism that the field of entrepreneurship has experienced in the last decade, the issue of whether it comprises an effective network of (in)formal communication linkages among the most influential scholars within the area has yet to be examined in depth. This study follows a formal selection procedure to delimit the ‘relational environment’ of the field of entrepreneurship and to analyze the existence and characterization of (in)visible college(s) based on a theoretically well-grounded framework, thus offering a comprehensive and up-to-date empirical analysis of entrepreneurship research. Based on more than a 1,000 papers published between 2005 and 2010 in seven core entrepreneurship journals and the corresponding (85,000) citations, we found that entrepreneurship is an (increasingly) autonomous, legitimate and cohesive (in)visible college, fine tuned through the increasing visibility of certain subject specialties (e.g., family business, innovation, technology and policy). Moreover, the rather dense formal links that characterize the entrepreneurship (in)visible college are accompanied by a reasonably solid network of informal relations maintained and sustained by the mobility of ‘stars’ and highly influential scholars. The limited internationalization of the entrepreneurship community, reflected in the almost total absence of non-English-speaking authors/studies/outlets, stands as a major quest for the field.

Keywords: Analysis, Bibliometrics, Bibliometrics, Characterization, Citation, Citations, Cocitation Analysis, Communication, Depth, Entrepreneurship, Environment, Family, Future, Innovation, Invisible College, Invisible College, Journals, Nanotechnology, Network, Papers, Policy, Research, Scholarship, Social-Science, Visibility

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Full Text: [2011\Scientometrics89, 37.pdf](2011/Scientometrics89,%2037.pdf)

Abstract: Nanosciences and nanotechnologies are considered important for the development of science, technology and innovation, and the study of their characters can be a great help to the decisions of policy makers and of practitioners. This work is centred on the issue of the time relations between science and technology/innovation, and in particular on the speed of transfer of science-generated knowledge towards its exploitation in patenting. A methodology based on patent citations is used in order to measure the time lag between cited journal articles and citing patent, and thus the time proximity between the two steps. Keywords regarding nanotechnology/nanoscience items are searched in order to collect data useful for the analysis. Collateral measures, performed on another class of materials and on the spatial origin of citing/cited documents, help giving evidence of the peculiarity of the behaviour and on its nature. The most representative time lag between production of scientific knowledge and its technological exploitation appears being around 3-4 years.

Keywords: Analysis, Citations, Data Mining, Development, Field, Innovation, Journal, Journal Article, Knowledge, Knowledge Diffusion, Methodology, Nano-Science, Nanoscience, Nanosciences, Nanotechnologies, Patent, Patent-Research Relations, Policy, Science, Scientific Production, Technological Trajectories, Technology, Terms, Time

? Zhao, L.M. and Zhang, Q.P. (2011), Mapping knowledge domains of Chinese digital library research output, 1994-2010. *Scientometrics*, **89** (1), 51-87.

Full Text: [2011\Scientometrics89, 51.pdf](2011/Scientometrics89,%2051.pdf)

Abstract: the aim of this paper is to identify the research paradigms on digital libraries in China while compared with that of international digital libraries research via scientometric analysis. Co-word network constructed by keywords in documents and their co-occurrence relationships is a kind of mapping knowledge domains, which represents the cognitive and intellectual structure of science. A total of 6068 and 1250 papers published between 1994 and 2010 were, respectively retrieved from the China National Knowledge Infrastructure (CNKI) and ScienceDirect databases with a topic search of digital libraries or digital library in abstracts of papers. This paper uses methods of co-word analysis, social network analysis and mapping knowledge domains as theory basis, with assistance of softwares of UCINET and Netdraw, to construct the co-word network of digital libraries/library research in China, present the study status quo and evolution on digital libraries/library in China and analyze the research paradigm structure of digital libraries/library in China.

Keywords: Analysis, China, Co-Word Analysis, Databases, Digital Libraries, Digital Libraries, Library Research, Evolution, Intellectual Structure, Knowledge, Knowledge Domains, Mapping, Mapping Knowledge Domains, Papers, Research, Research Output, Science, Scientometric Analysis, Social, Social Network, Social Network Analysis, Theory

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Full Text: [2011\Scientometrics89, 89.pdf](2011/Scientometrics89,%2089.pdf)

Abstract: This study builds the interdisciplinary knowledge network of China, which is used to catch the knowledge exchange structure of disciplines, and investigates the evolution process from 1981 to 2010. A network analysis was performed to examine the special structure and we compare state of the networks in different periods to determine how the network has got such properties. The dataset are get from the reference relationship in literature on important Chinese academic journals from 1980 to 2010. The analytical results reveal the hidden network structure of interdisciplinary knowledge flows in China and demonstrate that the network is highly connected and has a homogeneous link structure and heterogeneous weight distribution. Through comparing of the network in three periods, that is 1981-1990, 1991-2000 and 2001-2010, we find that the special evolution process, which is limited by the number of nodes, play an important influence on interdisciplinary knowledge flows.

Keywords: Analysis, China, Citation, Collaboration, Complex Networks, Dynamics, Evolution, Evolution, Flow, Interdisciplinary Knowledge Network, Journals, Knowledge, Literature, Network Analysis, Structure, Transdisciplinary Research

? Nguyen, T.V. and Pham, L.T. (2011), Scientific output and its relationship to knowledge economy: An analysis of ASEAN countries. *Scientometrics*, **89** (1), 107-117.

Full Text: [2011\Scientometrics89, 107.pdf](2011/Scientometrics89,%20107.pdf)

Abstract: This article seeks to examine the relationship between scientific output and knowledge economy index in 10 South East Asian countries (ASEAN). Using bibliometric data of the Institute of Scientific Information, we analyzed the number of scientific articles published in international peer-reviewed journals between 1991 and 2010 for Vietnam, Cambodia, Laos, Thailand, Myanmar, Malaysia, Indonesia, Brunei, the Philippines, and Singapore. During the 20-year period, scientists from the ASEAN countries have published 165,020 original articles in ISI indexed journals, which represents similar to 0.5% of the world scientific output. Singapore led the region with the highest number of publications (accounting for 45% of the countries’ total publications), followed by Thailand (21%), Malaysia (16%), Vietnam (6%), Indonesia and the Philippines (5% each). The number of scientific articles from those countries has increased by 13% per year, with the rate of increase being highest in Thailand and Malaysia, and lowest in Indonesia and the Philippines. At the country level, the correlation between knowledge economy index and scientific output was 0.94. Based on the relationship between scientific output and knowledge economy, we identified 4 clusters of countries: Singapore as the first group; Thailand and Malaysia in the second group; Vietnam, Indonesia and the Philippines in the third group; and Cambodia, Laos, Myanmar and Brunei in the fourth group. These data suggested that there was a strong relationship between scientific research and the degree of “knowledgization” of economy.

Keywords: Analysis, Asean, Bibliometric, Bibliometric Analysis, China, Index, Indonesia, ISI, Journals, Knowledge, Knowledge Economy, Malaysia, Publications, Research, Science, Scientific Information, Scientific Output, Scientific Publication, Scientific Research, World

? Onel, S., Zeid, A. and Kamarthi, S. (2011), The structure and analysis of nanotechnology co-author and citation networks. *Scientometrics*, **89** (1), 119-138.

Full Text: [2011\Scientometrics89, 119.pdf](2011/Scientometrics89,%20119.pdf)

Abstract: Research activities and collaborations in nanoscale science and engineering have major implications for advancing technological frontiers in many fields including medicine, electronics, energy, and communication. The National Nanotechnology Initiative (NNI) promotes efforts to cultivate effective research and collaborations among nano scientists and engineers to accelerate the advancement of nanotechnology and its commercialization. As of August 2008, there have been over 800 products considered to benefit from nanotechnology directly or indirectly. However, today’s accomplishments in nanotechnology cannot be transformed into commercial products without productive collaborations among experts from disparate research areas such as chemistry, physics, math, biology, engineering, manufacturing, environmental sciences, and social sciences. To study the patterns of collaboration, we build and analyze the collaboration network of scientists and engineers who conduct research in nanotechnology. We study the structure of information flow through citation network of papers authored by nano area scientists. We believe that the study of nano area co-author and paper citation networks improve our understanding of patterns and trends of the current research efforts in this field. We construct these networks based on the publication data collected for years ranging 1993 through 2008 from the scientific literature database “Web of Science”. We explore those networks to find out whether they follow power-law degree distributions and/or if they have a signature of hierarchy. We investigate the small-world characteristics and the existence of possible community structures in those networks. We estimate the statistical properties of the networks and interpret their significance with respect to the nano field.

Keywords: Activities, Analysis, Biology, Citation, Citation Network, Citation Networks, Co-Author Network, Collaboration, Communication, Complex Networks, Dynamics, Energy, Environmental, Environmental Sciences, Information, Internet, Literature, Medicine, Nano Technology, Nanotechnology, Papers, Publication, Research, Science, Sciences, Small-World Networks, Social, Social Sciences, Statistical, Trends, Wide-Web

? Lewison, G. and Markusova, V. (2011), Female researchers in Russia: Have they become more visible? *Scientometrics*, **89** (1), 139-152.

Full Text: [2011\Scientometrics89, 139.pdf](2011/Scientometrics89,%20139.pdf)

Abstract: This study is based on the fact that the surnames of many Russian scientists have gender endings, with “a” denoting a female, so that the sex of most of them can be readily determined from the listing of authors in the Web of Science (WoS). A comparison was made between the proportion of females in 1985, 1995, and 2005, with a corresponding analysis of the major fields in which they worked, their propensity to co-author papers internationally (which often necessitates having the opportunity to travel to conferences abroad to meet possible colleagues), and their citation records. We found, as expected, that women had a higher presence in the biological sciences and a very low presence in engineering, mathematics, and physics. Their citation scores, on a fractionated basis, were lower than those for men in almost all fields and years, and were not explained by their writing of fewer reviews and papers in English (both of which lead to higher citations), or their lower amount of international collaboration in 1995 and 2005 after Russia had become a more open society.

Keywords: Analysis, Authors, Authorship, Bibliometric Analysis, Bibliometrics, Cancer-Research, Citation, Citations, Collaboration, Female, Gender, Gender-Gap, International Collaboration, Journals, Lead, Men, Papers, Researchers, Russia, Science, Sciences, Scientific Productivity, Sex, Surnames, Technology, Web of Science, Women, Women Scientists, WOS, Writing

? Benito, M. and Romera, R. (2011), Improving quality assessment of composite indicators in university rankings: A case study of French and German universities of excellence. *Scientometrics*, **89** (1), 153-176.

Full Text: [2011\Scientometrics89, 153.pdf](2011/Scientometrics89,%20153.pdf)

Abstract: Composite indicators play an essential role for benchmarking higher education institutions. One of the main sources of uncertainty building composite indicators and, undoubtedly, the most debated problem in building composite indicators is the weighting schemes (assigning weights to the simple indicators or subindicators) together with the aggregation schemes (final composite indicator formula). Except the ideal situation where weights are provided by the theory, there clearly is a need for improving quality assessment of the final rank linked with a fixed vector of weights. We propose to use simulation techniques to generate random perturbations around any initial vector of weights to obtain robust and reliable ranks allowing to rank universities in a range bracket. The proposed methodology is general enough to be applied no matter the weighting scheme used for the composite indicator. The immediate benefit achieved is a reduction of the uncertainty associated with the assessment of a specific rank which is not representative of the real performance of the university, and an improvement of the quality assessment of composite indicators used to rank. To illustrate the proposed methodology we rank the French and the German universities involved in their respective 2008 Excellence Initiatives.

Keywords: Assessment, Benchmarking, Composite, Composite Indicators, Education, Excellence, Higher Education, Higher Education Institutions, Methodology, Rankings, Reduction, Simulation, Simulation Techniques, Theory, University, Vector, Weighting Schemes

? Costas, R., van Leeuwen, T.N. and van Raan, A.F.J. (2011), The “Mendel syndrome” in science: Durability of scientific literature and its effects on bibliometric analysis of individual scientists. *Scientometrics*, **89** (1), 177-205.

Full Text: [2011\Scientometrics89, 177.pdf](2011/Scientometrics89,%20177.pdf)

Abstract: the obsolescence and “durability” of scientific literature have been important elements of debate during many years, especially regarding the proper calculation of bibliometric indicators. The effects of “delayed recognition” on impact indicators have importance and are of interest not only to bibliometricians but also among research managers and scientists themselves. It has been suggested that the “Mendel syndrome” is a potential drawback when assessing individual researchers through impact measures. If publications from particular researchers need more time than “normal” to be properly acknowledged by their colleagues, the impact of these researchers may be underestimated with common citation windows. In this paper, we answer the question whether the bibliometric indicators for scientists can be significantly affected by the Mendel syndrome. Applying a methodology developed previously for the classification of papers according to their durability (Costas et al., J Am Soc Inf Sci Technol 61(8):1564-1581, 2010a; J Am Soc Inf Sci Technol 61(2):329-339, 2010b), The scientific production of 1,064 researchers working at the Spanish Council for Scientific Research (CSIC) in three different research areas has been analyzed. Cases of potential “Mendel syndrome” are rarely found among researchers and these cases do not significantly outperform the impact of researchers with a standard pattern of reception in their citations. The analysis of durability could be included as a parameter for the consideration of the citation windows used in the bibliometric analysis of individuals.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Citation, Citations, CSIC, Discoveries, Durability, Half-Life, Highly Cited Papers, Impact, Indicators, Individual Level Analysis, Interest, Journals, Literature, Mendel Syndrome, Methodology, Micro-Level Analysis, Obsolescence, Papers, Publications, Reception, Research, Research Performance, Researchers, Resistance, Science, Scientific Production

? Duffy, R.D., Jadidian, A., Webster, G.D. and Sandell, K.J. (2011), The research productivity of academic psychologists: Assessment, trends, and best practice recommendations. *Scientometrics*, **89** (1), 207-227.

Full Text: [2011\Scientometrics89, 207.pdf](2011/Scientometrics89,%20207.pdf)

Abstract: Research productivity affects the careers of academic psychologists. Unfortunately, there is a surprising lack of consensus on productivity’s meaning, measurement, and how to compare the productivity of one academic psychologist to another. In the present study, we review academic productivity research within psychology, and using a sample of 673 psychologists, compute six indexes of productivity. Most productivity metrics (publication count, citation count, or some combination of the two) were substantially interrelated and one (Integrated Research Productivity Index) was independent from years in the field. Female psychologists were equally as productive as male psychologists after accounting for years in the field, and pre-tenure psychologists showed steeper change-over-time productivity slopes than post-tenure psychologists. Based on these findings, we provide recommendations for the use and measurement of academic research productivity.

Keywords: Academic Psychologists, Assessment, Citation, Counseling-Psychology, Educational-Psychologists, Female, Gender, Indexes, Institutional Research Productivity, Job-Performance, Journals, Male, Management, Measurement, Metrics, Personality, Practice, Productivity, Publication, Publication Productivity, Recommendations, Research, Research Productivity, Review, Scholarly Productivity, Trends

? Garcia, J.A., Rodriguez-Sanchez, R. and Fdez-Valdivia, J. (2011), Overall prestige of journals with ranking score above a given threshold. *Scientometrics*, **89** (1), 229-243.

Full Text: [2011\Scientometrics89, 229.pdf](2011/Scientometrics89,%20229.pdf)

Abstract: Here we show a longitudinal analysis of the overall prestige of first quartile journals during the period between 1999 and 2009, on the subject areas of Scopus. This longitudinal study allows us to analyse developmental trends over times in different subject areas with distinct citation and publication patterns. To this aim, we first introduce an axiomatic index of the overall prestige of journals with ranking score above a given threshold. Here we demonstrate that, between 1999 and 2009, there was high and increasing overall prestige of first quartile journals in only four areas of Scopus. Also, there was high and decreasing overall prestige of first quartile journals in five areas. Two subject areas showed high and oscillating overall prestige of first quartile journals. and there was low and increasing overall prestige in four areas, since the 1999.

Keywords: Analysis, Axiomatic Index, Bibliometric Analysis, Citation, First Quartile Journals, Impact, Journals, Longitudinal Analysis, Longitudinal Study, Overall Prestige, Poverty, Publication, Publication Analysis, Ranking, Ranking Methods, Scopus, Trends

? Wu, Q. and Wolfram, D. (2011), The influence of effects and phenomena on citations: A comparative analysis of four citation perspectives. *Scientometrics*, **89** (1), 245-258.

Full Text: [2011\Scientometrics89, 245.pdf](2011/Scientometrics89,%20245.pdf)

Abstract: This article defines different perspectives for citations and introduces four concepts: Self-expected Citations, Received Citations, Expected Citations, and Deserved Citations. When comparing permutations of these four classes of perspectives, there are up to 145 kinds of equality/inequality relations. From these numerous relations, we analyze the difference between the Matthew Effect and the Matthew Phenomenon. We provide a precise definition and point out that many previous empirical research studies on the Matthew Effect based on citations belong primarily to the Matthew Phenomenon, and not the true meaning of the Matthew Effect. Due to the difficulty in determining the Deserved Citations, the Matthew Effect is in itself difficult to measure, although it is commonly believed to influence citation counts. Furthermore, from the theoretical facts, we outline four new effects/phenomena: the Self-confidence Effect/Phenomenon, the Narcissus Effect/Phenomenon, the Other-confidence Effect/Phenomenon, and the Flattery Effect/Phenomenon, and we discuss additional influencing factors.

Keywords: Analysis, Article, Authorship, Citation, Citation Analysis, Citation Counts, Citations, Citing Behavior, Counts, Impact, Index, Lotka Law, Matthew Core Journals, Matthew Effect, Property, Research, Scholarly Communication, Science

? Jang, S.L., Yu, Y.C. and Wang, T.Y. (2011), Emerging firms in an emerging field: An analysis of patent citations in electronic-paper display technology. *Scientometrics*, **89** (1), 259-272.

Full Text: [2011\Scientometrics89, 259.pdf](2011/Scientometrics89,%20259.pdf)

Abstract: USPTO patent data covering the years 1994-2008 is used in this study to examine the citation networks of electronic-paper display technology. Our primary aim is to provide a better understanding of the ways in which emerging firms interact with, and learn from, technology diffusers. Two implications can be drawn from our analysis. Firstly, emerging firms within an emerging industry can enhance their technological capabilities through positive external learning activity. Secondly, despite the fact that technology diffusers have clear technological advantages, with the emergence of a new field, their influence within the network could potentially be decayed if they fail to remain proactive in terms of the absorption of available external knowledge.

Keywords: Absorption, Analysis, Centrality, Citation, Citation Networks, Citations, Electronic-Paper Display Technology, Emerging Field, Industry, Innovation, Knowledge, Knowledge Spillovers, Learning, Networks, Patent, Patent Citation, Primary, Research-And-Development

? Kissin, I. (2011), A surname-based bibliometric indicator: Publications in biomedical journal. *Scientometrics*, **89** (1), 273-280.

Full Text: [2011\Scientometrics89, 273.pdf](2011/Scientometrics89,%20273.pdf)

Abstract: Surnames have been used as a proxy in studies on health care for various ethnic groups and also applied to ascribe ethnicity in studies on the genetic structure of a population. The aim of this study was to use a surname-based bibliometric indicator to assess the representation of Jewish authors in US biomedical journals. The other aim was to test the hypothesis that the representation of Jewish authors in US biomedical journals corresponds to their representation among US Nobel Prize winners in Medicine, 1960-2009. From among articles published 1960-2009 in all journals covered by MEDLINE (> 5,000), and in the top 10 US biomedical journals we counted articles by authors from the following three groups: Kohenic-Levitic surnames, other common Jewish surnames, and the most frequent non-Jewish surnames in the USA. The frequency of a surname in the US population (1990 US Census) was used to calculate the expected number of scientific publications: the total number of published articles multiplied by a surname’s frequency. The actual number of articles with that surname was also determined. The ratio of actual to expected number of articles was used as a measure of representation proportionality. It was found that the ratio of actual to expected number of articles in both Jewish groups is close to 10 among all (> 5,000) journals, and close to 20 in the top 10 journals. The ratio of actual to expected numbers of Jewish Nobel Laureates in the USA is also close to 20. In conclusion, the representation of Jewish authors in top 10 US biomedical journals corresponds to the representation of Jewish Nobel Laureates among US laureates. We hypothesize that disproportional representation of Jewish scientists as authors in top biomedical journals and among Nobel Prize laureates in Medicine is mostly due to their overrepresentation as research participants, not because of the increased chances for reward for a Jewish researcher per se.

Keywords: Authors, Bibliometric, Bibliometrics, Biomedical, Biomedical Journals, Care, Databases, Ethnicity, Frequency, Genetic, Health Care, Impact Factor, Journal, Journals, MEDLINE, Names, Nobel Prize, Publication Productivity, Publications, Ratio, Research, Scientific Publications, Surnames, US, USA

? Trimble, V. and Ceja, J.A. (2011), Are American astrophysics papers accepted more quickly than others? Part I. *Scientometrics*, **89** (1), 281-289.

Full Text: [2011\Scientometrics89, 281.pdf](2011/Scientometrics89,%20281.pdf)

Abstract: It has been shown that papers in stem cell research submitted from institutions in the USA are accepted faster than those submitted from elsewhere and that the cause might at least partly be some bias in the refereeing process. We investigate whether there is a similar difference in time scale for papers in astronomy, astrophysics, and cosmology and look briefly at some of the possible causes. We find a publication time lag of 3.8 days (out of a median time of 105 days) while in the stem cell case it is 24 days out of a median of 83 days. One of many possible causes is a difference in how useful the papers are to the community, and we will assess this in a second paper making use of citation analysis.

Keywords: Analysis, Astronomical Journals, Bias, Citation, Citation Analysis, Citations, Einstein, Papers, Publication, Publications, Research, Space, USA

? Tol, R.S.J. (2011), Credit where credit’s due: accounting for co-authorship in citation counts. *Scientometrics*, **89** (1), 291-299.

Full Text: [2011\Scientometrics89, 291.pdf](2011/Scientometrics89,%20291.pdf)

Abstract: I propose a new method (Pareto weights) to objectively attribute citations to co-authors. Previous methods either profess ignorance about the seniority of co-authors (egalitarian weights) or are based in an ad hoc way on the order of authors (rank weights). Pareto weights are based on the respective citation records of the co-authors. Pareto weights are proportional to the probability of observing the number of citations obtained. Assuming a Pareto distribution, such weights can be computed with a simple, closed-form equation but require a few iterations and data on a scholar, her co-authors, and her co-authors’ co-authors. The use of Pareto weights is illustrated with a group of prominent economists. In this case, Pareto weights are very different from rank weights. Pareto weights are more similar to egalitarian weights but can deviate up to a quarter in either direction (for reasons that are intuitive).

Keywords: Authors, Citation, Citation Counts, Citations, Co-Authors, Co-Authorship, Coauthorship, Index, Law, Lotka, Pareto Distribution

? Waltman, L., Yan, E. and van Eck, N.J. (2011), A recursive field-normalized bibliometric performance indicator: An application to the field of library and information science. *Scientometrics*, **89** (1), 301-314.

Full Text: [2011\Scientometrics89, 301.pdf](2011/Scientometrics89,%20301.pdf)

Abstract: Two commonly used ideas in the development of citation-based research performance indicators are the idea of normalizing citation counts based on a field classification scheme and the idea of recursive citation weighing (like in PageRank-inspired indicators). We combine these two ideas in a single indicator, referred to as the recursive mean normalized citation score indicator, and we study the validity of this indicator. Our empirical analysis shows that the proposed indicator is highly sensitive to the field classification scheme that is used. The indicator also has a strong tendency to reinforce biases caused by the classification scheme. Based on these observations, we advise against the use of indicators in which the idea of normalization based on a field classification scheme and the idea of recursive citation weighing are combined.

Keywords: Analysis, Audience Factor, Bibliometric, Bibliometric Indicator, Citation, Citation Analysis, Citation Counts, Citation Impact, Development, Eigenfactor, Excellence, Field Normalization, Information, Information Science, Pagerank, Performance Indicators, Recursive Indicator, Research, Research Performance, Science, Search, Tools, Validity

? Franceschini, F. and Maisano, D. (2011), On the analogy between the evolution of thermodynamic and bibliometric systems: A breakthrough or just a bubble? *Scientometrics*, **89** (1), 315-327.

Full Text: [2011\Scientometrics89, 315.pdf](2011/Scientometrics89,%20315.pdf)

Abstract: This paper presents an in depth study of an interesting analogy, recently proposed by Prathap (Scientometrics 87(3):515-524, 2011a), between the evolution of thermodynamic and bibliometric systems. The goal is to highlight some weaknesses and clarify some “dark sides” in the conceptual framework of this analogy, discussing the formal validity and practical meaning of the concepts of Energy, Exergy and Entropy in bibliometrics. Specifically, this analogy highlights the following major criticalities: (1) the definitions of E and X are controversial, (2) the equivalence classes of E and X are questionable, (3) the parallel between the evolution of thermodynamic and bibliometric systems is forced, (4) X is a non-monotonic performance indicator, and (5) in bibliometrics the condition of “thermodynamic perfection” is questionable. Argument is supported by many analytical demonstrations and practical examples.

Keywords: Bibliometric, Bibliometrics, Composite Indicators, Definitions, Depth, Energy, Entropy, Evolution, Exergy, h-Index, Journals, P-Index, S = E - X, Scientometrics, Thermodynamic, Thermodynamics, Validity

? Zitt, M. (2011), Behind citing-side normalization of citations: Some properties of the journal impact factor. *Scientometrics*, **89** (1), 329-344.

Full Text: [2011\Scientometrics89, 329.pdf](2011/Scientometrics89,%20329.pdf)

Abstract: A new family of citation normalization methods appeared recently, in addition to the classical methods of “cited-side” normalization and the iterative measures of intellectual influence in the wake of Pinski and Narin influence weights. These methods have a quite global scope in citation analysis but were first applied to the journal impact, in the experimental Audience Factor (AF) and the Scopus Source-Normalized Impact per Paper (SNIP). Analyzing some properties of the Garfield’s Journal Impact Factor, this note highlights the rationale of citing-side (or source-level, fractional citation, ex ante) normalization.

Keywords: Analysis, Citation, Citation Analysis, Citation Normalization, Citations, Citing-Side Normalization, Experimental, Family, Impact, Impact Factor, Indicators, Journal, Journal Impact Factor, Performance, Scopus, Source-Level Normalization

? Borner, K., Glänzel, W., Scharnhorst, A. and van den Besselaar, P. (2011), Modeling science: Studying the structure and dynamics of science. *Scientometrics*, **89** (1), 347-348.

Full Text: [2011\Scientometrics89, 347.pdf](2011/Scientometrics89,%20347.pdf)

Keywords: Modeling, Science

? Mutschke, P., Mayr, P., Schaer, P. and Sure, Y. (2011), Science models as value-added services for scholarly information systems. *Scientometrics*, **89** (1), 349-364.

Full Text: [2011\Scientometrics89, 349.pdf](2011/Scientometrics89,%20349.pdf)

Abstract: the paper introduces scholarly Information Retrieval (IR) as a further dimension that should be considered in the science modeling debate. The IR use case is seen as a validation model of the adequacy of science models in representing and predicting structure and dynamics in science. Particular conceptualizations of scholarly activity and structures in science are used as value-added search services to improve retrieval quality: a co-word model depicting the cognitive structure of a field (used for query expansion), The Bradford law of information concentration, and a model of co-authorship networks (both used for re-ranking search results). An evaluation of the retrieval quality when science model driven services are used turned out that the models proposed actually provide beneficial effects to retrieval quality. From an IR perspective, the models studied are therefore verified as expressive conceptualizations of central phenomena in science. Thus, it could be shown that the IR perspective can significantly contribute to a better understanding of scholarly structures and activities.

Keywords: Activities, Bradford Law, Centrality, Citation, Co-Authorship, Co-Authorship Networks, Coauthorship, Evaluation, Information, Information Systems, International Collaboration, IR, Model, Modeling, Networks, Query Expansion, Re-Ranking, Retrieval, Retrieval System, Science, Science Models, Scientific Collaboration, Validation, Value-Added Services

? Galam, S. (2011), Tailor based allocations for multiple authorship: a fractional gh-Index. *Scientometrics*, **89** (1), 365-379.

Full Text: [2011\Scientometrics89, 365.pdf](2011/Scientometrics89,%20365.pdf)

Abstract: A quantitative modification to keep the number of published papers invariant under multiple authorship is suggested. In those cases, fractional allocations are attributed to each co-author with a summation equal to one. These allocations are tailored on the basis of each author contribution. It is denoted “Tailor Based Allocations (TBA)” for multiple authorship. Several protocols to TBA are suggested. The choice of a specific TBA may vary from one discipline to another. In addition, TBA is applied to the number of citations of a multiple author paper to have also this number conserved. Each author gets only a specific fraction of the total number of citations according to its fractional paper allocation. The equivalent of the h-Index obtained by using TBA is denoted the gh-Index. It yields values which differ drastically from those given by the h-Index. The gh-Index departs also from (h) over bar recently proposed by Hirsh to account for multiple authorship. Contrary to the h-Index, the gh-Index is a function of the total number of citations of each paper. A highly cited paper allows a better allocation for all co-authors while a less cited paper contributes essentially to one or two of the co-authors. The scheme produces a substantial redistribution of the ranking of scientists in terms of quantitative records. A few illustrations are provided.

Keywords: Author, Authorship, Citations, Consequences, Contribution, Fractional Allocations, h Index, h-Index, h-Index, Highly-Cited, Hirsch-Index, Impact, Modification, Multiauthored Publications, Multiple Authorship, Papers, Quantitative, Ranking, TBA

? Evans, T.S., Lambiotte, R. and Panzarasa, P. (2011), Community structure and patterns of scientific collaboration in Business and Management. *Scientometrics*, **89** (1), 381-396.

Full Text: [2011\Scientometrics89, 381.pdf](2011/Scientometrics89,%20381.pdf)

Abstract: This paper investigates the role of homophily and focus constraint in shaping collaborative scientific research. First, homophily structures collaboration when scientists adhere to a norm of exclusivity in selecting similar partners at a higher rate than dissimilar ones. Two dimensions on which similarity between scientists can be assessed are their research specialties and status positions. Second, focus constraint shapes collaboration when connections among scientists depend on opportunities for social contact. Constraint comes in two forms, depending on whether it originates in institutional or geographic space. Institutional constraint refers to the tendency of scientists to select collaborators within rather than across institutional boundaries. Geographic constraint is the principle that, when collaborations span different institutions, they are more likely to involve scientists that are geographically co-located than dispersed. To study homophily and focus constraint, the paper will argue in favour of an idea of collaboration that moves beyond formal co-authorship to include also other forms of informal intellectual exchange that do not translate into the publication of joint work. A community-detection algorithm for formalising this perspective will be proposed and applied to the co-authorship network of the scientists that submitted to the 2001 Research Assessment Exercise in Business and Management in the UK. While results only partially support research-based homophily, they indicate that scientists use status positions for discriminating between potential partners by selecting collaborators from institutions with a rating similar to their own. Strong support is provided in favour of institutional and geographic constraints. Scientists tend to forge intra-institutional collaborations; yet, when they seek collaborators outside their own institutions, they tend to select those who are in geographic proximity. The implications of this analysis for tie creation in joint scientific endeavours are discussed.

Keywords: Analysis, Assessment, Co-Authorship, Coauthorship, Collaboration, Collaboration Networks, Community Structure, Complex Networks, Exercise, Geographic, Geographic Distance, Geography, Intra- and Inter-Institutional Collaborations, Joint, Knowledge, Management, Publication, Research, Research Specialty, Science, Scientific Collaboration, Scientific Research, Social, Social Network, Teams, UK

? Frigotto, M.L. and Riccaboni, M. (2011), A few special cases: Scientific creativity and network dynamics in the field of rare diseases. *Scientometrics*, **89** (1), 397-420.

Full Text: [2011\Scientometrics89, 397.pdf](2011/Scientometrics89,%20397.pdf)

Abstract: We develop a model of scientific creativity and test it in the field of rare diseases. Our model is based on the results of an in-depth case study of the Rett Syndrome. Archival analysis, bibliometric techniques and expert surveys are combined with network analysis to identify the most creative scientists. First, we compare alternative measures of generative and combinatorial creativity. Then, we generalize our results in a stochastic model of socio-semantic network evolution. The model predictions are tested with an extended set of rare diseases. We find that new scientific collaborations among experts in a field enhance combinatorial creativity. Instead, high entry rates of novices are negatively related to generative creativity. By expanding the set of useful concepts, creative scientists gain in centrality. At the same time, by increasing their centrality in the scientific community, scientists can replicate and generalize their results, thus contributing to a scientific paradigm.

Keywords: Analysis, Bibliometric, Bibliometric Indicators, Biomedical Research, Brokerage, Centrality, Co-Authorship Network, Collaboration, Creativity, Emergence, Evolution, Ideas, Industry, Innovation, Mathematical Approach, Model, Performance, Perspective, Qualitative and Quantitative Method, Scientific Collaboration

? Guo, H.N., Weingart, S. and Borner, K. (2011), Mixed-indicators model for identifying emerging research areas. *Scientometrics*, **89** (1), 421-435.

Full Text: [2011\Scientometrics89, 421.pdf](2011/Scientometrics89,%20421.pdf)

Abstract: This study presents a mixed model that combines different indicators to describe and predict key structural and dynamic features of emerging research areas. Three indicators are combined: sudden increases in the frequency of specific words; the number and speed by which new authors are attracted to an emerging research area, and changes in the interdisciplinarity of cited references. The mixed model is applied to four emerging research areas: RNAi, Nano, h-Index, and Impact Factor research using papers published in the Proceedings of the National Academy of Sciences of the United States of America (1982-2009) and in Scientometrics (1978-2009). Results are compared in terms of strengths and temporal dynamics. Results show that the indicators are indicative of emerging areas and they exhibit interesting temporal correlations: new authors enter the area first, then the interdisciplinarity of paper references increases, then word bursts occur. All workflows are reported in a manner that supports replication and extension by others.

Keywords: Authors, Burst Detection, Communication, Discovery, Emergence, Emerging Trend, Facts, Figures, Frequency, h Index, h-Index, Impact, Impact Factor, Interdisciplinarity, Model, Nano, Papers, Prediction, Publication Output, Relative Citation Impact, Research, Science, Science of Science (SCI(2)) Tool, Scientometrics, Technology, Temporal Dynamics, Tracking

? Watts, C. and Gilbert, N. (2011), Does cumulative advantage affect collective learning in science? An agent-based simulation. *Scientometrics*, **89** (1), 437-463.

Full Text: [2011\Scientometrics89, 437.pdf](2011/Scientometrics89,%20437.pdf)

Abstract: Agent-based simulation can model simple micro-level mechanisms capable of generating macro-level patterns, such as frequency distributions and network structures found in bibliometric data. Agent-based simulations of organisational learning have provided analogies for collective problem solving by boundedly rational agents employing heuristics. This paper brings these two areas together in one model of knowledge seeking through scientific publication. It describes a computer simulation in which academic papers are generated with authors, references, contents, and an extrinsic value, and must pass through peer review to become published. We demonstrate that the model can fit bibliometric data for a token journal, Research Policy. Different practices for generating authors and references produce different distributions of papers per author and citations per paper, including the scale-free distributions typical of cumulative advantage processes. We also demonstrate the model’s ability to simulate collective learning or problem solving, for which we use Kauffman’s NK fitness landscape. The model provides evidence that those practices leading to cumulative advantage in citations, that is, papers with many citations becoming even more cited, do not improve scientists’ ability to find good solutions to scientific problems, compared to those practices that ignore past citations. By contrast, what does make a difference is referring only to publications that have successfully passed peer review. Citation practice is one of many issues that a simulation model of science can address when the data-rich literature on scientometrics is connected to the analogy-rich literature on organisations and heuristic search.

Keywords: Author, Authors, Bibliometric, Citation, Citation Distribution, Citations, Computer, Computer Simulation, Cumulative Advantage, Frequency, Journal, Knowledge, Landscape Search, Learning, Literature, Mechanisms, Model, Networks, Optimization, Papers, Peer Review, Peer-Review, Policy, Practice, Publication, Publications, Research, Review, Rugged Landscapes, Science, Science Models, Science Policy, Scientific Publication, Scientometrics, Simulation, Strategies

? Lee, L.C., Lin, P.H., Chuang, Y.W. and Lee, Y.Y. (2011), Research output and economic productivity: A Granger caUSAlity test. *Scientometrics*, **89** (2), 465-478.

Full Text: [2011\Scientometrics89, 564.pdf](2011/Scientometrics89,%20564.pdf)

Abstract: the correlation between GDP and research publications is an important issue in scientometrics. This article provides further empirical evidence connecting revealed comparative advantage in national research with effects on economic productivity. Using quantitative time series analysis, this study attempts to determine the nature of caUSAl relationships between research output and economic productivity. One empirical result is that there is mutual caUSAlity between research and economic growth in Asia, whereas in Western countries the caUSAlity is much less clear. The results may be of use to underdeveloped nations deciding how to direct their academic investment and industry policy.

Keywords: Analysis, Asia, Autoregressive Time-Series, CaUSAlity, Countries, Economic Productivity, GDP, Granger CaUSAlity, Growth, Industry, Policy, Productivity, Publications, Quantitative, Research, Research Output, Scientometric Indicators, Scientometrics, Time Series Analysis, Unit-Root

? Niazi, M. and Hussain, A. (2011), Agent-based computing from multi-agent systems to agent-based models: A visual survey. *Scientometrics*, **89** (2), 479-499.

Full Text: [2011\Scientometrics89, 479.pdf](2011/Scientometrics89,%20479.pdf)

Abstract: Agent-based computing is a diverse research domain concerned with the building of intelligent software based on the concept of “agents”. In this paper, we use Scientometric analysis to analyze all sub-domains of agent-based computing. Our data consists of 1,064 journal articles indexed in the ISI web of knowledge published during a 20 year period: 1990-2010. These were retrieved using a topic search with various keywords commonly used in sub-domains of agent-based computing. In our proposed approach, we have employed a combination of two applications for analysis, namely Network Workbench and CiteSpace-wherein Network Workbench allowed for the analysis of complex network aspects of the domain, detailed visualization-based analysis of the bibliographic data was performed using CiteSpace. Our results include the identification of the largest cluster based on keywords, the timeline of publication of index terms, the core journals and key subject categories. We also identify the core authors, top countries of origin of the manuscripts along with core research institutes. Finally, our results have interestingly revealed the strong presence of agent-based computing in a number of non-computing related scientific domains including Life Sciences, Ecological Sciences and Social Sciences.

Keywords: Agent-Based Modeling, Analysis, Author Cocitation, Authors, Bibliographic, Citation, Citespace, Dynamics, Individual-Based Modeling, Innovation, Intellectual Structure, ISI, Journal, Journals, Knowledge, Multiagent Systems, Network, Publication, Research, Science, Sciences, Scientific Literatures, Scientometrics, Scientometrics, Social Sciences, Software, Survey, Triple-Helix, Visualization

Notes: CCountry

? Karpagam, R., Gopalakrishnan, S., Natarajan, M. and Babu, B.R. (2011), Mapping of nanoscience and nanotechnology research in India: A scientometric analysis, 1990-2009. *Scientometrics*, **89** (2), 501-522.

Full Text: [2011\Scientometrics89, 501.pdf](2011/Scientometrics89,%20501.pdf)

Abstract: This paper analyses the growth pattern of Nanoscience and Nanotechnology literature in India during 1990-2009 (20 years). The Scopus international multidisciplinary bibliographical database has been used to identify the Indian contributions on the field of nanoscience and nanotechnology. The study measures the performance based on several parameters, country annual growth rate, authorship pattern, collaborative index, collaborative coefficient, modified collaborative coefficient, subject profile, etc. Further the study examines national publication output and impact in terms of average citations per paper, international collaboration output and share, contribution and impact of Indian Institutions and impact of Indian journals.

Keywords: Analysis, Authorship, Authorship Pattern, Bibliographical Database, Citations, Collaboration, Collaborative Coefficient h-Index, Contribution, Exploration, Field, G-Index, G-Index, Growth, Growth Pattern, Impact, India, Interdisciplinarity, International Collaboration, Journals, Literature, Modified, Nanoscience, Nanotechnology, P-Index, Patent Citations, Profile, Publication, Publication Output, Publications, Research, Research Collaboration, Science, Scientific Literature, Scientometric Analysis, Scopus, Technology

? Ibanez, A., Larranaga, P. and Bielza, C. (2011), Using Bayesian networks to discover relationships between bibliometric indices. A case study of computer science and artificial intelligence journals. *Scientometrics*, **89** (2), 523-551.

Full Text: [2011\Scientometrics89, 523.pdf](2011/Scientometrics89,%20523.pdf)

Abstract: As they are used to evaluate the importance of research at different levels by funding agencies and promotion committees, bibliometric indices have received a lot of attention from the scientific community over the last few years. Many bibliometric indices have been developed in order to take into account aspects not previously covered. The result is that, nowadays, the scientific community faces the challenge of selecting which of this pool of indices meets the required quality standards. In view of the vast number of bibliometric indices, it is necessary to analyze how they relate to each other (irrelevant, dependent and so on). Our main purpose is to learn a Bayesian network model from data to analyze the relationships among bibliometric indices. The induced Bayesian network is then used to discover probabilistic conditional (in) dependencies among the indices and, also for probabilistic reasoning. We also run a case study of 14 well-known bibliometric indices on computer science and artificial intelligence journals.

Keywords: Artificial Intelligence, Attention, Bayesian Networks, Bibliometric, Bibliometric Indices, Citation Analysis, Computer, Computer Science and Artificial Intelligence, Conditional Dependencies and Conditional Independencies, Funding, h-Index, Impact, Induced, Journals, Model, Network, Probabilistic Networks, Promotion, R-Index, Research, Science, Standards

? Yu, Q., Shao, H.F. and Duan, Z.G. (2011), Research groups of oncology co-authorship network in China. *Scientometrics*, **89** (2), 553-567.

Full Text: [2011\Scientometrics89, 553.pdf](2011/Scientometrics89,%20553.pdf)

Abstract: This paper aims at analyzing and extracting the research groups from the co-authorship network of oncology in China. By use of centrality, component analysis, K-Core, M-Slice, Hierarchical Clustering analysis, and Multidimensional Scaling analysis, we studied the data from 10 Core Chinese Oncology journals between 2000 and 2009, analyzed the structure character of the Chinese Oncology research institutes. This study advances the methods for selecting the most prolific research groups and individuals in Chinese Oncology research community, and provides basis for more productive cooperation in the future. This study also provides scientific evidences and suggestions for policymakers to establish a more efficient system for managing and financing Chinese Oncology research in the future.

Keywords: Analysis, Centrality, China, Clustering, Clustering Analysis, Co-Authorship, Coauthorship, Cooperation, Field, Journals, Library, Network, Oncology, Research, Research Collaboration, Research Group, Research Groups, Science

? Groh, G. and Fuchs, C. (2011), Multi-modal social networks for modeling scientific fields. *Scientometrics*, **89** (2), 569-590.

Full Text: [2011\Scientometrics89, 569.pdf](2011/Scientometrics89,%20569.pdf)

Abstract: This paper analyzes whether methods from social network analysis can be adopted for the modeling of scientific fields in order to obtain a better understanding of the respective scientific area. The approach proposed is based on articles published within the respective scientific field and certain types of nodes deduced from these papers, such as authors, journals, conferences and organizations. As a proof of concept, the techniques discussed here are applied to the field of ‘Mobile Social Networking’. for this purpose, a tool was developed to create a large data collection representing the aforementioned field. The paper analyzes various views on the complete network and discusses these on the basis of the data collected on Mobile Social Networking. The authors demonstrate that the analysis of particular subgraphs derived from the data collection allows the identification of important authors as well as separate sub-disciplines such as classic network analysis and sensor networks and also contributes to the classification of the field of ‘Mobile Social Networking’ within the greater context of computer science, applied mathematics and social sciences. Based on these results, the authors propose a set of concrete services which could be offered by such a network and which could help the user to deal with the scientific information process. The paper concludes with an outlook upon further possible research topics.

Keywords: Algorithm, Analysis, Author Co-Citation Networks, Author Cocitation Analysis, Authors, Co-Authorship Networks, Computer, Conference-Person Networks, Data Collection, Domain-Analysis, Index, Information, Information-Science, Intellectual Structure, Journal-Person Networks, Journals, Mapping Authors, Mobile Social Networking, Modeling, Modeling of A Scientific Domain, Network, Papers, Pearsons R, Person-Organization Networks, Research, Research Topics, Saltons Cosine, Science, Sciences, Scientific Information, Social, Social Network, Social Network Analysis, Social Networks, Social Sciences, Subgraph Isomorphism, Topics

? Tsay, M.Y. (2011), A bibliometric analysis and comparison on three information science journals: JASIST, IPM, JOD, 1998-2008. *Scientometrics*, **89** (2), 591-606.

Full Text: [2011\Scientometrics89, 591.pdf](2011/Scientometrics89,%20591.pdf)

Abstract: Employing a citation analysis, this study explored and compared the bibliometric characteristics and the subject relationship with other disciplines of and among the three leading information science journals, Journal of the American Society for Information Science and Technology (JASIST), Information Processing and Management and Journal of Documentation. The citation data were drawn from references of each article of the three journals during 1998 and 2008. The Ulrich’s Periodical Directory, Library of Congress Subject Heading, retrieved from the WorldCat, and LISA database were used to identify the main class, subclass and subject of cited journals and books. Quantitative results on the number of JASIST, IPM and JOD literature references, average number of references cited per paper, document type of cited literature and the journal self-citation rate are reported. Moreover, the highly cited journals and books, the main classes and subclasses of cited journals and books in papers of the three journals, the highly cited subjects in journals and books of library and information science were identified and analyzed. Comparison on the characteristics of cited journals and books confirmed that all the three journals under study are information science oriented, except JOD which is library science orientation. JASIST and IPM are very much in common and diffuse to other disciplines more deeply than JOD.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometric Study, Citation, Citation Analysis, Cited Books, Cited Journals, Highly-Cited, Information, Information Processing and Management (IPM), Information Science, Journal, Journal of Documentation, Journal of Documentation (JOD), Journal of the American Society for Information Science and Technology (JASIST), Journals, Library, Library Science, Literature, Management, Papers, References, Science, Self-Citation, Subject Analysis

? Vieira, E.S. and Gomes, J.A.N.F. (2011), An impact indicator for researchers. *Scientometrics*, **89** (2), 607-629.

Full Text: [2011\Scientometrics89, 607.pdf](2011/Scientometrics89,%20607.pdf)

Abstract: the assessment of individual researchers using bibliometric indicators is more complex than that of a region, country or university. for large scientific bodies, averages over a large number of researchers and their outputs is generally believed to give indication of the quality of the research work. for an individual, the detailed peer evaluation of his research outputs is required and, even this, may fail in the short term to make a final, long term assessment of the relevance and originality of the work. Scientometrics assessment at individual level is not an easy task not only due to the smaller number of publications that are being evaluated, but other factors can influence significantly the bibliometric indicators applied. Citation practices vary widely among disciplines and sub disciplines and this may justify the lack of good bibliometric indicators at individual level. The main goal of this study was to develop an indicator that considers in its calculation some of the aspects that we must take into account on the assessment of scientific performance at individual level. The indicator developed, the h(nf) index, considers the different cultures of citation of each field and the number of authors per publication. The results showed that the h(nf) index can be used on the assessment of scientific performance of individual researchers and for following the performance of a researcher.

Keywords: Assessment, Authors, Authorship, Bibliometric, Bibliometric Indicators, Citation, Citer Motivations, Evaluation, h Index, h-Index, Impact, Impact Indicator, Individuals, Normalization, Originality, Peer Evaluation, Publication, Publications, Research, Research Work, Researchers, Scientific Performance, Scientometrics, Scientometrics Assessment, Self-Citation, University

? Vieira, E.S. and Gomes, J.A.N.F. (2011), The journal relative impact: An indicator for journal assessment. *Scientometrics*, **89** (2), 631-651.

Full Text: [2011\Scientometrics89, 631.pdf](2011/Scientometrics89,%20631.pdf)

Abstract: This paper presents the journal relative impact (JRI), an indicator for scientific evaluation of journals. The JRI considers in its calculation the different culture of citations presented by the Web of Science subject categories. The JRI is calculated considering a variable citation window. This citation window is defined taking into account the time required by each subject category for the maturation of citations. The type of document considered in each subject category depends on its outputs in relation to the citations. The scientific performance of each journal in relation to each subject category that it belongs to is considered allowing the comparison of the scientific performance of journals from different fields. The results obtained show that the JRI can be used for the assessment of the scientific performance of a given journal and that the SJR and SNIP should be used to complement the information provided by the JRI. The JRI presents good features as stability over time and predictability.

Keywords: Assessment, Citation, Citations, Culture, Evaluation, Impact, Index, Information, Journal, Journal Impact, Journals, Normalization, Research Performance, Science, Scientific Literature, Scientific Performance, Scopus, SJR, Stability, Subject Category, System, Variable Window, Web of Science, Web-of-Science

? Canibano, C., Otamendi, F.J. and Solis, F. (2011), International temporary mobility of researchers: A cross-discipline study. *Scientometrics*, **89** (2), 653-675.

Full Text: [2011\Scientometrics89, 653.pdf](2011/Scientometrics89,%20653.pdf)

Abstract: the increasing literature addressing international mobility of researchers has repeatedly pointed out the lack of empirical data compiled over the last two decades, jeopardizing progress in the understanding of the characteristics and impacts of such human flows. This paper makes a contribution to the field by exploring the extent to which information obtained from researchers’ electronic curriculum vitae (CV) may be used to study temporary geographical mobility. We exploit a new type of data set-a comprehensive database of electronic CVs-developing a broad set of cross-discipline mobility indicators to assess the dimensions and characteristics of international research visits among a population of over 10,000 researchers. The sample population is made up of PhD holders working in the regional research system of Andalusia, Spain. Information regarding their international research visits over the last four decades is downloaded from CVs contained in the electronic scientific information system of the region. We assess mobility rates and the characteristics of the temporary mobile population. The analysis of visiting patterns shows significant differences in mobility profiles in terms of frequency, duration and destination of visits, across disciplines, career stages and time periods. The study also shows how different definitions of international mobility lead to substantial variations in cross-discipline mobility rates.

Keywords: Analysis, Brain Circulation, Careers, Contribution, Curriculum Vitae, Curriculum Vitae Analysis, Cv Analysis, Definitions, Differences, Frequency, Human, Information, Knowledge, Lead, Literature, Mobility Indicators, Mobility of Researchers, Performance, Policy, Productivity, Research, Researchers, Scientific Information, Scientists, Spain

? Helene, A.F. and Ribeiro, P.L. (2011), Brazilian scientific production, financial support, established investigators and doctoral graduates. *Scientometrics*, **89** (2), 677-686.

Full Text: [2011\Scientometrics89, 677.pdf](2011/Scientometrics89,%20677.pdf)

Abstract: In the near future, Brazil is expected to face a number of challenges with regards to economic and social development, and scientific production is a critical aspect of this development process. Over the past 30 years, there has been an almost 18-fold increase in the number of brazilian papers published, up from about 2,000 in 1980 to more than 35,000 in 2009. In this study we analyze the evolution of scientific production in terms of input (resources and permanent investigators) and output (scientific papers and doctorate graduates). We evaluate whether structural investments and the number of investigators at universities are both able to explain the increase in the number of papers, by investigating the relationships among growth rates in investments and the quantity of the papers published, as well as the number of doctorate graduates and active permanent investigators. As an indication of the fluctuations in investments pertaining to academic research, we consider the budget history of the largest Brazilian federal agencies charged with providing academic grants. We observe that the burgeoning number of papers has occurred independently of investments and the number of established investigators, thus suggesting an increase in the efficiency of Brazilian scientific output. Moreover, this increase in efficiency has occurred in conjunction with an increased number of Doctoral graduates per year. In this context, we propose that an evaluation of the academic structure is necessary in order to ascertain the risks of this increased “efficiency”. Moreover, the recent cut of over US$ 1 billion announced by the Brazilian government may jeopardize the quality of scientific output in the future.

Keywords: Brazil, Development, English, Evaluation, Evolution, Face, Federal Grant Entities, Financial Support, Growth, History, Impact, Inputs and Outputs, Investigators, Papers, PhD Programs, Research, Science, Scientific Output, Scientific Production, Social, Universities

? Abbasi, A., Hossain, L., Uddin, S. and Rasmussen, K.J.R. (2011), Evolutionary dynamics of scientific collaboration networks: Multi-levels and cross-time analysis. *Scientometrics*, **89** (2), 687-710.

Full Text: [2011\Scientometrics89, 687.pdf](2011/Scientometrics89,%20687.pdf)

Abstract: Several studies exist which use scientific literature for comparing scientific activities (e. g., productivity, and collaboration). In this study, using co-authorship data over the last 40 years, we present the evolutionary dynamics of multi level (i.e., individual, institutional and national) collaboration networks for exploring the emergence of collaborations in the research field of “steel structures”. The collaboration network of scientists in the field has been analyzed using author affiliations extracted from Scopus between 1970 and 2009. We have studied collaboration distribution networks at the micro-, meso-and macro-levels for the 40 years. We compared and analyzed a number of properties of these networks (i.e., density, centrality measures, the giant component and clustering coefficient) for presenting a longitudinal analysis and statistical validation of the evolutionary dynamics of “steel structures” collaboration networks. At all levels, the scientific collaborations network structures were central considering the closeness centralization while betweenness and degree centralization were much lower. In general networks density, connectedness, centralization and clustering coefficient were highest in marco-level and decreasing as the network size grow to the lowest in micro-level. We also find that the average distance between countries about two and institutes five and for authors eight meaning that only about eight steps are necessary to get from one randomly chosen author to another.

Keywords: Activities, Analysis, Author, Authors, Centrality, Co-Authorship, Co-Authorship Analysis, Coauthorship, Collaboration, Collaborations, Dynamic Network Analysis, Evolutionary Collaboration Networks, Index, Literature, Multi-Levels and Cross-Time Analysis, Network, Patterns, Productivity, Research, Science, Scientific Activities, Scientific Collaboration, Scopus, Self-Organization, Social Network Analysis, Statistical, Validation

? Teodorescu, D. and Andrei, T. (2011), The growth of international collaboration in East European scholarly communities: A bibliometric analysis of journal articles published between 1989 and 2009. *Scientometrics*, **89** (2), 711-722.

Full Text: [2011\Scientometrics89, 711.pdf](2011/Scientometrics89,%20711.pdf)

Abstract: In the last two decades international collaboration in the Eastern European academic communities has strongly intensified. Scientists from developed countries within the European Union play a key role in stimulating the international collaboration of academics in this region. In addition, many of the research projects that engage East-European scholars are only possible in the framework of the large European programmes. The present study focuses on the role of EU and other developed nations as a partner of these countries and the analysis of the performance of collaborative research as reflected by the citation impact of internationally co-authored publications.

Keywords: Academics, Analysis, Bibliometric, Bibliometric Analysis, Citation, Citation Impact, Citations, Co-Authorship, Collaboration, Eastern Europe, EU, Growth, Impact, International Collaboration, Journal, Publications, Research, Scientists

? Soos, S. (2011), The functional anatomy of science mapping Katy Borner: Atlas of science: visualizing what we know. The MIT Press, Cambridge, MA/London, UK, 2010, US$20. *Scientometrics*, **89** (2), 723-726

Full Text: [2011\Scientometrics89, 723.pdf](2011/Scientometrics89,%20723.pdf)

Keywords: Anatomy, Functional, Mapping, Science, UK

? Egghe, L. (2011), The single publication h-Index of papers in the Hirsch-core of a researcher and the indirect h-Index. *Scientometrics*, **89** (3), 727-739.

Full Text: [2011\Scientometrics89, 727.pdf](2011/Scientometrics89,%20727.pdf)

Abstract: the single publication h-Index of Schubert is applied to the papers in the Hirsch-core of a researcher, journal or topic. Four practical examples are given and regularities are explained: the regression line of the single publication h-Index of the ranked papers in the Hirsch-core is decreasing. We propose two measures of indirect citation impact: the average of the single publication h-indices of the papers in the Hirsch-core and the h-Index of these single publication H-indices, defined as the indirect h-Index. Formulae for these indirect citation impact measures are given in the Lotkaian context.

Keywords: Citation, Citation Impact, h Index, h-Index, Hirsch Core, Impact, Indirect h-Index, Indirect Impact Measure, Journal, Papers, Publication, Single Publication h-Index

? Gomez-Nunez, A.J., Vargas-Quesada, B., de Moya-Anegon, F. and Glänzel, W. (2011), Improving SCImago Journal & Country Rank (SJR) subject classification through reference analysis. *Scientometrics*, **89** (3), 741-758.

Full Text: [2011\Scientometrics89, 741.pdf](2011/Scientometrics89,%20741.pdf)

Abstract: In order to re-categorize the SCImago Journal & Country Rank (SJR) journals based on Scopus, as well as improve the SJR subject classification scheme, an iterative process built upon reference analysis of citing journals was designed. The first step entailed construction of a matrix containing citing journals and cited categories obtained through the aggregation of cited journals. Assuming that the most representative categories in each journal would be represented by the highest citation values regarding categories, the matrix vectors were reduced using a threshold to discern and discard the weakest relations. The process was refined on the basis of different parameters of a heuristic nature, including (1) the development of several tests applying different thresholds, (2) the designation of a cutoff, (3) the number of iterations to execute, and (4) a manual review operation of a certain amount of multi-categorized journals. Despite certain shortcomings related with journal classification, the method showed a solid performance in grouping journals at a level higher than categories-that is, aggregating journals into subject areas. It also enabled us to redesign the SJR classification scheme, providing for a more cohesive one that covers a good proportion of re-categorized journals.

Keywords: Analysis, Citation, Development, Journal, Journal Classification, Journals, Multidisciplinary Databases, Reference Analysis, Review, Science, Scimago, Scimago Journal & Country Rank, Scopus, SJR, Subject Categorization

? Khan, G.F., Moon, J. and Park, H.W. (2011), Network of the core: Mapping and visualizing the core of scientific domains. *Scientometrics*, **89** (3), 759-779.

Full Text: [2011\Scientometrics89, 759.pdf](2011/Scientometrics89,%20759.pdf)

Abstract: In this article, we propose mapping and visualizing the core of scientific domains using social network analysis techniques derived from mathematical graph theory. In particular, the concept of Network of the Core is introduced which can be employed to visualize scientific domains by constructing a network among theoretical constructs, models, and concepts. A Network of the Core can be used to reveal hidden properties and structures of a research domain such as connectedness, centrality, density, structural equivalence, and cohesion, by modeling the casual relationship among theoretical constructs. Network of the Core concept can be used to explore the strengths and limitations of a research domain, and graphically and mathematically derive the number research hypotheses. The Network of the Core approach can be applied to any domain given that the investigator has a deep understanding of the area under consideration, a graphical or conceptual view (in the form of a network of association among the theoretical constructs and concepts) of the scientific domain can be obtained, and an underlying theory is available or can be constructed to support Network of the Core formation. Future research directions and several other issues related to the Network of the Core concept are also discussed.

Keywords: Analysis, Association, Centrality, Constructs Theories and Concepts, Graph Theory, Information System, Journals, Mapping, Model, Modeling, Network, Network of the Core, Research, Science-Citation-Index, Social, Social Network, Social Network Analysis, South-Korea, Systems, Technology, Theory, Visualization

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Full Text: [2011\Scientometrics89, 781.pdf](2011/Scientometrics89,%20781.pdf)

Abstract: Since the relationship between patents and Tobin’s q is confusing, this paper utilizes panel threshold regression model to re-examine the relationship between patent counts/sales and Tobin’s q. This study finds out patent citations/sales has a single threshold effect on the relationship between patent counts/sales and Tobin’s q in the US pharmaceutical industry. The single threshold value of patent citations/sales is 328.81, and it divides the value of patent citations/sales into two regimes: the first regime (patent citations/sale a parts per thoUSAnd broken vertical bar 328.81) and the second regime (patent citations/sale > 328.81). The results indicate that patent counts/sales positively affect Tobin’s q in the two regimes. In addition, this study demonstrates that the extent of the positive effect of patent counts/sales on Tobin’s q is different. This study verifies that patent citations/sales moderates the relationship between patent counts/sales and Tobin’s q. Once patent citations/sales is below the threshold value, the extent of the positive relationship between patent counts/sales and Tobin’s q is the most. Therefore, this study finds out that the first regime is optimal.

Keywords: Empirical-Analysis, Industry, Innovation, Intellectual Property, Least-Squares Estimator, Market Value, Model, Multiple Indicators, Nuisance Parameter, Panel Threshold Regression Model, Patent, Patent Analysis, Patent Citation, Patent Count, Pharmaceutical-Industry, Research-And-Development, Threshold Autoregressive Model, Tobin’s q, US

? Cho, T.S. and Shih, H.Y. (2011), Patent citation network analysis of core and emerging technologies in Taiwan: 1997-2008. *Scientometrics*, **89** (3), 795-811.

Full Text: [2011\Scientometrics89, 795.pdf](2011/Scientometrics89,%20795.pdf)

Abstract: Identifying core technologies and emerging technologies is essential for formulating national technology strategies and policies for pursuing technological competitive advantage. This study presents a quantitative method for identifying core technologies and emerging technologies in the Taiwan technological innovation system. The objective was to gain an overview of technological development in the country by analyzing patent citation networks and by identifying five core technologies and emerging technologies in Taiwan based on United States Patent and Trademark Office (USPTO) patents granted to Taiwan during 1997-2008. The findings indicate the most appropriate management of technology and innovation and the best patent strategy and technology policy that the Taiwan government should pursue. Research institutes, industries and academia are also given research directions for choosing the technologies in which they should invest resources in order to strengthen the Taiwan technological innovation system and to increase its competitive advantage in global technology.

Keywords: Analysis, Citation, Citation Networks, Core Technology, Development, Emerging Technology, Industries, Innovation, Management, Network, Network Analysis, Overview, Patent, Patent Citation, Policies, Policy, Quantitative, Research, Statistics, Strategy, Taiwan, USPTO

? Messinis, G. (2011), Triadic citations, country biases and patent value: the case of pharmaceuticals. *Scientometrics*, **89** (3), 813-833.

Full Text: [2011\Scientometrics89, 813.pdf](2011/Scientometrics89,%20813.pdf)

Abstract: Triadic patents minimise home bias effects in studies that focus on patent counts as a measure of innovative activity. Yet, biases in qualitative patent indicators have been largely neglected. This article advocates that forward patent citations, and triadic citations in particular, can illuminate further on home bias, self citations, and the speed of knowledge flows for drug patents published by the USPTO for the period 1980-2008. The evidence shows that triadic citations help to minimize the home bias in citations as well as to make patent quality more transparent. Also, it indicates that self citations and the age distribution of citations are important factors to consider when explaining cross-country differences in pharmaceutical citations.

Keywords: Bias, Biases, Citations, Differences, Drug, EPO, Knowledge, Knowledge Spillovers, OECD Countries, Patent, Patents, Pharmaceuticals, Quality, Self-Citations, Triadic Citations, USPTO

? Bornmann, L., Schier, H., Marx, W. and Daniel, H.D. (2011), Does the h Index for assessing single publications really work? A case study on papers published in chemistry. *Scientometrics*, **89** (3), 835-843.

Full Text: [2011\Scientometrics89, 835.pdf](2011/Scientometrics89,%20835.pdf)

Abstract: Schubert (Scientometrics, 78:559-565, 2009) showed that “a Hirsch-type index can be used for assessing single highly cited publications by calculating the h Index of the set of papers citing the work in question” (p. 559). To demonstrate that this single publication h Index is a useful yardstick to compare the quality of different publications; the index should be strongly related to the assessment by peers. In a comprehensive research project we investigated the peer review process of the Angewandte Chemie International Edition. The data set contains manuscripts reviewed in the year 2000 and accepted by the journal or rejected but published elsewhere. Single publication h Index values were calculated for a total of 1,814 manuscripts. The results show a correlation in the expected direction between peer assessments and single publication h Index values: After publication, manuscripts with positive ratings by the journal’s reviewers show on average higher h Index values than manuscripts with negative ratings by reviewers (and later published elsewhere). However, our findings do not support Schubert’s (2009) assumption that the additional dimension of indirect citation influence contributes to a more refined picture of the most cited papers.

Keywords: Angewandte-Chemie, Assessment, Chemistry, Citation, h Index, h-Index, Highly-Cited, Journal, Journal Peer Review, Papers, Peer Review, Peer-Review, Publication, Publications, Quality, Research, Review, Scientometrics, Single Publication h Index

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Full Text: [2011\Scientometrics89, 845.pdf](2011/Scientometrics89,%20845.pdf)

Abstract: the demographical data of the National Science Foundation on research doctorate awardees in the United States is studied in this article. While the overall growth rate of research doctorate awardees is approximately the same as the growth rate of the whole population in the U.S. There are considerable changes in the sub-populations of research doctorate awardees. The demographic data is evaluated/discussed in more detail with respect to gender and research fields of the doctorate awardees. In particular the notion of the primacy of technology over science in the postmodern era is examined and found to be justified.

Keywords: Age, Demography, Education, Gender, Growth, Labor, Research, Research Doctorates, Research Fields, Science, Science, System, Technology, Trends, US

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Full Text: [2011\Scientometrics89, 867.pdf](2011/Scientometrics89,%20867.pdf)

Abstract: the increased use of e-learning techniques as an accepted form of teaching has resulted in a growing volume of academic research dedicated to their assessment. Despite the importance of the technique, there is little comprehensive knowledge on e-learning, especially in non-educational fields. Author co-citation analysis (ACA) is an analytical method for identifying the intellectual structure of specific knowledge domains through the relationship between two similar authors. ACA has been applied to many fields, such as information retrieval, knowledge management, and strategic management; however, it has not yet been used to analyze e-learning development. This study examines the intellectual structure of e-learning from the perspective of management information systems (MIS). By applying the ACA method, we analyze and categorize international and Taiwanese research topics into clusters. Our results show that Taiwanese authors put more effort into practical studies of business training, while international authors focus on a users’ psychological reaction to learning context. Altogether, our research provides a clear intellectual analysis of e-learning practices from 1996 to 2009, enabling us to thoroughly study and understand the influence of these techniques on modern education.

Keywords: Analysis, Assessment, Author, Author Co-Citation Analysis, Authors, Co-Citation Analysis, Cocitation, Development, E-Learning, Education, Information, Information Retrieval, Information Systems, Information-Retrieval, Intellectual Structure, Journals, Knowledge, Knowledge Domains, Learning, Management, Management Field, MIS, Psychological, Research, Research Topics, Science, Teaching, Topics, Training

? Wolszczak-Derlacz, J. and Parteka, A. (2011), Efficiency of European public higher education institutions: A two-stage multicountry approach. *Scientometrics*, **89** (3), 887-917.

Full Text: [2011\Scientometrics89, 887.pdf](2011/Scientometrics89,%20887.pdf)

Abstract: the purpose of this study is to examine efficiency and its determinants in a set of higher education institutions (HEIs) from several European countries by means of non-parametric frontier techniques. Our analysis is based on a sample of 259 public HEIs from 7 European countries across the time period of 2001-2005. We conduct a two-stage DEA analysis (Simar and Wilson in J Economet 136:31-64, 2007), first evaluating DEA scores and then regressing them on potential covariates with the use of a bootstrapped truncated regression. Results indicate a considerable variability of efficiency scores within and between countries. Unit size (economies of scale), number and composition of faculties, sources of funding and gender staff composition are found to be among the crucial determinants of these units’ performance. Specifically, we found evidence that a higher share of funds from external sources and a higher number of women among academic staff improve the efficiency of the institution.

Keywords: Analysis, Australian Universities, Data Envelopment Analysis, DEA, Determinants, Education, Efficiency, Empirical-Analysis, Funding, Gender, Higher Education, Methodology, Nonparametric, Nonparametric Frontier Models, Performance, Research Output, Research Productivity, Secondary-Schools, Two-Stage DEA, UK Universities, Variability, Women

? Yi, H. and Jie, W. (2011), A bibliometric study of the trend in articles related to eutrophication published in Science Citation Index. *Scientometrics*, **89** (3), 919-927.

Full Text: [2011\Scientometrics89, 919.pdf](2011/Scientometrics89,%20919.pdf)

Abstract: A keyword analysis was applied in this work to evaluate research trends of eutrophication papers published between 1991 and 2010 in any journal of all the subject categories of the Science Citation Index compiled by Institute for Scientific Information, Philadelphia, USA. Eutrophication was used as a keyword to search parts of titles, abstracts, or keywords. The published output analysis showed that eutrophication research steadily increased over the past 20 years and the annual publication output in 2008, 2009, 2010 were about four times that of 1991. The whole paper published by China ranked at 3rd, but these papers’ IF were lower than the average of the world. “Water Framework Directive” and “Life Cycle Assessment” were two of the most frequently used author keywords in the period between 1999 and 2010 whilst they did not appear before 1998. These new conception indicated eutrophication research trend was changing to policy and management from technological researches.

Keywords: Analysis, Author, Bibliometric, Bibliometric Study, China, Citation, Eutrophication, Journal, Life Cycle Assessment, Management, Nitrogen, Papers, Phosphorus, Policy, Pollution, Publication, Publication Output, Research, Research Trend, Research Trends, SCI, Science, Science Citation Index, Scientific Information, Trend, Trends, USA, Water, Water Framework Directive

? Abramo, G., D’Angelo, C. and Di Costa, F. (2011), National research assessment exercises: A comparison of peer review and bibliometrics rankings. *Scientometrics*, **89** (3), 929-941.

Full Text: [2011\Scientometrics89, 929.pdf](2011/Scientometrics89,%20929.pdf)

Abstract: Development of bibliometric techniques has reached such a level as to suggest their integration or total substitution for classic peer review in the national research assessment exercises, as far as the hard sciences are concerned. In this work we compare rankings lists of universities captured by the first Italian evaluation exercise, through peer review, with the results of bibliometric simulations. The comparison shows the great differences between peer review and bibliometric rankings for excellence and productivity.

Keywords: Assessment, Bibliometric, Bibliometrics, Differences, Evaluation, Exercise, Exercises, Indicators, Italy, Peer Review, Peer-Review, Productivity, Rankings, Research, Research Assessment, Research Productivity, Review, Sciences, Universities, University

? Grauwin, S. and Jensen, P. (2011), Mapping scientific institutions. *Scientometrics*, **89** (3), 943-954.

Full Text: [2011\Scientometrics89, 943.pdf](2011/Scientometrics89,%20943.pdf)

Abstract: We have developed a set of routines that allows to draw easily different maps of the research carried out in a scientific institution. Our toolkit uses OpenSource elements to analyze bibliometric data gathered from the Web of Science. We take the example of our institution, ENS de Lyon, to show how different maps, using co-occurrence (of authors, keywords, institutionsaEuro broken vertical bar) and bibliographic coupling can be built. These maps may become a valuable tool for discussing institutions’ policies, as they offer different views on the institution at a global scale.

Keywords: Authors, Bibliographic, Bibliographic Coupling, Bibliometric, Governance, Heterogeneous, Institutions, Map, Maps, Policies, Research, Science, Scientific Institutions

? Slyder, J.B., Stein, B.R., Sams, B.S., Walker, D.M., Beale, B.J., Feldhaus, J.J. and Copenheaver, C.A. (2011), Citation pattern and lifespan: A comparison of discipline, institution, and individual. *Scientometrics*, **89** (3), 955-966.

Full Text: [2011\Scientometrics89, 955.pdf](2011/Scientometrics89,%20955.pdf)

Abstract: Citation frequency is often used in hiring and tenure decisions as an indicator of the quality of a researcher’s publications. In this paper, we examine the influence of discipline, institution, journal impact factor, length of article, number of authors, seniority of author, and gender on citation rate of top-cited papers for academic faculty in geography and forestry departments. Self-citation practices and patterns of citation frequency across post-publication lifespan were also examined. Citation rates of the most-highly cited paper for all tenured forestry (N = 122) and geography (N = 91) faculty at Auburn University, Michigan State University, Northern Arizona University, Oklahoma State University, Pennsylvania State University, Texas A&M University, University of Florida, University of Massachusetts, University of Washington, and Virginia Tech were compared. Foresters received significantly more citations than geographers (t = 2.46, P = 0.02) and more senior authors received more citations than junior researchers (r (2) = 0.14, P = 0.03). Articles published in journals with higher impact factors also received more citations (r (2) = 0.28, P = 0.00). The median self-citation rate was 10% and there was no temporal pattern to the frequency of citations received by an individual article (x (2) = 176). Our results stress the importance of only comparing citation rates within a given discipline and confirm the importance of author-seniority and journal rankings as factors that influence citation rate of a given article.

Keywords: Article Length, Articles, Author, Author Seniority, Authors, Citation, Citation Biases, Citation Rates, Citations, Co-Authorship, Faculty, Frequency, Gender, Gender-Differences, Hiring, Impact, Impact Factor, Impact Factors, Journal, Journal Impact, Journal Impact Factor, Journal Rankings, Journals, Librarianship, Lifespan, Papers, Productivity, Publication, Publications, Quality, Rankings, Researchers, Scientists, Self-Citation, Sex-Differences, Stress, Trends, University

? Jeong, S., Choi, J.Y. and Kim, J. (2011), The determinants of research collaboration modes: Exploring the effects of research and researcher characteristics on co-authorship. *Scientometrics*, **89** (3), 967-983.

Full Text: [2011\Scientometrics89, 967.pdf](2011/Scientometrics89,%20967.pdf)

Abstract: Given the high priority accorded to research collaboration on the assumption that it yields higher productivity and impact rates than do non-collaborative results, research collaboration modes are assessed for their benefits and costs before being executed. Researchers are accountable for selecting their collaboration modes, a decision made through strategic decision making influenced by their environments and the trade-offs among alternatives. In this context, by using bibliographic information and related internal data from the Korea Institute of Machinery and Materials (KIMM, a representative Korean government institute of mechanical research), this paper examines the suggested yet unproven determinants of research collaboration modes that the SCI data set cannot reveal through a Multinomial Probit Model. The results indicate that informal communication, cultural proximity, academic excellence, external fund inspiration, and technology development levels play significant roles in the determination of specific collaboration modes, such as sole research, internal collaboration, domestic collaboration, and international collaboration. This paper refines collaboration mode studies by describing the actual collaboration phenomenon as it occurs in research institutes and the motivations prompting research collaboration, allowing research mangers to encourage researchers to collaborate in an appropriate decision-making context.

Keywords: Bibliographic, Citations, Co-Authorship, Coauthorship, Collaboration, Communication, Costs, Decision Making, Decision-Making, Determinants, Development, Domestic Collaboration, Economics, Impact, Information, International Collaboration, Model, Multinomial Probit Model, Multinomial Probit Model, Organization, Productivity, Research, Research and Development Strategy, Research Collaboration, Researchers, Rewards, SCI, Science, Scientists Collaboration

? Khan, G.F. and Park, H.W. (2012), Editorial: Triple Helix and innovation in Asia using scientometrics, webometrics, and informetrics. *Scientometrics*, **90** (1), 1-7.

Full Text: [2012\Scientometrics90, 1.pdf](2012/Scientometrics90,%201.pdf)

Abstract: There is a burgeoning interest among academic scientists and policy-makers in the development and employment of TH (Triple Helix) and WSI (Webometrics, Scientometrics, and Informetrics) research methods. However, the international literature has not systematically examined TH and WSI approaches in an Asian context. Furthermore, previous literature published in international journals does not adequately address the social forces shaping TH development in Asia. Therefore, the purpose of this special issue is to bring researchers together to discuss university-industry-government (U-I-G) relations and innovation diffusion in Asia employing WSI alongside other methods.

Keywords: Asia, Development, Diffusion, Dynamics, Employment, Industry-Government Relations, Informetrics, Innovation, Interest, Journals, Literature, Research, Researchers, Scientometrics, Social, Triple Helix, University-Industry-Government Relations, Webometrics

? Cho, S.E. and Park, H.W. (2012), Government organizations’ innovative use of the Internet: the case of the Twitter activity of South Korea’s Ministry for Food, Agriculture, Forestry and Fisheries. *Scientometrics*, **90** (1), 9-23.

Full Text: [2012\Scientometrics90, 9.pdf](2012/Scientometrics90,%209.pdf)

Abstract: Noting the government’s role in diffusing information across various sectors of society, this study analyzes the Twitter activity of the Ministry for Food, Agriculture, Forestry and Fisheries (MFAFF), one of Korea’s government organizations. From a broad perspective, this study provides a better understanding of innovation activity mediated by social media-particularly the government’s Twitter activity, a topic that has not been addressed by previous webometric research on Triple Helix relationships-by employing social network analysis and content analysis. The results indicate some limitations of the MFAFF’s activity on Twitter as a mutual communication channel, although Twitter has the potential to facilitate risk management. Further, based on the MFAFF’s confined use of its Twitter account, the results suggest that its Twitter account can be an effective information distribution channel, indicating Twitter’s value as a communication tool for innovation activity through social media. This study provides an empirical analysis of the government’s Twitter activity and contributes to the literature by providing an in-depth understanding of the Triple Helix relationship on the Web.

Keywords: Agriculture, Analysis, Communication, Content Analysis, Government, Information, Innovation, Innovative, Internet, Literature, Management, Network, Network Analysis, Policy Promotion, Research, Risk, Semantic Network Analysis, Social, Social Network, Social Network Analysis, Twitter, Web

? Choi, S. (2012), Core-periphery, new clusters, or rising stars? International scientific collaboration among ‘advanced’ countries in the era of globalization. *Scientometrics*, **90** (1), 25-41.

Full Text: [2012\Scientometrics90, 25.pdf](2012/Scientometrics90,%2025.pdf)

Abstract: Assuming the OECD member states as ‘advanced’ nations equipped with basic scientific capacities, the present research addresses the network configuration of these countries in international scientific collaboration and the transformation of this network along with globalization. The result suggests that geographical, linguistic, and economic affinities did not have a meaningful impact on the formation of co-authorship network between ‘advanced’ nations, different from previous research results which claimed their importance on international cooperation. Globalization facilitated by the development of information and transportation technologies was found to influence the co-authorship link between countries, but not to accelerate centralization of the network in the past 15 years. Though the core-periphery pattern still persists, new rising stars, which are Korea and Turkey, have emerged in the co-authorship network among ‘advanced’ nations. These two countries, having a rapid increase in the share of degree centrality from 1995 to 2010, had strategic financial support from the government which stimulated the collaboration between universities and industries and emphasized the development of science and engineering fields.

Keywords: Centrality, Co-Authorship, Co-Authorship Network, Coauthorship, Collaboration, Cooperation, Development, Financial Support, Globalization, Government-University-Industry, Impact, Industries, Information, Innovation, International Scientific Collaboration, Knowledge, Korea, Korea, Network, OECD, Patterns, Reflections, Research, Science, Scientific Collaboration, Technology, Transportation, Triple-Helix, Turkey, Universities

? Choi, S., Park, J.Y. and Park, H.W. (2012), Using social media data to explore communication processes within South Korean online innovation communities. *Scientometrics*, **90** (1), 43-56.

Full Text: [2012\Scientometrics90, 43.pdf](2012/Scientometrics90,%2043.pdf)

Abstract: In order to explore new scientific and innovative communities, analyses based on a technological infrastructure and its related tools, for example, ‘Web of Science’ database for Scientometric analysis, are necessary. However, there is little systematic documentation of social media data and webometric analysis in relation to Korean and broader Asian innovation communities. In this short communication, we present (1) webometric techniques to identify communication processes on the Internet, such as social media data collection and analysis using an API-based application; and (2) experimentation with new types of data visualization using NodeXL, such as social and semantic network analysis. Our research data is drawn from the social networking site, Twitter. We also examine the overlap between innovation communities in terms of their shared members, and then, (3) calculate entropy values for trilateral relationships.

Keywords: Analysis, Communication, Data Collection, Documentation, Indicators, Innovation, Internet, Network, Network Analysis, Research, Science, Social, Social Media, Systematic, Twitter, Visualization, Web of Science, Webometrics

? Hossain, M.D., Moon, J., Kang, H.G., Lee, S.C. and Choe, Y.C. (2012), Mapping the dynamics of knowledge base of innovations of R&D in Bangladesh: Triple helix perspective. *Scientometrics*, **90** (1), 57-83.

Full Text: [2012\Scientometrics90, 57.pdf](2012/Scientometrics90,%2057.pdf)

Abstract: Triple helix (TH) collaborations involving university, industry and government provide a networked infrastructure for shaping the dynamic fluxes of knowledge base of innovations locally and these fluxes remain emergent within the domains. This study maps these emergence dynamics of the knowledge base of innovations of Research & Development (R&D) by exploring the longitudinal trend of systemness within the networked research relations in Bangladesh on the TH model. The bibliometric data of publications collected from the Science Citation Index (SCI), The social sciences and the arts and humanities for analysis of science indicators and the patent data collected from the US Patent Office to analyze the patent success ratio as a measure of innovation within TH domains. The findings show that the network dynamics have varied considerably according to the R&D policies of the government. The collaboration patterns of co-authorship relations in the SCI publications prominently increased, with some variation, from 1996 to 2006. Nevertheless, inter-institutional collaboration negatively influenced by the national science and technology (S&T) research policies in the last 5 years due to their evaluation criteria. Finally, the findings reveal that the R&D system of Bangladesh is still undergoing a process of institutionalizing S&T and has failed to boost its research capacity for building the knowledge base of innovations by neglecting the network effects of TH dynamics.

Keywords: Analysis, Bangladesh, Bangladesh Government, Bibliometric, Capacity, Citation, Co-Authorship, Coauthorship, Collaboration, Collaborations, Evaluation, Indicators, Industry, Innovation, Innovations, Knowledge, Korea, Model, Network, Patent, Policies, Process, Publications, Ratio, Research, Research & Development, Research Capacity, SCI, Science, Science and Technology, Science Citation Index, Sciences, Social, Social Sciences, Success, Systems, Terms, Trend, Triple Helix, University, University-Industry-Government, US

? Khan, G.F., Cho, S.E. and Park, H.W. (2012), A comparison of the Daegu and Edinburgh musical industries: A triple helix approach. *Scientometrics*, **90** (1), 85-99.

Full Text: [2012\Scientometrics90, 85.pdf](2012/Scientometrics90,%2085.pdf)

Abstract: the Triple Helix (TH) model and its indicators are typically used for exploring university-industry-government relations prevalent in knowledge-based economies. However, this exploratory study extends the TH model, together with webometric analysis, to the musical industry to explore the performance of social hubs from the perspective of entropy and the Web. The study investigates and compares two social hubs-Daegu and Edinburgh-from the perspective of musicals by using data obtained through two search engines (Naver.com and Bing.com). The results indicate that although Daegu is somewhat integrated into the local musical industry, it is not yet fully embedded in the international musical industry, even though it is international in scope. In terms of social events (i.e., musicals), unlike Daegu, Edinburgh is fully integrated into both the local and international musical industries and attracts diverse domains over the Internet.

Keywords: Analysis, Daegu, Edinburgh, Indicators, Industries, Industry, Internet, Model, Musical, Social, Social Event, Triple Helix Model

? Kim, H., Huang, M., Jin, F., Bodoff, D., Moon, J. and Choe, Y.C. (2012), Triple helix in the agricultural sector of Northeast Asian countries: A comparative study between Korea and China. *Scientometrics*, **90** (1), 101-120.

Full Text: [2012\Scientometrics90, 101.pdf](2012/Scientometrics90,%20101.pdf)

Abstract: In this paper, the agricultural innovation systems of two Northeast Asian countries-Korea and China-are investigated and compared from the perspective of triple helix innovation. Specifically, the current study examines the nature of agricultural innovation of the two countries and considers agricultural R&D investments and activities as well as the roles of university, industry, and government (UIG), which are the three units comprising the triple helix. As an empirical extension of the qualitative analysis, we collected bibliometric information of agricultural scientific publications from 1990 to 2010 and patent information from 1980 to 2010. By calculating transmission of uncertainty, which indicates collaboration among UIG, this paper tracks the relationship dynamics of the units comprising the triple helix. In addition, we analyze topics in scientific publications and patents in order to observe and compare the subareas that are the focus in the two countries. The findings reveal both commonalities and differences between the two countries, thus providing knowledge of and insights into the agricultural sector.

Keywords: Activities, Agricultural Sector, Analysis, As, Bibliometric, China, Collaboration, Comparative Study, Differences, Entropy, Industry, Information, Innovation, Innovation Systems, Knowledge, Korea, Model, Patent, Publications, Qualitative, R&D, Scientific Publications, South-Korea, Technology, Topics, Triple Helix, University, University-Industry-Government

? Kim, M. and Park, H.W. (2012), Measuring Twitter-based political participation and deliberation in the South Korean context by using social network and Triple Helix indicators. *Scientometrics*, **90** (1), 121-140.

Full Text: [2012\Scientometrics90, 121.pdf](2012/Scientometrics90,%20121.pdf)

Abstract: This study investigates the role of Twitter in political deliberation and participation by analyzing the ways in which South Korean politicians use Twitter. In addition, the study examines the rise of Twitter as user-generated communication system for political participation and deliberation by using the Triple Helix indicators. for this, we considered five prominent politicians, each belonging to one of four political parties, by using data collected in June 2010. The results suggest that non-mainstream, resource-deficient politicians are more likely to take advantage of Twitter’s potential as an alternative means of political participation and that a small number of Twitter users lead political discourse in the Twittersphere. We also examined the occurrence and co-occurrence of politicians’ names in Twitter posts, and then calculate entropy values for trilateral relationships. The results suggest that the level of political deliberation, expressed in terms of the level of balance in the communication system, is higher when politicians with different political orientations form the trilateral relationships.

Keywords: Alternative, Balance, Communication, Indicators, Korea, Lead, Network, Participation, Polarization, Politician, Revolution, Social, Social Network, Triple Helix, Twitter, Web

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Full Text: [2012\Scientometrics90, 141.pdf](2012/Scientometrics90,%20141.pdf)

Abstract: the importance of domestic technology transfer from the public sector (universities and public research institutes) to industry is increasing in the era of science-driven innovation. One of the purposes of a triple helix of evolving university-government-industry relations is how to make use of universities and public research institutes for industrial development. This paper first discusses the means of domestic technology transfer and points out that spinning off companies is one ultimate way to transfer technology, after discussing the relation between a triple helix and technology transfer. Then, this paper presents a unique case of a public research institute before the end of World War II in Japan. This research institute established 63 companies, such as Ricoh and Okamoto. At the same time the institute excelled in science as well. The first two Nobel Prize Laureates of Japan were researchers of this research institute. The paper discusses the management of this institute and its group companies and enabling environment surrounding the institute and its group companies at that time. At the end, the paper draws some lessons for public research institutes and their spin-off companies today.

Keywords: Development, Environment, Industry, Industry Groups, Innovation, Japan, Management, Nobel Prize, Performance, Points, Public Research, Public Research Institutes, Research, Researchers, Science, Spin-Offs, Technology, Technology Transfer, Triple Helix, Universities

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Full Text: [2012\Scientometrics90, 163.pdf](2012/Scientometrics90,%20163.pdf)

Abstract: We trace the structural patterns of co-authorship between Korean researchers at three institutional types (university, government, and industry) and their international partners in terms of the mutual information generated in these relations. Data were collected from the Web of Science during the period 1968-2009. The traditional Triple-Helix indicator was modified to measure the evolving network of co-authorship relations. The results show that international co-authorship relations have varied considerably over time and with changes in government policies, but most relations have become stable since the early 2000s. In other words, the national publication system of Korea has gained some synergy from R&D internationalization during the 1990s, but the development seems to stagnate particularly at the national level: whereas both university and industrial collaborations are internationalized, the cross-connection within Korea has steadily eroded.

Keywords: Co-Authorship, Coauthorship, Collaborations, Development, Globalization, Impact, Industry, Information, Innovation, Innovation, International Collaboration, Korea, Modified, Mutual Information, National Research System, Network, Networks, Policies, Productivity, Publication, Quality, R&D, R&D Internationalization, Research, Research Collaboration, Researchers, Science, Self-Organization, South Korea, Traditional, Triple Helix, University, University-Industry-Government, University-Industry-Government Relationship, Web of Science

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Full Text: [2012\Scientometrics90, 177.pdf](2012/Scientometrics90,%20177.pdf)

Abstract: What factors influence the relationship between the academic research and the knowledge- transfer activities of academics, in particular in ‘catch-up’ countries like South Korea? To address this research question, after first conducting a critical review of existing theoretical and empirical studies, we put forward a conceptual framework based on the twin concepts of ‘synergy’ and ‘separation’ modes, together with a number of accompanying hypotheses. These hypotheses, along with others that emerged from subsequent interviews, are then tested using various statistical models. After taking into account the specific characteristics of scientific communities in rapidly catching-up counties such as Korea, we find that not only are individual characteristics (such as the gender, age, discipline, and patenting activity) of academics significantly related to the generation of a ‘synergy mode’ (i.e. a positive relationship between academic research and knowledge-transfer activities) among academics, but so too are a number of contextual characteristics (e.g. laboratory size and type of university).

Keywords: Academics, Activities, Entrepreneurial, Exploration, Gender, Industry, Innovation Systems, Knowledge, Knowledge Transfer, Korea, Performance, Productivity, Research, Review, Science, Scientists, Separation, South Korea, South-Korea, Statistical, Synergy, Synergy and Separation Modes, Third Mission, Universities, University, University-Research

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Full Text: [2012\Scientometrics90, 201.pdf](2012/Scientometrics90,%20201.pdf)

Abstract: With the rapid development of the Internet, there is a need for evaluating the public visibility of universities on the Internet (i.e., web visibility) in terms of its implications for university management, planning, and governance. The data were collected in December 2010 by using Yahoo, one of the most widely used search engines. Specifically, we gathered “Single Mention” data to measure the number of times that each university was mentioned on websites. In addition, we collected network-based data on Single Mentions. We obtained another data set based on the 2010 world university rankings by Shanghai Jiao Tong University (SJTU). We employed several analytical methods for the analysis, including correlations, nonparametric tests (e.g., the Mann-Whitney test), and multidimensional scaling (MDS). The significant positive correlation between university rankings and web visibility suggests that indicators of web visibility can function as a proxy measure of conventional university rankings. Another distinctive implication can be drawn from the pattern of a disparity in web visibility stemming from the linguistic divide, that is, universities in English-speaking countries dominated the central positions in various network structures of web visibility, whereas those in non-English-speaking countries were located in the periphery of these structures. In this regard, further research linking web visibility to university management, planning, and governance is needed.

Keywords: Academic Web, Analysis, Departments, Development, Disparity, Indicators, Inlinks, Internet, Management, Network, Nonparametric, Patterns, Rankings, Research, Site Interlinking, Telecommunications Network, Universities, University, Visibility, Web Visibility, Webometrics, Websites, World University Rankings

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Full Text: [2012\Scientometrics90, 219.pdf](2012/Scientometrics90,%20219.pdf)

Abstract: the era of open and sustainable innovation has opened and requested new kinds of human resources (HRs) development at Korean universities. Typical academic and vocational education at universities does not effectively work in the age of technological convergence and open innovation. Knowledge and skills for Green growth and rapid technological innovation demand very skilful, broad, and complex competencies of HRs. Competencies for green growth and disruptive innovation are outlined and various methods to increase competencies at Korean universities are suggested in this study. This study explores the kinds of competencies for future society and suggests how university can contribute to cultivate talents for HRs with multi-functional and high competencies. The author takes a sketch of competence and skill structure in Korea, summarized in value chain of competencies among HRs with high competencies, HRs with medium competencies, and HRs with low competencies. Particularly the author addresses innovation oriented fields such as engineering and chemistry/pharmaceuticals, therefore, the picture can be different from typical manufacturing sectors such as automobile and shipbuilding. However, the manufacturing fields are also progressing into innovation centred sectors. and then the author explores the flow of each HRs according to levels and fields and how they affect Korean innovation system.

Keywords: Academic Education, Author, Collaboration, Competencies, Competency, Development, Education, Firms, Growth, Human, Human Resources Circulation, Industry-Government Relations, Innovation, Innovation System, Issue, Knowledge, Korea, Korean Universities, Low, Model, Performance, Skills, Systems, Technological Innovation, Triple-Helix, Universities, University, Us Patents, Value Chain, Vocational, Vocational Education

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Full Text: [2012\Scientometrics90, 231.pdf](2012/Scientometrics90,%20231.pdf)

Abstract: China’s economy and technology have experienced spectacular growth since the Opening-up Policy adopted in 1978. In order to explore the innovation process and development of China, this study examines the inventive activities and the collaboration pattern of university, industry and government (UIG) in China. This study analyzes the Chinese patent data retrieved from the United States Patent and Trademark Office. Three models of UIG relations which represent different triple helix configurations are introduced. According to the property of patent assignee, patent ownership can be divided into three types: individuals, enterprises, and universities and research institutes. Furthermore, enterprises can be classified into state-owned enterprise (SOE), private-owned enterprise (POE) and foreign enterprise (FE). The corresponding relationship of patent ownership with UIG is set up. Through analyzing the issued year, it is found that the inventive activities of China have experienced three developmental phases and have been promoted quickly in recent years. The achievement of innovation activities in China primarily falls on the enterprise, especially FEs and POEs. The innovation strengths of the three development phases have shifted from government to university and research institute and then industry. According to co-patent analysis, it is found that the collaboration between university and industry is the strongest and has been intensified in recent years, but other forms of collaboration among UIG have been weak. In addition, an innovation relation model of China was set up. The evolution process of innovation systems was explored, from etatistic model, followed by improved “laissez-faire” model, and then shifting toward triple helix model.

Keywords: Achievement, Activities, Analysis, China, Collaboration, Development, Evolution, Falls, Fe, Firms, Growth, Industry, Innovation, Model, Patent, Patent Analysis, Policy, Process, Research, Triple Helix, Triple-Helix, United States, Universities, University, University-Industry-Government

? Liang, L.M., Chen, L.X., Wu, Y.S. and Yuan, J.P. (2012), The role of Chinese universities in enterprise-university research collaboration. *Scientometrics*, **90** (1), 253-269.

Full Text: [2012\Scientometrics90, 253.pdf](2012/Scientometrics90,%20253.pdf)

Abstract: In this paper the role of Chinese universities in enterprise-university research collaboration is investigated. This study focuses on a special aspect of the collaboration-co-authored articles. The two cases are analyzed: (1) research collaboration between Baosteel Group Corporation and Chinese universities; (2) research collaboration between China Petroleum & Chemical Corporation and Chinese universities. The co-authorship data over the period 1998-2007 were searched from CNKI database, the largest Chinese publication and citation database. The main findings are as follows: the number of articles co-authored by enterprise and university scientists has been increasing rapidly; the share of co-authored articles has been growing; the authors from universities are more possible to be the first authors; as a whole, enterprise-university co-authored articles tend to receive more citations and get downloaded more frequently; a mathematical orientation emerges in the enterprise-university articles. To reveal and describe such a trend the methods of keywords analysis and co-occurrence analysis are applied. The Chinese government’s policy instruments and substantial supports for pushing and improving enterprise-university research collaboration are introduced and analyzed.

Keywords: Age Structures, Analysis, Authors, China, Chinese Universities, Citation, Citations, Co-Authored Articles, Co-Authorship, Coauthorship, Collaboration, Collnet, Enterprise-University Research Collaboration, Government, Industry, Mathematical Orientation, Network, Patterns, Policy, Publication, Publications, Research, Research Collaboration, Scientific Collaboration, Trend, Triple-Helix, Universities, University

? Shapiro, M.A. and Park, H.W. (2012), Regional development in South Korea: accounting for research area in centrality and networks. *Scientometrics*, **90** (1), 271-287.

Full Text: [2012\Scientometrics90, 271.pdf](2012/Scientometrics90,%20271.pdf)

Abstract: This paper provides a first-ever look at differences of centrality scores (i.e., networks) over time and across research specializations in Korea. This is a much needed development, given the variance which is effectively ignored when Science Citation Index (SCI) publications are aggregated. Three quantitative tests are provided-OLS, two sample t-tests, and unit-root tests-to establish the patterns of centrality scores across Korea over time. The unit-root test is particularly important, as it helps identify patterns of convergence in each region’s centrality scores. for all other geographic regions besides Seoul, Gyeonggi, and Daejeon, there appears to be little promise-at least in the immediate future-of being network hubs. for these top three regions, though, there is a pattern of convergence in three-quarters of all research specializations, which we attribute in part to policies in the mid- and late-1990s.

Keywords: Centrality, China, Citation, Collaboration, Convergence, Density, Development, Differences, Fragmentation, Innovation Systems, Korea, Korean NIS, Network, Network Analysis, Policies, Publications, Quantitative, Regional Development, Research, SCI, Science, Science Citation Index, South Korea, Tests

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Full Text: [2012\Scientometrics90, 289.pdf](2012/Scientometrics90,%20289.pdf)

Abstract: This article examines the incentive structure underlying information transfers received by the three key players of the Triple Helix paradigm: universities, industry, and government research institutes (GRIs). for Korea and Taiwan, which are the cases under analysis here, such an empirical examination has not yet been conducted on a quantitative level. Using a unique dataset of survey responses from a maximum of 325 researchers based in Korean and Taiwanese universities, industry, and GRIs, this article shows that there are some significant differences between and within countries. Most importantly, policy interventions to promote university-industry-GRI interactions impact the degree to which specific information transfers are considered useful. In Korea, formal transfers are emphasized, while both formal and, in particular, informal transfers are emphasized in Taiwan.

Keywords: Analysis, Differences, East Asian Developmental State, Government Relations, Impact, Industry, Information, Information Flows, Information Transfer, Innovation, Interventions, Korea, Organization, Partnerships, Performance, Policy, Public Research, Quantitative, R&D Collaboration, Research, Research-and-Development, Researchers, Science, South-Korea, Survey, Taiwan, Technology Spillovers, Triple Helix, Triple Helix Relations, Triple-Helix, Universities

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Full Text: [2012\Scientometrics90, 311.pdf](2012/Scientometrics90,%20311.pdf)

Abstract: This study analyzed the research productivity of Saudi academics using the triple-helix model. In the analysis, we combined domestic and international collaboration by three sectors-university, industry, and government-according to the model of the triple-helix. This approach produces better results than by simply including international collaboration as fourth sector. According to the analysis, research collaboration in Saudi Arabia which is measured by the triple-helix, was “-” uncertainty (negative T-value) while scientific productivity has been dramatically increasing since the late 2000s. The triple-helix collaboration does not quite differ between domestic collaboration and “domestic and international” collaborations. In our further analysis, we found that technological development was not based on scientific research in Saudi Arabia; rather, the technological development relies on prior technology (patent references). From that point, Saudi Arabia’s current long-term strategic plan to develop a scientific base for a knowledge-based industry is well aligned to the current contexts of Saudi Arabia.

Keywords: Academic Research, Academics, Analysis, Collaboration, Collaborations, Development, Domestic Collaboration, Industry, Innovation, International Collaboration, Japan, Knowledge-Based Innovation, Linkages, Model, Patent, Productivity, Publication, Research, Research Collaboration, Research Productivity, Saudi Arabia, Science, Science Intensity, Scientific Productivity, Scientific Research, South-Korea, Technology Interactions, Triple-Helix, Universities

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Full Text: [2012\Scientometrics90, 331.pdf](2012/Scientometrics90,%20331.pdf)

Abstract: We investigated whether papers on Neglected Tropical Zoonoses are published in journals with lower impact factors than research on diseases with a similar global health burden. We found that, despite being cited equally often, the papers on Neglected Tropical Zoonoses were published in journals with lower impact factors. The scopes of these journals are mainly restricted to Tropical medicine. A clustering analysis revealed that the Lancet, a high impact general medical journal, does pay attention to Neglected Tropical Zoonoses. We discuss our findings in the context of the ongoing discussion about the publishing policies of medical journals. Moreover, our findings stress the importance of recent suggestions that impact factors should not be used for assigning public funding to research (programs) on Neglected Tropical Zoonoses.

Keywords: Analysis, Attention, Behavior, Burden, Burden of Disease, Clustering, Daly, Diseases, Editors, Funding, Health, Impact, Impact Factor, Impact Factors, Journal, Journals, Medical, Medical Journals, Medicine, Neglected Tropical Diseases, Neglected Tropical Zoonoses, Papers, Policies, Publications, Publishing, Quality, Research, Stress, Trends

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Full Text: [2012\Scientometrics90, 343.pdf](2012/Scientometrics90,%20343.pdf)

Abstract: This paper attempts to identify the relationship between co-authorship and the currency of the references and author self-citations in the key journals of environmental engineering. The results show that the self-citation rate of co-authored articles is higher than in single-authored articles. A statistically significant correlation is identified between the numbers of co-authors, the rate of author self-citing and the author self-cited; though it was a low correlation. The value of coefficient correlation between the number of co-authors and the author self-citing rate is slightly higher than that between the number of co-authors and the author self-cited rate, which indicates that the number of co-authors hold a stronger correlation with the self-citing rate than the self-cited rate. Meanwhile, self-citing references are found to be more up-to-date than references to others. The range of publication years of self-citing references is smaller than that of references to others, indicating that researchers tend to preferentially cite their own recent works. There is no significant difference in the latest references between self-citing references and the references to others. It might result from electronic journals that provide an easy access to the most current publications.

Keywords: Articles, Author, Author Self-Citation, Co-Authorship, Coauthorship, Environmental, Impact, Indicators, Journals, Low, Patterns, Publication, Publication Lag, Publications, Researchers, Scientific Collaboration, Self-Citation

? Quental, N. and Lourenco, J.M. (2012), References, authors, journals and scientific disciplines underlying the sustainable development literature: A citation analysis. *Scientometrics*, **90** (2), 361-381.

Full Text: [2012\Scientometrics90, 361.pdf](2012/Scientometrics90,%20361.pdf)

Abstract: This paper identifies the main references, authors and journals influencing the sustainable development literature. The task is accomplished by means of a citation analysis based on the records of ISI Web of Science. We found that the core of sustainability thinking is framed by a pattern of landmark studies published around every 5 years. Only 380 publications have been cited at least ten times. References with the highest influence are those with a global dimension and large diffusion, such as Brundtland Commission’s “Our common future” (1987) and classics such as Meadows’ et al. “Limits to growth” (1972). The list of the most influential references over the period 1960-2005 is dominated by contributions from economics (particularly ecological economics) and environmental science, but includes many other disciplines such as urban planning, political sciences and sociology. References are also made to policy documents such as “Agenda 21”, one of the main outcomes of the Rio Summit in 1992. In analyzing citation trends, we found that classics, because of their high rates of citations per year, seem to have a more enduring and stable influence.

Keywords: Analysis, Authors, Bibliometric Assessment, Citation, Citation Analysis, Citation Trends, Citations, Classics, Development, Diffusion, Ecological Economics, Ecological Economics, Economics, Environmental, Environmental Science, Impact, ISI, ISI Web of Science, Journals, Literature, Outcomes, Policy, Publications, References, Science, Sciences, Sociology, Sustainability Science, Sustainable Development, Trends, Urban, Web of Science, Web-of-Science

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Full Text: [2012\Scientometrics90, 383.pdf](2012/Scientometrics90,%20383.pdf)

Abstract: Citations to published work are gaining increasing prominence in evaluations of the research performance of scientists. Considering the importance accorded to gender issues in South African science, it is surprising that (to our knowledge) no research has as yet ascertained the extent of sex differences in citations to the published work of scientists in this country. Our literature study shows that studies that have been conducted elsewhere tend to neglect in their analyses important gender-related and other factors, such as the sex composition of multi-authored papers and the extent of foreign co-authorship. Against this background, we illustrate the difficulties inherent in measuring the quality aspect of sex-specific research performance by means of an analysis of a dataset of articles (n = 229) that were published between 1990 and 2002 in the field of invasion ecology and in journals included in the Thomson Reuters Web of Science. Each article has at least one South African author address. The results indicate that foreign co-authorship is a better correlate of high citations than the sex of South African authors, and this is true irrespective of whether the annual citation rate or window period is used, whether or not self-citations are excluded, and whether or not the number of authors is controlled for by calculating fractional counts. The paper highlights these and other considerations that are relevant for future gender-focused bibliometric research, both in South Africa and beyond.

Keywords: Africa, American Astronomers, Analysis, Articles, Author, Authors, Bibliometric, Bibliometric Research, Bibliometrics, Citation, Citations, Co-Authorship, Coauthorship, Differences, Gender, h-Index, Impact, Invasion Ecology, Journals, Knowledge, Literature, Neglect, Papers, Psychology, Publication, Quality, Research, Research Performance, Science, Scientific Productivity, Sex, South Africa, Thomson Reuters, Thomson-Reuters, Web of Science, Web-of-Science, Women

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Full Text: [2012\Scientometrics90, 407.pdf](2012/Scientometrics90,%20407.pdf)

Abstract: We introduce an indicator to measure the diffusion of scientific research. Consistent with Stirling’s 3-factor diversity model, the diffusion score captures not only variety and balance, but also disparity among citing article cohorts. We apply it to benchmark article samples from six 1995 Web of Science subject categories (SCs) to trace trends in knowledge diffusion over time since publication. Findings indicate that, for most SCs, diffusion scores steadily increase with time. Mathematics is an outlier. We employ a typology of citation trends among benchmark SCs and correlate this with diffusion scores. We also find that self-cites do not, in most cases, significantly influence diffusion scores.

Keywords: Balance, Citation, Citation Patterns, Citation Trends, Collaborative Networks, Determinants, Diffusion, Diffusion Score, Disparity, Integration Score, Interdisciplinary, Knowledge, Knowledge Diffusion, Knowledge Diffusion, Map, Mathematics, Model, Patent Citations, Publication, Research, Science, Scientific Research, Self-Citations, Subject Category Behavior, Technology, Trends, Web of Science, Web-of-Science

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Full Text: [2012\Scientometrics90, 429.pdf](2012/Scientometrics90,%20429.pdf)

Abstract: Quantifying the relative performance of individual scholars has become an integral part of decision-making in research policy. The objective of the present study was to evaluate if the scholarship rank of Brazilian Council for Scientific and Technological Development (CNPq) researchers in Medicine is consistent with their scientific productivity. The Lattes curricula of 411 researchers (2006-2008) were included in the study. Scholarship category was the variable of interest. Other variables analyzed were: time since receiving the doctorate, teaching activity (undergraduate, master’s and doctoral students), number of articles published, and number of papers indexed by the Institute for Scientific Information (ISI) and Scopus databases. Additional performance indicators included were: citations, h-Index, and m-index. There was a significant difference among scholarship categories regarding number of papers per year, considering the entire scientific career (P < 0.001) or the last 5 years (P < 0.001). There was no significant difference among scholarship categories regarding the number of citations per article in the ISI (Thomson Reuters) database (P = 0.23). There was a significant difference in h-Index among scholarship categories in both databases, i.e. (P < 0.001) and Scopus (P < 0.001). Regarding the m-index, there was a significant difference among categories only in the ISI database (P = 0.012). According to our findings, a better instrument for qualitative and quantitative indicators is needed to identify researchers with outstanding scientific output.

Keywords: Articles, Bibliometric Indicators, Citations, Clinical Medicine, Databases, Decision Making, Decision-Making, Evaluation Purposes, Fields, h Index, h-Index, Health Postgraduate Programs, Health Sciences, Hirsch-Index, Indicators, Interest, ISI, ISI Database, Medicine, Papers, Performance Indicators, Policy, Productivity, Qualitative, Quantitative, Ranking, Research, Research Output, Researchers, Scholarship, Science, Scientific Information, Scientific Output, Scientific Productivity, Scientific Publication Indicators, Scientists, Scopus, Students, Teaching, Thomson Reuters, Thomson-Reuters, Undergraduate

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Full Text: [2012\Scientometrics90, 445.pdf](2012/Scientometrics90,%20445.pdf)

Abstract: In the competitive business environment, early identification of technological opportunities is crucial for technology strategy formulation and research and development planning. There exist previous studies that identify technological directions or areas from a broad view for technological opportunities, while few studies have researched a way to detect distinctive patents that can act as new technological opportunities at the individual patent level. This paper proposes a method of detecting new technological opportunities by using subject-action-object (SAO)-based semantic patent analysis and outlier detection. SAO structures are syntactically ordered sentences that can be automatically extracted by natural language processing of patent text; they explicitly show the structural relationships among technological components in a patent, and thus encode key findings of inventions and the expertise of inventors. Therefore, the proposed method allows quantification of structural dissimilarities among patents. We use outlier detection to identify unusual or distinctive patents in a given technology area; some of these outlier patents may represent new technological opportunities. The proposed method is illustrated using patents related to organic photovoltaic cells. We expect that this method can be incorporated into the research and development process for early identification of technological opportunities.

Keywords: Analysis, Anomaly Detection, Development, Environment, Multidimensional Scaling (MDS), Natural, Outlier Detection, Patent, Patent Analysis, Patent Mining, Process, Research, Research and Development, Research and Development (R&D) Planning, Research-And-Development, Sao, Semantic Patent Similarity, Strategy, Subject-Action-Object (SAO) Structure, Technological Opportunity, Technology, Tool

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Full Text: [2012\Scientometrics90, 463.pdf](2012/Scientometrics90,%20463.pdf)

Abstract: Using the participation in peer reviewed publications of all doctoral students in Quebec over the 2000-2007 period, this paper provides the first large scale analysis of their research effort. It shows that PhD students contribute to about a third of the publication output of the province, with doctoral students in the natural and medical sciences being present in a higher proportion of papers published than their colleagues of the social sciences and humanities. Collaboration is an important component of this socialization: disciplines in which student collaboration is higher are also those in which doctoral students are the most involved in peer-reviewed publications. In terms of scientific impact, papers co-signed by doctorate students obtain significantly lower citation rates than other Quebec papers, except in natural sciences and engineering. Finally, this paper shows that involving doctoral students in publications is positively linked with degree completion and ulterior career in research.

Keywords: Analysis, Bibliometrics, Canada, Citation, Citations, Collaboration, Contribution, Doctorate, Gender, Humanities, Impact, Indicators, Information, Knowledge, Medical, Natural, Natural-Sciences, Papers, Participation, Peer-Reviewed Publications, Postgraduate Education, Publication, Publication Output, Publications, Quebec, Research, Sciences, Scientific Impact, Scientists, Social, Social Sciences, Social-Sciences, Students

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Full Text: [2012\Scientometrics90, 483.pdf](2012/Scientometrics90,%20483.pdf)

Abstract: To better understand the distribution of words in all kinds of syntactic structures, the paper calculates the word distribution in syntactic structures of both English and Chinese. On the basis of the calculation, the article presents the definition of the words’ syntactic distribution complexity. After arranging the Chinese and English words according to their own syntactic distribution complexity, respectively, the Lotka phenomenon can be clearly attested by the results. The discovery made in the paper reveals the law of the words’ syntactic distribution in linguistic studies on one hand and the statistically proven fact that Chinese words’ syntax is much more complex than that of the English after comparing the Lotka phenomenon of both Chinese and English words’ syntactic distribution complexity on the other hand.

Keywords: English, Hand, Law, Lotka Phenomenon, Treebank, Words’ Syntactic Distribution Complexity

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Full Text: [2012\Scientometrics90, 499.pdf](2012/Scientometrics90,%20499.pdf)

Abstract: Two layers of enriched information are constructed for communities: a paper-to-paper network based on shared author relations and a paper-to-paper network based on shared word relations. k-means and VOSviewer, a modularity-based clustering technique, are used to identify publication clusters in the two networks. Results show that a few research topics such as webometrics, bibliometric laws, and language processing, form their own research community; while other research topics contain different research communities, which may be caused by physical distance.

Keywords: Analysis, Author, Author Cocitation Analysis, Bibliometric, Clustering, Community, Detection, Information, Information-Science, Library, Network, Publication, Research, Research Topics, Scholarly Networks, Topic, Topics, Vosviewer, Webometrics

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Full Text: [2012\Scientometrics90, 515.pdf](2012/Scientometrics90,%20515.pdf)

Abstract: Companies should investigate possible patent infringement and cope with potential risks because patent litigation may have a tremendous financial impact. An important factor to identify the possibility of patent infringement is the technological similarity among patents, so this paper considered technological similarity as a criterion for judging the possibility of infringement. Technological similarities can be measured by transforming patent documents into abstracted forms which contain specific technological key-findings and structural relationships among technological components in the invention. Although keyword-based technological similarity has been widely adopted for patent analysis related research, it is inadequate for identifying patent infringement because a keyword vector cannot reflect specific technological key-findings and structural relationships among technological components. As a remedy, this paper exploited a subject-action-object (SAO) based semantic technological similarity. An SAO structure explicitly describes the structural relationships among technological components in the patent, and the set of SAO structures is considered to be a detailed picture of the inventor’s expertise, which is the specific key-findings in the patent. Therefore, an SAO based semantic technological similarity can identify patent infringement. Semantic similarity between SAO structures is automatically measured using SAO based semantic similarity measurement method using WordNet, and the technological relationships among patents were mapped onto a 2-dimensional space using multidimensional scaling (MDS). Furthermore, a clustering algorithm is used to automatically suggest possible patent infringement cases, allowing large sets of patents to be handled with minimal effort by human experts. The proposed method will be verified by detecting real patent infringement in prostate cancer treatment technology, and we expect this method to relieve human experts’ work in identifying patent infringement.

Keywords: Analysis, As, Cancer, Clustering, Human, Impact, Litigation, Measurement, Multidimensional Scaling, Natural Language Processing, NLP, Patent, Patent Analysis, Patent Litigation, Patent Mining, Patent Risk, Prostate Cancer, Research, Research-and-Development, SAO, Subject-Action-Object, Technology, Treatment, Vector, Visualization

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Full Text: [2012\Scientometrics90, 531.pdf](2012/Scientometrics90,%20531.pdf)

Abstract: for a long time, rankings overused in evaluating Chinese universities’ research performance. The relationship between research production and research quality hasn’t been taken seriously in ranking systems. Most university rankings in China put more weight on research production rather than research quality. Recently, the developmental strategy of Chinese universities has shifted from ‘quantity’ to ‘quality’. As a result, a two-dimensional approach was developed in this article to balance ‘quantity’ and ‘quality’. The research production index and the research quality index were produced to locate research universities (RU) from Mainland China, Hong Kong (HK) and Taiwan (TW) in the two-dimensional graph. Fifty-nine RU were classified into three categories according to their locations, which indicated the relevant level of research performance. University of Hong Kong, National Taiwan University, Tsing Hua University and Peking University appeared to be leading universities in research performance. The result showed that the mainland universities were generally of higher research production and lower research quality than HK and TW universities, and proved that the merging tides of Chinese universities enlarged their research production while causing a low level of research quality as well.

Keywords: A Two-Dimensional Approach, As, Balance, China, Chinese Universities, Citation, Evaluation, Hong Kong, Impact, Index, Journals, Low, Output, Performance, Performance Evaluation, Quality, Quantity, Ranking, Rankings, Research, Research Performance, Research Production, Science, Strategy, System, Taiwan, Universities, University

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Full Text: [2012\Scientometrics90, 543.pdf](2012/Scientometrics90,%20543.pdf)

Abstract: Authority generally relates to expertise, recognition of official status of a source, and the reputation of the author and publisher. As the Internet has become a ubiquitous tool in modern science and scholarly research, evaluating the authority of free online scholarly information is becoming crucial. However, few empirical studies have focused on this issue. Using a modified version of Jim Kapoun’s “Five criteria for evaluating web pages” as framework, this research selected 32 keywords from eight disciplines, inputted them into three search engines (Google, Yahoo and AltaVista) and used Analytic Hierarchy Process to determine the weights. The first batches of results (web pages) from keyword searching were selected as evaluation samples (in the two search phases, the first 50 and 10 results were chosen, respectively), and a total of 3,134 samples were evaluated for authority based on the evaluation framework. The results show that the average authority value for free online scholarly information is about 3.63 (out of five), which is in the “fair” level (3 a parts per thoUSAnd currency sign Z < 4) (Z is the value assigned to each sample). About 41% of all samples collected provide more authoritative scholarly information. Different domain names, resource types, and disciplines of free online scholarly information perform differently when scored in terms of authority. In conclusion, the authority of free online scholarly information has been unsatisfactory, and needs to be improved. Furthermore, the evaluation framework and its application developed herein could be a useful instrument for librarians, researchers, students, and the public to select Internet resources.

Keywords: As, Assessment, Author, Authority, Cognitive Authority, Credibility, Criteria, Evaluation, Evaluation Tools, Free Online Scholarly Information, Health Information, Information, Internet, Modified, Quality, Recognition, Research, Researchers, Resources, Science, Students, Web Sites, World

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Full Text: [2012\Scientometrics90, 561.pdf](2012/Scientometrics90,%20561.pdf)

Abstract: Nanotechnology is a promising research domain with potential and enormous economic value. It is widely acknowledged that nanotechnology, as an emerging and rapidly evolving field with the multidisciplinary nature, is perceived as proximate fields of science and technology. This study provides a further description of the relationship between science and technology at macro-level. The core objective in this paper is to qualify and assess the dynamic associations between scientific activity and technological output. We attempt to illustrate how science and technology relate one another in the case of innovation system. In this paper, we take advantage of the simultaneous equations model to analyze the reciprocal dependence between science and technology. Previous studies about the relationship between science and technology infrequently adopt this model. Our result shows that there is no significant connection between R&D expenditures and actual practices of research in terms of publications and patents for the universities in zone 1 and 2. Our results provoke questions about whether policy-makers should appropriately reallocate scientific and technological resources and other R&D expenditures so as to obtain optimal allocation for resource and achieve maximum results with little effort for scientific research and innovation performance.

Keywords: China, Dynamic Relation, Fields of Science, Growth, Indicators, Industry, Innovation, Innovation System, Knowledge, Model, Modeling, Nanoscience, Nanotechnology, Patents, Performance, Publications, R&D, Research, Science, Science and Technology, Scientific Research, Search, Simultaneous Equations Model, Technology, Universities

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Full Text: [2012\Scientometrics90, 581.pdf](2012/Scientometrics90,%20581.pdf)

Abstract: This article analyzes the relationship between private and social value of patents, comparing discrete and cumulative innovation. Indicators of the social value of patents are known to be less correlated with measures of private value in technological fields where innovation is more cumulative. We test whether this is because the link between private and social value is weaker, or because the indicators are less informative of the underlying concepts of value. Furthermore we analyze whether these differences between technological fields are really due to cumulativeness. We observe cumulative innovation by making use of databases of patents declared essential for technological standards. Using factor analysis and a set of patent quality indicators, we test the relevance of social value for predicting the private value of a patent measured by renewal and litigation. Whereas we establish a robust and significant link for discrete technologies; neither common factors nor any indicator of social value allows predicting the private value of essential, very cumulative patents. Nevertheless, this result cannot be generalized to whole technological classes identified as “complex” by the literature.

Keywords: Analysis, Citations, Complex Technologies, Cumulative Innovation, Databases, Differences, Factor Analysis, Factor-Analysis, Indicators, Indicators, Innovation, Literature, Patent, Patent Quality, Patent Value, Quality, Quality Indicators, Renewal, Social, Standardization, Standards

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Full Text: [2012\Scientometrics90, 607.pdf](2012/Scientometrics90,%20607.pdf)

Abstract: In our previous work (Scientometrics 87:293-301, 2011), a numerical model of over-competitive research funding in “peer-group-assessed-grant-based-funding-system” was proposed and the process was firstly investigated quantitatively. The simulation results show that the mainstream of a very complicated research topic could obtain monopoly supremacy with only the aid of the mechanism the model described. Here, the numbers of publications of cosmology back to 1950 are utilized to empirically test this positive feedback mechanism. The development of three main theories of cosmology, Big Bang, Steady State and Plasma Universe, are revisited. The later two, which are non-mainstream opinions, both state in their peer reviewed papers, that their theories fit the phenomena that support the standard theory. The ratios of publications of the orthodox theory, Big Bang, approximately satisfy the numeric calculating results of our model. The reason for the discrepancy between the model and actual situation is discussed. A further question about the controversy is presented.

Keywords: Cosmology, Cosmology, Creation, Curvature, Development, Evolution, Excessive Competition, Feedback, Funding, Innovation, Mainstream, Mechanism, Model, Papers, Peer Review, Peer-Review, Plasma Universe, Process, Publications, Relativity, Research, Research Funding, Review, Science, Scientometrics, Simulation, Space, Theories, Theory, World

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Full Text: [2012\Scientometrics90, 617.pdf](2012/Scientometrics90,%20617.pdf)

Abstract: In computer science, as opposed to many other disciplines, papers published in conference and workshop proceedings count as formal publications when evaluating the scholarship of an academic. We consider the relationship between high quality journals and conferences in the computer vision (CV) subfield of computer science. We determined that 30% of papers in the top-3 CV journals base their work on top-3 conference papers by the same authors (which we call priors (See “Methods” section for the definition of a prior)). Journal papers with priors are significantly more cited than journal papers without priors. Also the priors themselves are cited more than other papers from the conferences. for a period of 3-5 years after the journal paper publication, the priors receive more citations than the follow-up journal paper. After that period, the journal paper starts receiving most of the citations. Furthermore, we found that having the prior conference paper did not make it any easier (faster) to publish in a journal. We also surveyed journal authors and based on their answers and the priors analysis, we discovered that authors seem to be divided into different groups depending on their preferred method of publication.

Keywords: Analysis, Author Survey, Authors, Bibliometrics, Citations, Computer, Computer Science, Computer Vision, Conference Proceedings, Follow-up, Journal, Journal Papers, Journals, Papers, Publication, Publications, Publishing, Quality, Scholarship, Science

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Full Text: [2012\Scientometrics90, 631.pdf](2012/Scientometrics90,%20631.pdf)

Abstract: We combine two seemingly distinct perspectives regarding the modeling of network dynamics. One perspective is found in the work of physicists and mathematicians who formally introduced the small world model and the mechanism of preferential attachment. The other perspective is sociological and focuses on the process of cumulative advantage and considers the agency of individual actors in a network. We test hypotheses, based on work drawn from these perspectives, regarding the structure and dynamics of scientific collaboration networks. The data we use are for four scientific disciplines in the Slovene system of science. The results deal with the overall topology of these networks and specific processes that generate them. The two perspectives can be joined to mutual benefit. Within this combined approach, the presence of small-world structures was confirmed. However preferential attachment is far more complex than advocates of a single autonomous mechanism claim.

Keywords: Bibliometry, Co-Authorship Network, Collaboration, Cumulative Advantage, Impact, Longitudinal Network Analysis, Mechanism, Model, Modeling, Network, Networks, Preferential Attachment, Process, Processes, Science, Scientific Collaboration, Small World, Stochastic Actor Based Model

? Ma, T.C., Wang, G.F., Dong, K. and Cao, M.K. (2012), The Journal’s Integrated Impact Index: A new indicator for journal evaluation. *Scientometrics*, **90** (2), 649-658.

Full Text: [2012\Scientometrics90, 649.pdf](2012/Scientometrics90,%20649.pdf)

Abstract: Journal impact factor (JIF) has been used for journal evaluation over a long time, but also accompanied by the continuing controversy. In this study, a new indicator, the Journal’s Integrated Impact Index (JIII) has been proposed for journal evaluation. In the JIII, one journal’s average citations per paper, total citations, and all journals’ average level of average citations per paper and total citations have been used to characterize the integrated impact of journals. Some contrastive analyses were carried out between JIII and JIF. The results show some interesting properties of the new indicator, and also reveal some relevant relationships among JIII, JIF, and other bibliometric indicators.

Keywords: Bibliometric, Bibliometric Indicators, Bibliometrics, Citation, Citations, Evaluation, Impact, Impact Factor, Indicators, Journal, Journal Impact, Journal Impact Factor, Journal’s Integrated Impact Index, Journals

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Full Text: [2012\Scientometrics90, 659.pdf](2012/Scientometrics90,%20659.pdf)

Abstract: Visualization of subject structure based on co-word analysis is used to explore the concept network and developmental tendency in certain field. There are many visualization methods for co-word analysis. However, integration of results by different methods is rarely reported. This article addresses the knowledge gap in this field of study. We compare three visualization methods: Cluster tree, strategy diagram and social network maps, and integrate different results together to one result through co-word analysis of medical informatics. The three visualization methods have their own character: cluster trees show the subject structure, strategic diagrams reveal the importance of topic themes in the structure, and social network maps interpret the internal relationship among themes. Integration of different visualization results to one more readable map complements each other. and it is helpful for researchers to get the concept network and developmental tendency in a certain field.

Keywords: Analysis, Character, Cluster Tree, Co-Word Visualization, Integration, Knowledge, Medical, Medical Informatics, Network, Patterns, Researchers, Retrieval, Social, Social Network, Social Network Map, Strategic Diagram, Strategy, Visualization

? Colliander, C. and Ahlgren, P. (2012), Experimental comparison of first and second-order similarities in a scientometric context. *Scientometrics*, **90** (2), 675-685.

Full Text: [2012\Scientometrics90, 675.pdf](2012/Scientometrics90,%20675.pdf)

Abstract: the measurement of similarity between objects plays a role in several scientific areas. In this article, we deal with document-document similarity in a scientometric context. We compare experimentally, using a large dataset, first-order with second-order similarities with respect to the overall quality of partitions of the dataset, where the partitions are obtained on the basis of optimizing weighted modularity. The quality of a partition is defined in terms of textual coherence. The results show that the second-order approach consistently outperforms the first-order approach. Each difference between the two approaches in overall partition quality values is significant at the 0.01 level.

Keywords: Bibliographic Coupling, Cluster Analysis, Cocitation Analysis, Document-Document Similarity, First Order, Jaccard Index, Measurement, Pearsons Correlation-Coefficient, Proximity-Measures, Quality, Requirements, Resemblance, Retrieval, Saltons Cosine, Science, Science Mapping, Second-Order, Similarity Order, Statistics, Textual Coherence

? Uddin, S., Hossain, L., Abbasi, A. and Rasmussen, K. (2012), Trend and efficiency analysis of co-authorship network. *Scientometrics*, **90** (2), 687-699.

Full Text: [2012\Scientometrics90, 687.pdf](2012/Scientometrics90,%20687.pdf)

Abstract: Although co-authorship in scientific research has a long history the analysis of co-authorship network to explore scientific collaboration among authors is a relatively new research area. Studies of current literature about co-authorship networks mostly give emphasis to understand patterns of scientific collaborations, to capture collaborative statistics, and to propose valid and reliable measures for identifying prominent author(s). However, there is no such study in the literature which conducts a longitudinal analysis of co-authorship networks. Using a dataset that spans over 20 years, this paper attempts to explore efficiency and trend of co-authorship networks. Two scientists are considered connected if they have co-authored a paper, and these types of connections between two scientists eventually constitute co-authorship networks. Co-authorship networks evolve among researchers over time in specific research domains as well as in interdisciplinary research areas. Scientists from diverse research areas and different geographical locations may participate in one specific co-authorship network whereas an individual scientist may belong to different co-authorship networks. In this paper, we study a longitudinal co-authorship network of a specific scientific research area. By applying approaches to analyze longitudinal network data, in addition to known methods and measures of current co-authorship literature, we explore a co-authorship network of a relatively young and emerging research discipline to understand its trend of evolution pattern and proximity of efficiency.

Keywords: Analysis, Authors, Co-Authorship, Co-Authorship Network, Co-Authorship Networks, Coauthorship, Coauthorship Networks, Collaboration, Collaborations, Efficiency, Efficiency Analysis, Evolution, History, Impact, Inter-Country Collaboration, International Scientific Collaboration, Literature, Network, Patterns, Research, Researchers, Scientific Collaboration, Scientific Research, Scientists, Statistics, Trend, Trend Analysis

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Full Text: [2012\Scientometrics90, 701.pdf](2012/Scientometrics90,%20701.pdf)

Abstract: In this article I introduce a new indicator that measures the presence of a higher education system in the Shanghai Jiao Tong Academic Ranking of World Universities (ARWU). First, the benefits of introducing such a measure and the drawbacks associated with the possible choices of the indicator are discussed. To analyze the drawbacks, the sample of countries with presence in ARWU is split into two groups of small and large world’s GDP share. A raw indicator based upon the sum of the scores of all the universities from a country divided by its world’s GDP share shows a noticeable bias in favor of small countries, so a one-way between-groups analysis of variance is conducted to help in canceling the bias. That leads to the introduction of a new aggregate indicator that can be computed in a very simple fashion. A discussion of the performance of higher education systems using this new indicator closes the paper.

Keywords: Analysis, ARWU, Bias, Countries, Education, GDP, Gross Domestic Product, Higher Education, Indicator, Ranking, Shanghai, Universities, University, University System

? Jaric, I. and Gessner, J. (2012), Analysis of publications on sturgeon research between 1996 and 2010. *Scientometrics*, **90** (2), 715-735.

Full Text: [2012\Scientometrics90, 715.pdf](2012/Scientometrics90,%20715.pdf)

Abstract: Sturgeon species are among the commercially most valuable and the most endangered groups of fish. To assess the existing literature published within the field of sturgeon research over the past 15 years (1996-2010) we applied a bibliometric approach, in order to identify patterns and trends of the published research in this field. The analysis was performed based upon articles obtained from the ISI Web of Knowledge online database. The results revealed that although all 27 sturgeon species have been objects of the research, species that are endangered or facing a high probability of extinction have received disproportionately less attention. White sturgeon (Acipenser transmontanus) was the most frequently studied species, but it was recently surpassed by Persian sturgeon (A. persicus). Early life phases have been among the central objects of the research, and genetics, especially the use of microsatellite DNA, is becoming increasingly popular and had the highest impact. Research related to aquaculture was prominent, while the research related to hybrids (as a commodity of aquaculture production) was decreasing in popularity. Papers dealing with conservation issues were most frequently focused on European sturgeon (A. sturio). A steady increase in the number of published articles over time was observed. However, the overall citation rate declined significantly over time. During the period reviewed, the sturgeon research published in peer reviewed journals dominantly originated from the USA and EU. Nevertheless, considering the current trend in output, it is very likely that the Asian countries, mainly Iran and China, will surpass them within the next 5-10 years. International and inter-institutional collaboration both tended to increase the impact of the research. Stimulation and improvement of the international cooperation should be considered as future priorities.

Keywords: Acipenser, Analysis, Articles, Attention, Bibliometric, Bibliometry, China, Citation, Citation Analysis, Collaboration, Conservation, Cooperation, Countries, DNA, Ecological Economics, EU, Fish, Genetics, Huso, Impact, Index, International, Iran, ISI, Journals, Knowledge, Literature, Priorities, Pseudoscaphirhynchus, Publications, Published Research, Research, Scaphirhynchus, Science, Scientific-Research, Trend, Trends, USA, Web of Knowledge

? Prathap, G. (2012), A comment to the papers by Opthof and Leydesdorff, Scientometrics, 88, 1011-1016, 2011 and Waltman et al., Scientometrics, 88, 1017-1022, 2011. *Scientometrics*, **90** (2), 737-743.

Full Text: [2012\Scientometrics90, 737.pdf](2012/Scientometrics90,%20737.pdf)

Abstract: In this comment, we re-evaluate an example using a “thermodynamic” paradigm to show how bibliometrics can incorporate normalization into the evaluative process. The motivation for this is the recent exchange in the pages of this journal from two groups that have taken different positions on how normalization should be done.

Keywords: Bibliometric Indicators, Bibliometrics, Energy, Exergy, h-Index, Index, Indicators, Journal, Motivation, Normalization, Output, P-Index, Papers, Performance, Process, Quality, Quantity, Quasity, Scientometrics

? Leydesdorff, L. and Opthof, T. (2012), A rejoinder on energy versus impact indicators. *Scientometrics*, **90** (2), 745-748.

Full Text: [2012\Scientometrics90, 745.pdf](2012/Scientometrics90,%20745.pdf)

Abstract: Citation distributions are so skewed that using the mean or any other central tendency measure is ill-advised. Unlike G. Prathap’s scalar measures (Energy, Exergy, and Entropy or EEE), The Integrated Impact Indicator (I3) is based on non-parametric statistics using the (100) percentiles of the distribution. Observed values can be tested against expected ones; impact can be qualified at the article level and then aggregated.

Keywords: Charts, Citation, Citation Analysis, Citation Distributions, EEE, Energy, Entropy, Exergy, I3, Impact, Indicator, Indicators, Integration, Journals, Non-Parametric Statistics, Nonparametric, Paper, Quality, Relative Indicators, Scalar, Science, Scientometrics, Statistics, Terms

? Gao, X. and Guan, J.C. (2012), Network model of knowledge diffusion. *Scientometrics*, **90** (3), 749-762.

Full Text: [2012\Scientometrics90, 749.pdf](2012/Scientometrics90,%20749.pdf)

Abstract: This paper introduces a diffusion network model: an individual-citation-based directed network model with a time dimension, as a potentially useful approach to capture the diffusion of research topics. The approach combines social network analysis, network visualization and citation analysis to discuss some of the issues concerning the spread of scientific ideas. The process of knowledge diffusion is traced from a network point of view. Using research on the h-Index as a case study, we built detailed networks of individual publications and demonstrated the feasibility of applying the diffusion network model to the spread of a research. The model shows the specific paths and associations of individual papers, and potentially complementing issues raised by epidemic models, which primarily deal with average properties of entire scientific communities. Also, based on the citation-based network, the technique of main path analysis identified the articles that influenced the research for some time and linked them into a research tradition that is the backbone of the h-Index field.

Keywords: Analysis, Articles, Citation, Citation Analysis, Citation Network, Diffusion, Feasibility, Fields, h Index, h-Index, h-Index, Knowledge, Knowledge Diffusion, Model, Network, Network Analysis, Network Model, Papers, Process, Publications, Research, Research Topics, Social, Social Network, Social Network Analysis, Topics, Visualization

? Tol, R.S.J. (2012), Shapley values for assessing research production and impact of schools and scholars. *Scientometrics*, **90** (3), 763-780.

Full Text: [2012\Scientometrics90, 763.pdf](2012/Scientometrics90,%20763.pdf)

Abstract: Performance measures of individual scholars tend to ignore the context. I introduce contextualised metrics: cardinal and ordinal pseudo-Shapley values that measure a scholar’s contribution to (perhaps power over) her own school and her market value to other schools should she change job. I illustrate the proposed measures with business scholars and business schools in Ireland. Although conceptually superior, the power indicators imply a ranking of scholars within a school that is identical to the corresponding conventional performance measures. The market value indicators imply an identical ranking within schools and a very similar ranking between schools. The ordinal indices further contextualise performance measures and thus deviate further from the corresponding conventional indicators. As the ordinal measures are discontinuous by construction, a natural classification of scholars emerges. Averaged over schools, the market values offer little extra information over the corresponding production and impact measures. The ordinal power measure indicates the robustness or fragility of an institution’s place in the rank order. It is only weakly correlated with the concentration of publications and citations.

Keywords: As, Citations, Contribution, Departments, Departments, Economics Literature, Impact, Index, Indicators, Individuals, Individuals, Information, Management, Metrics, Natural, Performance, Performance Measures, Power, Publications, Ranking, Rankings, Research, Research Output, Research Performance, Research Production, Robustness, School, Schools, Scientific-Research

? Caputo, C., Requena, J. and Vargas, D. (2012), Life sciences research in Venezuela. *Scientometrics*, **90** (3), 781-805.

Full Text: [2012\Scientometrics90, 781.pdf](2012/Scientometrics90,%20781.pdf)

Abstract: the development, current status and dynamics of research in biology related domains in Venezuela is examined through the study of demographic, academic distribution, scientific output and productivity, for two sets of investigators that fit a profile outlined for life sciences researchers or scientists. The first group corresponds to biologists extracted from the ranks of the official Program for the Promotion of Researchers (PPI), The other, pulled out from those that publish in biologically oriented journals, indexed by the Institute of Scientific Information (ISI). Both sets of biology scientists, PPI researchers or Web of Science/ISI scientists, show similar characteristics. The number (absolute and relative) of PPI member that are supposedly dedicated to biological research but do not publish in ISI indexed journals was found to be very similar to the number of supposedly non biologist members of the PPI Program that do publish biological articles in ISI indexed journals. There is also an ongoing feminization process, of academic hierarchies. Female biologists predominate in lower academic ranks and in research cadres, as many as 70% in some areas of biology. This contrasts with the pattern of male predominance observed during the second half of twentieth century in the country. Productivity of Venezuelan biologists seems to depend on gender; men are more productive that their female counterparts. From the bibliometric standpoint, it is found that, on average, 30% of all publications produced in the country are related to biology (or life sciences). The Venezuelan biologists network qualifies neither as a ‘Small World’ nor it follows the ‘Scale Free’ model. Finally, in a country rich in renewable natural resources, it seems that the Venezuelan community of researchers in biology is in decline, despite the fact that they constitute its most productive group of investigators.

Keywords: Age, Articles, Bibliometric, Biology, CSIR, Development, Female, Gender, Gender, ISI, Journals, Life Sciences, Male, Men, Model, Natural, Network, Networks, Process, Productivity, Productivity, Profile, Publications, Research, Researchers, Scale, Sciences, Scientific Community, Scientific Information, Scientific Output, Venezuela

? Lou, Y.C. and Lin, H.F. (2012), Estimate of global research trends and performance in family therapy in Social Science Citation Index. *Scientometrics*, **90** (3), 807-823.

Full Text: [2012\Scientometrics90, 807.pdf](2012/Scientometrics90,%20807.pdf)

Abstract: the main purpose of this study was to evaluate the global progress and quantitative assessment of current research trends on family therapy, using a bibliometric approach and exploring related literature in the Social Science Citation Index (SSCI) database from 1992 to 2009. This study used the bibliometric arrropach to learn about the subject categories, core journals, top countries and leading research institutes in publication, most frequently used author keywords, and most frequently used KeyWords Plus. Also, this study used a “word cluster analysis” method to locate research hot topics. A majority of the subject categories were located in clinical psychology and family studies. The core journals for family therapy located in Journal of Marital and Family Therapy, Contemporary Family Therapy, and Journal of Family Therapy. The US ranked as the top country of world articles with the highest h-Index, followed distantly by the UK and Germany. The leading research institutes were Purdue University, University of Miami, and Brigham Young University. “Adolescents” and “adolescent” were highly used words in article titles. Next, the top three most frequently used author keywords were “anorexia nervosa”, “adolescents”, and “psychotherapy”. Finally, the top three most frequently used KeyWords Plus were “psychotherapy”, “children”, and “intervention”. Based on “word cluster analysis” to determine the research hotspots, the research hot topics of family therapy fall into three categories: treated subjects, treated matters, and treatment issues. The research trend in family therapy seems to involve the therapist often treating adolescents or children for eating disorders, substance abuse, depression, or schizophrenia. During treatment or therapy, therapists and researchers must pay attention to the issues of gender, training, and therapeutic alliance.

Keywords: Adolescent Anorexia-Nervosa, Adolescents, Articles, Assessment, Attention, Author, Bibliometric, Bibliometric Analysis, Children, Citation, Clinical Psychology, Cognitive-Behavior Therapy, Countries, Depression, Eating Disorders, Family, Family Therapy, Gender, Germany, h Index, h-Index, Journal, Journals, Juvenile-Offenders, Literature, Multisystemic Therapy, Psychosocial Treatments, Publication, Quantitative, Randomized Clinical-Trial, Research, Research Hotspots, Research Trend, Research Trends, Researchers, Schizophrenia, Science, Science Citation Index, Scientometrics, Short-Term, Social Science, SSCI, Substance Abuse, Substance-Abuse, Therapy, Topics, Training, Treatment, Treatment Outcomes, Trend, Trends, UK, University, US, Web of Science

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Full Text: [2012\Scientometrics90, 825.pdf](2012/Scientometrics90,%20825.pdf)

Abstract: This study applies the entropy-based patent measure to explore the influences of related technological diversification (RTD) and unrelated technological diversification (UTD) upon technological competences and firm performance. The results show that RTD has a monotonically positive effect on technological competences and UTD has an inverse U-shaped effect on technological competences. Besides, the results demonstrate that the extent of the positive influence of RTD upon technological competences is better than that of UTD upon technological competences. If American pharmaceutical companies would like to adopt technological diversification, this study suggests that they should undertake RTD, rather than UTD. In addition, this study finds out that technological competences mediate the relationship between firm performance and both of RTD and UTD. Although RTD and UTD cannot significantly influence firm performance directly, they can positively affect firm performance indirectly through technological competences.

Keywords: Absorptive-Capacity, Citations, Competitive Advantage, Core Competences, Corporate Performance, Count Data, Empirical-Analysis, Entropy Measure, Firm Performance, Innovation, Market Value, Patent, Pharmaceutical, Pharmaceutical Companies, Product Development, Related Technological Diversification, Technological Competences, Unrelated Technological Diversification

? Honekopp, J. and Khan, J. (2012), Future publication success in science is better predicted by traditional measures than by the h Index. *Scientometrics*, **90** (3), 843-853.

Full Text: [2012\Scientometrics90, 843.pdf](2012/Scientometrics90,%20843.pdf)

Abstract: Although the use of bibliometric indicators for evaluations in science is becoming more and more ubiquitous, little is known about how future publication success can be predicted from past publication success. Here, we investigated how the post-2000 publication success of 85 researchers in oncology could be predicted from their previous publication record. Our main findings are: (i) Rates of past achievement were better predictors than measures of cumulative achievement. (ii) A combination of authors’ past productivity and the past citation rate of their average paper was most successful in predicting future publication success (R-2 approximate to 0.60). (iii) This combination of traditional bibliographic indicators clearly outperformed predictions based on the rate of the h Index (R-2 between 0.37 and 0.52). We discuss implications of our findings for views on creativity and for science evaluation.

Keywords: Achievement, Authors, Bibliographic, Bibliometric, Bibliometric Indicators, Bibliometry, Citation, Creativity, Evaluation, h Index, h-Index, Indicators, Judgment, Model, Oncology, Predictors, Productivity, Publication, Research Performance, Researchers, Science, Standard Bibliometric Measures, Success, Traditional, Variants

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Full Text: [2012\Scientometrics90, 855.pdf](2012/Scientometrics90,%20855.pdf)

Abstract: Through analysis of problems of keywords and indexes used in co-word analysis, we find that the key to solving these problems is to integrate experts’ knowledge into co-word analysis. Therefore, this paper proposes a new co-word analysis: semantic-based co-word analysis which can integrate experts’ knowledge into co-word analysis effectively. The performance of this method has been proved to be very good. It can solve problems on keywords and indexes used in co-word analysis effectively and can improve the veracity of co-word analysis. Using this method, the research filed of “human intelligence network” in China has been analyzed. According to the analysis result, we point out that there are four research focuses on it in China now. They are “methods and theories of human intelligence network”, “human intelligence network”, “competitive intelligence system (CIS for short)”, “the construction and visualization of human intelligence network”. The findings of this study not only advance the state of co-word analysis research but also shed light on future research directions.

Keywords: Analysis, Bibliometric Analysis, China, Co-Word Analysis, Hierarchical Cluster Analysis, Human, Human Intelligence Network, Indexes, Knowledge, Research, Science, Theories, Topic Map, Visualization

? Ardanuy, J. (2012), Scientific collaboration in Library and Information Science viewed through the Web of Knowledge: the Spanish case. *Scientometrics*, **90** (3), 877-890.

Full Text: [2012\Scientometrics90, 877.pdf](2012/Scientometrics90,%20877.pdf)

Abstract: This study analyzes the level of co-authorship of Spanish research in Library and Information Science (LIS) until 2009, the chronological development that has taken place, and the level of local, domestic and international cooperation. This bibliometric study was made using the data retrieved from the Web of Knowledge (WoK) following a dual strategy-on the one hand through the filter of the category Information Science & Library Science, and on the other hand through a subject search. In this way a significant number of works has been retrieved, some of which are in journals indexed in SCI or A&HCI and not in the SSCI. The results show a significant increase in all co-authorship, including publications in English and those involving international collaboration. As with the increase in Spanish participation in social science (WoS), this growth, coupled with the significant increase in Spanish scientific production in the area of LIS, suggests that the discipline in Spain has entered a more mature phase-although so far it has focused particularly on bibliometric studies.

Keywords: 20th-Century, As, Authorship, Bibliometric, Bibliometric Studies, Bibliometric Study, Bibliometrics, China, Co-Authorship, Coauthorship, Collaboration, Cooperation, Development, English, Filter, Growth, Hand, Information Science, International Collaboration, Journal Literature, Journals, Knowledge, Library and Information Science, LIS, Participation, Patterns, Publications, Quality, Research, SCI, Science, Scientific Collaboration, Scientific Production, Social, Spain, SSCI, University, Web of Knowledge

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Full Text: [2012\Scientometrics90, 891.pdf](2012/Scientometrics90,%20891.pdf)

Abstract: Concerns that the growing competition for funding and citations might distort science are frequently discussed, but have not been verified directly. of the hypothesized problems, perhaps the most worrying is a worsening of positive-outcome bias. A system that disfavours negative results not only distorts the scientific literature directly, but might also discourage high-risk projects and pressure scientists to fabricate and falsify their data. This study analysed over 4,600 papers published in all disciplines between 1990 and 2007, measuring the frequency of papers that, having declared to have “tested” a hypothesis, reported a positive support for it. The overall frequency of positive supports has grown by over 22% between 1990 and 2007, with significant differences between disciplines and countries. The increase was stronger in the social and some biomedical disciplines. The United States had published, over the years, significantly fewer positive results than Asian countries (and particularly Japan) but more than European countries (and in particular the United Kingdom). Methodological artefacts cannot explain away these patterns, which support the hypotheses that research is becoming less pioneering and/or that the objectivity with which results are produced and published is decreasing.

Keywords: Animal Behavior, Behavioral Ecology, Bias, Biomedical, Citation, Citations, Competition, Countries, Differences, Frequency, Funding, Japan, Journals, Literature, Misconduct, Papers, Pressure, Publication, Publication Bias, Publish, Publish Or Perish, Replication Research, Research, Research Evaluation, Science, Scientific Literature, Scientific Publication, Social, Statistical Power, United Kingdom, United States

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Full Text: [2012\Scientometrics90, 905.pdf](2012/Scientometrics90,%20905.pdf)

Abstract: the first part of the paper deals with the assessment of international databases in relation to the number of historical publications (representation and relevance in comparison with the model database). The second part is focused on providing answer to the question whether historiography is governed by similar bibliometric rules as exact sciences or whether it has its own specific character. Empirical database for this part of the research constituted the database prepared ad hoc: the Citation Index of the History of Polish Media (CIHPM). Among numerous typically historical features the main focus was put on: linguistic localism, specific character of publishing forms, differences in citing of various sources (contributions and syntheses) and specific character of the authorship (the Lorenz Curve and the Lotka’s Law). Slightly more attention was devoted to the half-life indicator and its role in a diachronic study of a scientific field; also, a new indicator (HL14), depicting distribution of citations younger then half-life was introduced. Additionally, the comparison and correlation of selected parameters for the body of historical science (citations, HL14, the Hirsch Index, number of publications, volume and other) were also conducted.

Keywords: Assessment, Attention, Authorship, Bibliometric, Character, Citation, Citation Analysis, Citations, Databases, Differences, Historical Science, Historiography, History, Humanities, Law, Lotka’s Law, Media, Model, Poland, Publications, Publishing, Research, Science, Sciences

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Full Text: [2012\Scientometrics90, 925.pdf](2012/Scientometrics90,%20925.pdf)

Abstract: Here we study the relationship between journal quartile rankings of ISI impact factor (at the 2010) and journal classification in four impact classes, i.e., highest impact, medium highest impact, medium lowest impact, and lowest impact journals in subject category computer science artificial intelligence. To this aim, we use fuzzy maximum likelihood estimation clustering in order to identify groups of journals sharing similar characteristics in a multivariate indicator space. The seven variables used in this analysis are: (1) Scimago Journal Ranking (SJR); (2) h-Index (H); (3) ISI impact factor (IF); (4) 5-Year Impact Factor (5IF); (5) Immediacy Index (II); (6) Eigenfactor Score (ES); and (7) Article Influence Score (AIS). The fuzzy clustering allows impact classes to overlap, thereby accommodating for uncertainty related to the confusion about the impact class attribution for a journal and vagueness in impact classes definition. This paper demonstrates the complex relationship between quartiles of ISI impact factor and journal impact classes in the multivariate indicator space. and that several indicators should be used for a distinct analysis of structural changes at the score distribution of journals in a subject category. Here we propose it can be performed in a multivariate indicator space using a fuzzy classifier.

Keywords: Analysis, Artificial Intelligence, Clustering, Computer, Eigenfactor Score, Fuzzy, Fuzzy Clustering, h Index, Immediacy Index, Impact, Impact Factor, Indicators, Influence, ISI, Journal, Journal Classification, Journal Impact, Journals, Multivariate Indicator Space, Publication Analysis, Quartiles of ISI Impact Factor, Ranking, Rankings, Science, SJR, Subject Category

? Fu, J.Y., Zhang, X., Zhao, Y.H., Chen, D.Z. and Huang, M.H. (2012), Global performance of traditional Chinese medicine over three decades. *Scientometrics*, **90** (3), 945-958.

Full Text: [2012\Scientometrics90, 945.pdf](2012/Scientometrics90,%20945.pdf)

Abstract: Traditional Chinese medicine (TCM), which is divided into three subfields, including Chinese medicine, Chinese herb and acupuncture, attracts increasing attentions due to its challenging and significant medical values. This study employs bibliometric analysis to examine the profile of publication activity in TCM field as well as its subfields. The data are retrieved from the Science Citation Index Expanded database during 1980-2009, and 16,536 papers are identified for analysis. Generally speaking, proportions of papers in subfield of acupuncture decreased dramatically, while the proportions of papers of Chinese medicine and Chinese herb rose increasingly. This study finds that East Asia has the largest number of TCM papers, followed by North America and Europe. Furthermore, while China is ranked first in terms of the amount of TCM publications, USA gains the highest percentage of citations. As for regional specialty, mainly, scholars in East Asia publish intensively in Chinese medicine, while most of the scholars in North America and Europe probe into the study of acupuncture. In the latest two decades, China took the first place over Japan in subfields of both Chinese medicine and Chinese herb, while the US has always kept the largest share in acupuncture with a marked upward trend. Regarding the top-ranked TCM institution, Chinese Academy of Sciences located in China, is ranked first in the subfields of Chinese medicine and Chinese herb as well. As for Kyung Hee University, which is located in South Korea, is ranked first in the number of acupuncture papers and Harvard University is ranked first in number of acupuncture citations.

Keywords: Acupuncture, Analysis, As, Asia, Bibliometric, Bibliometric Analysis, Bibliometric Analysis, China, Chinese Herb, Chinese Medicine, Citation, Citations, Database, Drug Discovery, Europe, Future, Herb, Japan, Korea, Medical, Medicine, Papers, Profile, Publication, Publication Activity, Publications, Science, Science Citation Index, Science Citation Index Expanded, Sciences, South Korea, Traditional, Traditional Chinese Medicine, Trend, University, US, USA

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Full Text: [2012\Scientometrics90, 959.pdf](2012/Scientometrics90,%20959.pdf)

Abstract: We argue that the creation of new knowledge is both difficult and rare. More specifically, we posit that the creation of new knowledge is dominated by a few key insights that challenge the way people think about an idea; generating high interest and use. We label this the blockbuster hypothesis. Using two large samples of published management studies over the period 1998-2007 we find support for the blockbuster hypothesis. We also find that numerous studies in the leading management journals are flops, having little impact on the profession as measured using citation data. Additional tests indicate that journal “quality” is related to the ratio of blockbusters to flops a journal publishes and that journal rankings are a poor proxy for study influence. Consistent with the notion that editorial boards are able to identify new knowledge, we find that research notes significantly under-perform articles in both the same journal and articles published in lower ranked journals. Taken together, the results imply that only a few scientific studies, out of the thoUSAnds published in a given area, change or influence the boundaries of knowledge, with many appearing to have little impact on the frontiers of knowledge. Overall, this analysis indicates that the development of new knowledge is rare even though it appears to be recognizable to knowledge gatekeepers like journal editors.

Keywords: Academic Journal Quality, Analysis, Articles, Citation, Creation, Development, Firms, High Impact Knowledge, Impact, Innovation, Interest, Journal, Journal Editors, Journal Rankings, Journals, Knowledge, Knowledge Creation, Knowledge Gatekeepers, Management, Number, Patent Citations, Patterns, People, Rankings, Ratio, Research, Science

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Full Text: [2012\Scientometrics90, 983.pdf](2012/Scientometrics90,%20983.pdf)

Abstract: Research on aquaculture is expanding along with the exceptional growth of the sector and has an important role in supporting even further the future developments of this relatively young food production industry. In this paper we examined the aquaculture literature using bibliometrics and computational semantics methods (latent semantic analysis, topic model and co-citation analysis) to identify the main themes and trends in research. We analysed bibliographic information and abstracts of 14,308 scientific articles on aquaculture recorded in Scopus. Both the latent semantic analysis and the topic model indicate that the broad themes of research on aquaculture are related to genetics and reproduction, growth and physiology, farming systems and environment, nutrition, water quality, and health. The topic model gives an estimate of the relevance of these research themes by single articles, authors, research institutions, species and time. With the co-citation analysis it was possible to identify more specific research fronts, which are attracting high number of co-citations by the scientific community. The largest research fronts are related to probiotics, benthic sediments, genomics, integrated aquaculture and water treatment. In terms of temporal evolution, some research fronts such as probiotics, genomics, sea-lice, and environmental impacts from cage aquaculture, are still expanding while others, such as mangroves and shrimp farming, benthic sediments, are gradually losing weight. While bibliometric methods do not necessarily provide a measure of output or impact of research activities, they proved useful for mapping a research area, identifying the relevance of themes in the scientific literature and understanding how research fronts evolve and interact. By using different methodological approaches the study is taking advantage of the strengths of each method in mapping the research on aquaculture and showing in the meantime possible limitations and some directions for further improvements.

Keywords: Activities, Analysis, Aquaculture, Articles, Authors, Bibliographic, Bibliometric, Bibliometric Analysis, Bibliometric Methods, Bibliometrics, Co-Citation Analysis, Cocitation, Computational Semantic, Environment, Environmental, Evolution, Food, Genetics, Genomics, Growth, Health, Impact, Industry, Information, Institutions, Latent Semantic Analysis, Literature, Mapping, Model, Nutrition, Probiotics, Quality, Reproduction, Research, Research Institutions, Scientific Literature, Scopus, Sediments, Topic Model, Treatment, Trends, Water, Water Treatment

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Full Text: [2012\Scientometrics90, 1001.pdf](2012/Scientometrics90,%201001.pdf)

Abstract: A survey of scientific periodical publications (or venues-as distinct from articles) from BRIC country practitioners counted more than 15,000 national publications. Data collected from and about Brazil, Russia, India, and China (BRIC countries) show that 495 venues, or about 3%, are listed in the Science Citation Index Expanded (SCIE) in 2010. Contrary to our expectation of under-representation overall and coverage limitation of SCIE, the average percentage of SCIE-listed venues for the BRICs is about the same as that for advanced countries. China has the lowest representation of national venues in SCIE at 2% of all publications; Russia has the highest at about 8%. India has about 6% of venues in SCIE; Brazil has about 4%. In other words, SCIE includes about the same percentage of high quality science from these four countries as for North America and Europe, meaning that these countries are not under-represented in SCIE. Moreover, the number of national venues available as outlets suggests that national scientists in these countries have good access to publications and venues. Some of the BRIC national publications are difficult to “see” at the global level because of language barriers, diverse publication formats, and lack of digitization. Other national differences represent historical traditions surrounding publication.

Keywords: Articles, Barriers, Brazil, Brics, China, Citation, Countries, Coverage, Developing Countries, Differences, Europe, Global Science, Google-Scholar, India, Language Barriers, Meaning, National Comparisons, Open Access, Periodical, Publication, Publications, Quality, Research Performance, Russia, Scie, Science, Science Citation Index, Science Citation Index Expanded, Scopus, Survey, Web, World

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Full Text: [2012\Scientometrics90, 1015.pdf](2012/Scientometrics90,%201015.pdf)

Abstract: the understanding of scientific knowledge itself may promote further advances in science and research on the organization of knowledge may be an initiative to this effort. This stream of research, however, has been mainly driven by the analysis of citation networks. This study uses, as an alternative knowledge element, information on the keywords of papers published in business research and examines how they are associated with each other to constitute a body of scientific knowledge. The results show that, unlike most citation networks, keyword networks are not small-word networks but, rather, locally clustered scale-free networks with a hierarchic structure. These structural patterns are robust against the scope of scientific fields involved. In addition, this paper discusses the origins and implications of the identified structural characteristics of keyword networks.

Keywords: Alternative, Analysis, Citation, Citation Networks, Complex Networks, Design, Evolution, Hierarchy, Information, Keyword Network, Knowledge, Management, Modularity, Organization of Knowledge, Papers, Patent Citation Network, Power-Law Distribution, Research, Science, Small-World Network

? Larcombe, A.N. and Voss, S.C. (2012), Self-citation: comparison between Radiology, European Radiology and Radiology for 1997-1998 (vol 87, pg 347, 2011). *Scientometrics*, **90** (3), 1027.

Full Text: [2012\Scientometrics90, 1027.pdf](2012/Scientometrics90,%201027.pdf)

Keywords: Self-citation

? Karamourzov, R. (2012), The development trends of science in the CIS countries on the basis of some scientometric indicators. *Scientometrics*, **91** (1), 1-14.

Full Text: [2012\Scientometrics91, 1.pdf](2012/Scientometrics91,%201.pdf)

Abstract: the article attempts to assess the results of the independent development of the CIS countries in the field of science over the period 1990-2009. The analysis of the numerous scientometric indicators reveals the decrease of the number of expert researchers and the significant decrease in the scientific and technical output. The article also provides the information about the dynamics of a set of indicators which allows to draw conclusions about the effectiveness of the research activity in the CIS countries.

Keywords: Analysis, Bibliometric Analysis, CIS, Citation Index, Countries, Development, Dynamics, Effectiveness, Field, Indicators, Information, Patents, R&D, Research, Science, Scientometric, Trends

? Fernandez-Cano, A., Torralbo, M. and Vallejo, M. (2012), Time series of scientific growth in Spanish doctoral theses (1848-2009). *Scientometrics*, **91** (1), 15-36.

Full Text: [2012\Scientometrics91, 15.pdf](2012/Scientometrics91,%2015.pdf)

Abstract: This article analyses scientific growth time series using data for Spanish doctoral theses from 1848 to 2009, retrieved from national databases and an in-depth archive search. Data are classified into subseries by historical periods. The analytical techniques employed range from visual analysis of deterministic graphs to curve-fitting with exponential smoothing and AutoRegressive Integrated Moving Average models. Forecasts are made using the best model. The main finding is that Spanish output of doctoral theses appears to fit a quasi-logistic growth model in line with Price’s predictions. An additional control variable termed year-on-year General Welfare is shown to modulate scientific growth, especially in the historical period from 1899 to 1939.

Keywords: Analyses, Analysis, Analytical Techniques, Arima Models, Control, Data, Databases, Doctoral Theses, Exponential Smoothing, Graduate, Growth, Growth Model, Indicators, Knowledge, Model, Models, Modulatory Variable, Paradox, Patterns, Performance, Predictions, Productivity, Research-And-Development, Scientific Growth, Spain, Techniques, Time Series, Universities

? Liu, X.Z. and Fang, H. (2012), Fairly sharing the credit of multi-authored papers and its application in the modification of h-Index and g-index. *Scientometrics*, **91** (1), 37-49.

Full Text: [2012\Scientometrics91, 37.pdf](2012/Scientometrics91,%2037.pdf)

Abstract: Except the alphabetic ordering authorship papers, the citations of multi-authored papers are allocated to the authors based on their contributions to the paper. for papers without clarification of contribution proportion, a function of author number and rank is presented to rightly determine the credit allocated proportion and allocated citations of each author. Our citation allocation scheme is between the equally fractional counting and the one using the inverse of author rank. It has a parameter to adjust the credit distribution among the different authors. The allocated citations can either be used alone to indicate one’s performance in a paper, or can be applied in the modification of h-Index and g-index to represent the achievement of a scientist on the whole. The modified h-Index and g-index of an author makes use of more papers in which he or she played important roles. Our method is suitable for the papers with wide range of author numbers.

Keywords: Achievement, Allocation, Application, Authors, Authorship, Citation, Citations, Co-Authorship, Consequences, Contribution Evaluation, Distribution, Function, g Index, g-Index, h Index, h-Index, Impact, Modification, Modified, Output, Papers, Performance, Publications, Rank, Ranking, Scientists

? Wen, H. and Huang, Y. (2012), Trends and performance of oxidative stress research from 1991 to 2010. *Scientometrics*, **91** (1), 51-63.

Full Text: [2012\Scientometrics91, 51.pdf](2012/Scientometrics91,%2051.pdf)

Abstract: A bibliometric analysis was performed in this work to determine research trends of oxidative stress publications published between 1991 and 2010 in journals of all the subject categories of the Science citation index. Publication trends were analyzed by the retrieved results in publication type and language, characteristics of articles outputs, country, subject categories and journals, and the frequency of title-words and keywords used. Over the years, there was a significant growth in article outputs, with more countries participating and collaborating. The seven major industrialized countries (G7) published the majority of the world articles while the USA contributed about one-third of the total. Chinese and Indian outputs grew much faster than those of other countries in the past 5 years. Oxidative stress research in food and environmental related fields gradually became the mainstream of the research. An analysis of the title-words, author keywords and keywords plus showed that antioxidants in human or rat cells were the hot topic in the field. In addition, “reaction oxygen species”, “apoptosis”, and “nitric-oxide” were major topics of oxidative stress research recently. More articles dealt with diseases that had a strong relationship with oxidative stress, such as inflammation, Alzheimer’s disease, diabetes, and atherosclerosis.

Keywords: Alzheimer’S Disease, Analysis, Antioxidants, Articles, Bibliometric, Bibliometric Analysis, Characteristics, Chinese, Citation, Countries, Country, Diabetes, Disease, Disease, Diseases, Environmental, Environmental Sciences, Field, Food, Growth, Human, Index, Inflammation, Journals, Life, Oxidative Stress, Oxygen, Performance, Publication, Publications, Rat, Research, Research Trends, SCI, Science, Science-Citation-Index, Stress, Trends, USA, Work, World

? Zheng, J., Zhao, Z.Y., Zhang, X., Chen, D.Z., Huang, M.H., Lei, X.P., Zhang, Z.Y. and Zhao, Y.H. (2012), International scientific and technological collaboration of China from 2004 to 2008: A perspective from paper and patent analysis. *Scientometrics*, **91** (1), 65-80.

Full Text: [2012\Scientometrics91, 65.pdf](2012/Scientometrics91,%2065.pdf)

Abstract: Since China adopted Open-Up and Reformed Policy for global collaboration, China’s science and technology have experienced an astounding growth. Papers and patents encompass valuable scientific and technological (S&T) information and collaborative efforts. This article studies China’s international S&T collaboration from the perspective of paper and patent analysis. The results show that China’s total papers and patents have continuously increased from 2004 to 2008, the papers and patents resulting from China’s international collaboration also present a steady growth. However, there is a decline in the share of international collaboration papers and patents with a certain range due to the rapid independent R&D. China’s international scientific collaboration (ISC) is broadly distributed over many countries, the USA being the most important ISC partners. China’s international technological collaboration (ITC) is mainly carried out with USA and Taiwan, and Taiwan has been the most significant ITC partner of when taking countries’ patent output into account. Besides, ISC shows a continuous raise of Chinese papers’ citation. Even the countries with a small amount of papers and ISC with China, exert a positive influence on the impact of citation of Chinese papers as well. However, ITC does not always play an active role in the improvement of citation impact of Chinese patents.

Keywords: Analysis, China, Chinese, Citation, Citation Impact, Collaboration, Countries, Distributed, Global, Growth, Impact, Improvement, Information, International, International Collaboration, International Scientific and Technological Collaboration, ITC, Paper, Papers, Patent, Patent Analysis, Patents, Policy, R&D, Role, Science, Science and Technology, Scientific Collaboration, Small, Taiwan, Technology, USA

? Jun, S.P. (2012), An empirical study of users’ hype cycle based on search traffic: the case study on hybrid cars. *Scientometrics*, **91** (1), 81-99.

Full Text: [2012\Scientometrics91, 81.pdf](2012/Scientometrics91,%2081.pdf)

Abstract: Many forms of technology cycle models have been developed and utilized to identify new/convergent technologies and forecast social changes, and among these, the technology hype cycle introduced by Gartner has become established as an effective method that is widely utilized in the field. Despite the popularity of this commonly deployed model, however, the currently existing research literature fails to provide sufficient consideration of its theoretical frame or its empirical verification. This paper presents a new method for the empirical measurement of this hype cycle model. In particular, it presents a method for measuring the hype of the users rather than the hype cycle generated by research activities or by the media by means of analyzing the hype cycle using search traffic analysis. The analytical results derived from the case study of hybrid automobiles empirically demonstrated that following the introductory stage and the early growth stage of the life cycle, the positive hype curve and the negative hype curve, the representative figures of the hype cycle, were present in the bell curve for the users’ search behavior. Based on this finding, this paper proposes a new method for measuring the users’ expectation and suggests a new direction for future research that enables the forecasting of promising technologies and technological opportunities in linkage with the conventional technology life cycle model. In particular, by interpreting the empirical results using the consumer behavior model and the adoption model, this study empirically demonstrates that the characteristics of each user category can be identified through differences in the hype cycle in the process of the diffusion of new technological products discussed in the past.

Keywords: Adoption, Analysis, Behavior, Case Study, Changes, Characteristics, Conventional, Diffusion, Field, Forecast, Forecasting, Forms, Google Trends, Growth, Hybrid, Hybrid Car, Hype Cycle Model, Life, Life Cycle, Life-Cycle, Linkage, Literature, Measurement, Media, Model, Models, Patent, Research, Search Traffic, Social, Social Changes, Technologies, Technology, Traffic, Users’ Hype Cycle, Verification

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Full Text: [2012\Scientometrics91, 101.pdf](2012/Scientometrics91,%20101.pdf)

Abstract: the editorial handling of articles in scientific journals as a human activity process is considered. Using recently proposed approaches of human dynamics theory we examine the probability distributions of random variables reflecting the temporal characteristics of studied processes. The first part of this article contains our results of analysis of the real data about articles published in scientific journals. The second part is devoted to modeling of time-series connected with editorial work. The purpose of our study is to present new object that can be studied in terms of human dynamics theory and to corroborate the scientometrical application of the results obtained.

Keywords: Analysis, Application, Articles, Characteristics, Data, Dynamics, Editorial Process Analysis, First, Human, Human Dynamics, Human Dynamics, Journals, Modeling, Purpose, Scientific Journals, Temporal, Theory, Time Series, Time-Series Modeling, Work

? Benito, M. and Romera, R. (2012), Modeling the enrollment demand of masters programs for the Spanish public university system. *Scientometrics*, **91** (1), 113-130.

Full Text: [2012\Scientometrics91, 113.pdf](2012/Scientometrics91,%20113.pdf)

Abstract: Recent studies have suggested that a caUSAl link exists between the reputation of the institution and the subsequent demand indicators. However, it is unclear how these effects vary across institutional characteristics or whether these effects persist when considering other factors that affects demand outcomes. On the other hand, student demand studies have almost always focused on the demand side of the equilibrium but not the supply side, although both demand and supply equations relate quantity to price. Although the supply is clearly a driver of demand, there are other variables that significantly influence the demand rates. Spanish public university system shows particular features not considered in the mentioned studies. This paper has two objectives. The first one is to modelize the demand for Masters Programs in the Spanish public university system. We propose a panel methodology to estimate the behavior of the demand of Masters Programs based on the data provided by the seventeen Spanish Autonomous Communities. Disaggregated analysis are presented for domestic demand and international demand. We conclude that the offer is a powerful attractor of demand for domestic and international students, and therefore actions of supply reduction should be carefully applied and always according to strategic university policy criteria. The second aim of the article is to analyze the Masters Programs in the Spanish public university system and to provide a benchmark of the current situation of supply (number of programs) and demand (enrollment) at regional level (Spanish Autonomous Communities) and in relation to European scenarios.

Keywords: Analysis, Behavior, Benchmark, Characteristics, Criteria, Data, Demand, Demand Models, Effects, Equilibrium, First, Higher Education, Higher-Education, Indicators, International, Masters Programs, Methodology, Modeling, Outcomes, Panel Data, Policy, Public, Rates, Recent, Reduction, Regional, Scenarios, Strategic, Student, Students, University

? Kissin, I. and Bradley, E.L. (2012), Top journals selectivity index and “me-too” drugs. *Scientometrics*, **91** (1), 131-142.

Full Text: [2012\Scientometrics91, 131.pdf](2012/Scientometrics91,%20131.pdf)

Abstract: To assess the probability of success of an analgesic drug we have proposed a bibliometric indicator, the Top Journals Selectivity Index (TJSI) (Kissin 2011). It represents the ratio (as %) between the number of all types of articles on a particular drug in the top 20 biomedical journals and the number of articles on that drug in all (> 5,000) journals covered by MEDLINE over the first 5 years after that drug’s introduction. The aim of this study was to demonstrate that TJSI may be used for the assessment of follow-on drugs (those that follow a first-in-class drug). The study tested two hypotheses. First, TJSI can detect the difference (in the same class) between drugs with distinguishing features and drugs without them (“me-too” drugs) better than other publication indices, i.e., the number of all types of articles on a drug in journals presented by MEDLINE (AJI), and the number of articles covering only randomized controlled trials (RCT). Second, there is a relationship between the TJSI of “me-too” drugs and the order (sequential number) in which those drugs reached the market. The study was based on drug classes approved for marketing between the 1960’s and the early 2000’s. The eight classes that had 4 or more drugs were included for analysis. Five specific indicators were used to determine drug’s distinguishing pharmacological properties. It was found that TJSI can detect the difference between follow-on drugs with distinguishing features and those without them better than the other publication indices (AJI or RCT). Our analysis also demonstrated a negative correlation (r = -0.372, p = 0.014) between the TJSI of drugs without distinguishing features (“me-too” drugs) and the order of the drug’s market entry. This implies that TJSI could be useful for the assessment of situations with multiple market entrants in the same class when a new addition has a questionable value.

Keywords: Analgesic, Analysis, Articles, Assessment, Bibliometric, Bibliometric Indicator, Bibliometrics, Biomedical, Biomedical Journals, Correlation, Discovery, Drug, Drugs, First, First-In-Class Drug, Follow-On Drugs, Food and Drug Administration, Index, Indicator, Indicators, Indices, Journals, Market, Marketing, MEDLINE, Pharmaceutical Market, Productivity, Publication, Randomized, Randomized Controlled Trials, RCT, Research-And-Development, Selectivity, Value

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Full Text: [2012\Scientometrics91, 143.pdf](2012/Scientometrics91,%20143.pdf)

Abstract: Recently, geographical information systems have been very intensively applied in social life and in public health in particular. A retrospective problem-oriented search on their use in health planning was performed in Web of Science of Web of Knowledge, three versions of MEDLINE, Scopus, EMBASE, and ProQuest Medical in 1990-2010. The annual dynamics of a set of scientometric parameters characterizing several aspects of the abstracted publications, authors’ scientific institutions, journals, authors, citations, and languages was comparatively analyzed. It was established that world publication output on such a relatively narrow topic was reflected to a different extent in these data-bases. MEDLINE (PubMed) presented with 484 papers published in 243 journals followed by MEDLINE (WoK) with 360 papers in 215 journals. The abstracted publications were mainly in English, but 14 other languages were present in significant numbers. Publications by authors from 44 countries were abstracted in WoS but from 29 countries in MEDLINE (Ebsco). The most productive authors and institutions as well as the ‘core’ journals were identified. The International Journal of Health Geography occupied the leading position. The Center for Disease Control and Prevention (USA) was one of the most productive research institutions in WoS and in Scopus. Scientific institutions and journals belonged to problem-oriented and to mono-, two- and three-disciplinary thematic profiles as well. Some essential peculiarities of the dynamics of research institutionalization and internationalization in this interdisciplinary field were illustrated. The constellation of specific semantically-loaded indicators could be applied for the purposes of problem-oriented analyses as it could timely identify the essential patterns of scientific advances in rapidly expanding interdisciplinary topics.

Keywords: Advances, Analyses, Authors, Citations, Co-Authorship, Control, Countries, Data-Bases, Databases, Dynamics, Field, Geographical Information Systems, Geography, Health, Health Planning, Indicators, Information, Information Systems, Institutions, Interdisciplinary, Internationalization, Journal, Journals, Languages, Life, MEDLINE, Nanotechnology, Papers, Planning, Profiles, Public, Public Health, Publication, Publications, Pubmed, Research, Research Collaboration, Research Institutions, Saudi-Arabia, Science, Science Institutionalization, Science Internationalization, Scientific Institutions, Scientometric, Scientometric Indicators, Scopus, Social, Systems, USA, Web of Science, World, WOS

? Isfandyari-Moghaddam, A., Hasanzadeh, M. and Ghayoori, Z. (2012), A study of factors affecting research productivity of Iranian women in ISI. *Scientometrics*, **91** (1), 159-172.

Full Text: [2012\Scientometrics91, 159.pdf](2012/Scientometrics91,%20159.pdf)

Abstract: Based on the fact that in terms of research productivity, performance of women is weaker than men’s, and because little is known on the factors affecting academic women’s productivity in Iran, the present article aims to study factors affecting research productivity of Iranian women in ISI. To do this, at first, women who have already had published documents indexed in ISI were identified through Web of Science. Afterwards, in order to collect their view regarding factors affecting women’s research productivity, a researcher-made questionnaire was used. To analyze the collected data, the statistical software SPSS (version 17) was used. Both descriptive (Percentage and Frequency) and inferential (ANOVA) statistics were employed to reach valid findings. The findings indicate that the most motivational factors affecting positively publishing scholarly articles by Iranian women are ‘Getting promoted in scientific rank’, ‘Intrinsic talents’, ‘Perseverance and adventitious knowledge’, ‘Feeling of being useful in society’, ‘Getting promoted in job’, ‘Being encouraged by friends and family’, ‘Religious lessons regarding the importance of science’, and ‘Attempt to show individual capabilities’. Finally, some remarks for the improvement of the current condition are highlighted.

Keywords: Affecting Factors, Anova, Articles, Bibliometrics, Data, Family, First, Gender-Differences, Improvement, Iran, ISI, Knowledge, Performance, Productivity, Publication Productivity, Publishing, Questionnaire, Rank, Research, Research Productivity, Science, Scientific Collaboration, Scientific Productivity, Scientific Products, Society, Software, Statistics, Version, Web of Science, Women

? Sakr, S. and Alomari, M. (2012), A decade of database conferences: A look inside the program committees. *Scientometrics*, **91** (1), 173-184.

Full Text: [2012\Scientometrics91, 173.pdf](2012/Scientometrics91,%20173.pdf)

Abstract: Database management technology has played a vital role in facilitating key advancements of the information technology field. Database researchers-and computer scientists in general-consider prestigious conferences as their favorite and effective tools for presenting their original research study and for getting good publicity. With the main aim of retaining the high quality and the prestige of these conference, program committee members plays the major role of evaluating the submitted articles and deciding which submissions are to be included in the conference programs. In this article, we study the program committees of four top-tier and prestigious database conferences (SIGMOD, VLDB, ICDE, EDBT) over a period of 10 years (2001-2010). We report about the growth in the number of program committee members in comparison to the size of the research community in the last decade. We also analyze the rate of change in the membership of the committees of the different editions of these conferences. Finally, we report about the major contributing scholars in the committees of these conferences as a mean of acknowledging their impact in the community.

Keywords: Articles, Community, Comparison, Conferences, Database, Database Management, Database Technology, Field, Growth, Impact, Index, Information, Information Technology, Management, Prestige, Program Committees, Quality, Research, Role, Size, Technology

? Furukawa, T., Shirakawa, N., Okuwada, K. and Sasaki, K. (2012), International mobility of researchers in robotics, computer vision and electron devices: A quantitative and comparative analysis. *Scientometrics*, **91** (1), 185-202.

Full Text: [2012\Scientometrics91, 185.pdf](2012/Scientometrics91,%20185.pdf)

Abstract: We investigated author information in scientific articles by approximately 7,000 researchers for a quantitative analysis of researchers’ international mobility. From top journals, we traced the movements of more than 2,200 researchers in the research domains of robotics, computer vision and electron devices. We categorized countries’ characteristics for the balance between the inflow and the outflow of researchers moving internationally. Flow patterns of international mobility confirm that the United States, China and India exhibit the greatest global flows of researchers, with Singapore and Hong Kong attracting remarkable numbers of researchers from other countries. International mobility focusing on institutions reveals that universities in Singapore receive as many foreign researchers as do research universities in the United States. Furthermore, firms and international collaborative research institutes act as alternative receivers to the universities in the electron devices research domain.

Keywords: Alternative, Analysis, Articles, Brain-Drain, Characteristics, China, Collaborative Research, Countries, Elite, Flow Pattern of Researchers, Global, Hong Kong, India, Information, Institutional-Level Analysis, Institutions, International, International Mobility, Journals, Mobility, Outflow, Productivity, Quantitative Analysis, Research, Science, United States, Universities

? Liu, G.Y., Hu, J.M. and Wang, H.L. (2012), A co-word analysis of digital library field in China. *Scientometrics*, **91** (1), 203-217.

Full Text: [2012\Scientometrics91, 203.pdf](2012/Scientometrics91,%20203.pdf)

Abstract: the aim of this study is to map the intellectual structure of digital library (DL) field in China during the period of 2002-2011. Co-word analysis was employed to reveal the patterns of DL field in China through measuring the association strength of keywords in relevant journals. Data was collected from Chinese Journal Full-Text Database during the period of 2002-2011. and then, the co-occurrence matrix of keywords was analyzed by the methods of multivariate statistical analysis and social network analysis. The results mainly include five parts: seven clusters of keywords, a two-dimensional map, the density and centrality of clusters, a strategic diagram, and a relation network. The results show that there are some hot research topics and marginal topics in DL field in China, but the research topics are relatively decentralized compared with the international studies.

Keywords: Analysis, Association, China, Chinese, Co-Word Analysis, Digital Library In China, Field, Intellectual Structure, International, Journal, Journals, Matrix, Methods, Multivariate, Network, Network Analysis, Research, Research Advances, Scientometrics, Social, Social Network Analysis, Statistical Analysis, Strategic, Strength, Structure

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Full Text: [2012\Scientometrics91, 219.pdf](2012/Scientometrics91,%20219.pdf)

Abstract: Diversification of R&D projects not only can reduce overall risk, but also can create value-enhancement effect. A useful guideline for optimal diversification of R&D projects is important to R&D organizations. This paper extends financial portfolio analyses for R&D management particularly incorporating the technology risk. This study uses a survival model to describe the technology risk since termination of an R&D project can be caused by any technology risk factors. A formula of optimal R&D resource allocation that can dynamically achieve the greatest diversification effect is offered. Furthermore we provide an alternative method for estimating correlations between R&D portfolios, which has a critical influence on diversification effect. The method can be useful in risk assessment when measure the exposure of R&D portfolio to particular sources of uncertainty. The evaluation framework for R&D portfolios optimization also can be applied in project-selection decisions.

Keywords: Allocation, Alternative, Analyses, Assessment, Correlations, Decisions, Diversification, Evaluation, Exposure, Framework, Guideline, Management, Measure, Model, Optimization, R&D, R&D Management, R&D Portfolios Optimization, Resource Allocation, Risk, Risk Assessment, Risk Factors, Risk Management, Selection, Sources, Survival, Technology, Uncertainty

? Sotudeh, H. (2012), How sustainable a scientifically developing country could be in its specialties? the case of Iran’s publications in SCI in the 21st century compared to 1980s. *Scientometrics*, **91** (1), 231-243.

Full Text: [2012\Scientometrics91, 231.pdf](2012/Scientometrics91,%20231.pdf)

Abstract: Investigating Iran’s scientific proficiency reflected in its scholarly outputs indexed in SCI during the 21st century and 1980s, the present study tries to propose the use of three features of science production including Specialty Diversity, Specialty Stability, and the growth of publications in the specialties, as the primary criteria in evaluating the contribution sustainability of a science system at macro level. They can be seen as the prerequisites every science system should realize to ensure a sustainable movement towards scientific development. The results reveal that Iran’s contributions had been not only limited in number in 1980s, but also exposed to serious subject fluctuations, so that a scarce number of the fields were found to be stable regarding Iranian contributions. Moreover, none of them had experienced a significant, exponential positive growth during the decade. The situation is incomparable to the 21st century where Iran’s contributions were as diversified as almost all of the SCI subject categories. It also reached long- or short-term stability in a majority of the categories. None of the previously stabilized specialties collapsed in the second 6-year sub-period. On the other hand, previously fluctuating fields mostly stabilized later. Moreover, a majority of the fields experienced significant exponential growths. Overall, according to the results, a developing science system might be characterized by its Specialty Diversity and Stability, as well as an annual growth in its publications in the specialties. Though meeting the criteria does not necessarily guarantee the achievement of quality standards, it may enhance the visibility of the contributions and thereby their recognition.

Keywords: Achievement, Annual Growth, Country, Criteria, Developing, Developing Country, Development, Diversity, Growth, Impact, Iran, Journals, Movement, Primary, Publications, Quality, SCI, Science, Science-Citation-Index, Scientific Production, Specialty Diversity, Specialty Stability, Stability, Standards, Subfields, Sustainability, Sustainable, Visibility

? Nishy, P., Panwar, Y., Prasad, S., Mandal, G.K. and Prathap, G. (2012), An impact-citations-exergy (iCX) trajectory analysis of leading research institutions in India. *Scientometrics*, **91** (1), 245-251.

Full Text: [2012\Scientometrics91, 245.pdf](2012/Scientometrics91,%20245.pdf)

Abstract: A thermodynamic analogy allows bibliometric research assessment of information production processes to be based on a scalar indicator which is an energy-like term called exergy. Derived from standard indicators like impact, citations and number of papers, the exergy indicator X is a multiplicative product of quality and quantity of a scientist’s or group’s performance using available bibliometric information. Thus, given the bibliometric sequences of leading research agencies and institutions, research performance can be displayed as trajectories on a two-dimensional map as time progresses. In this paper, we track the performance of several of the leading players contributing to academic scientific research in India.

Keywords: Analogy, Analysis, Assessment, Bibliometric, Bibliometric Research, Bibliometrics, Citations, Exergy, Impact, Index, India, Indicator, Indicators, Information, Institutions, Papers, Performance, Quality, Quasity, Research, Research Assessment, Research Institutions, Research Performance, Scientific Research, Standard, Term, Thermodynamic, Trajectory, X = IC

? Etxebarria, G., Gomez-Uranga, M. and Barrutia, J. (2012), Tendencies in scientific output on carbon nanotubes and graphene in global centers of excellence for nanotechnology. *Scientometrics*, **91** (1), 253-268.

Full Text: [2012\Scientometrics91, 253.pdf](2012/Scientometrics91,%20253.pdf)

Abstract: A change has been taking place in the world of nanotechnologies since 2009, marking the beginning of a new era of end consumer goods related to these new technologies. In this article, our aim is to know the dominant tendencies observed in scientific output on carbon nanotubes at centres and poles from different countries and considered to be at the forefront of nanotechnologies research. We have selected a sample comprised of eight universities and locally coherent concentrations from different geographic areas: Europe, America and Asia. Based on this sample, we have used the Scopus database to analyse scientific output on carbon nanotubes in order to determine if there are significant differences in behaviour. We observe that dynamics of scientific output on nanotubes are similar in the universities and clusters analysed over time although a drop in publications was noted in 2009 in part of the organizations included in the sample. We have seen a large amount of publications on graphene in the last several years, due to the fact that researchers working in the field of carbon nanotubes gradually move towards the study of graphene, explained by the high expectations concerning the use of this element. The results lead us to conclude that advances in knowledge on carbon nanotubes and graphene will make it possible to meet the growing needs of a new and powerful market for products that are progressively including these new elements.

Keywords: Advances, Asia, Behaviour, Carbon, Carbon Nanotubes, Carbon Nanotubes (CNTs), Countries, Database, Dynamics, Europe, Exploration, Field, Global, Graphene, Knowledge, Lead, Market, Nanotechnology, Nanotechnology Applications, Nanotubes, Needs, Publications, Research, Science, Scientific Output, Scopus, Technologies, Universities, World

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Full Text: [2012\Scientometrics91, 269.pdf](2012/Scientometrics91,%20269.pdf)

Abstract: Quantitative assessment of information production processes requires the definition of a robust citation performance indicator. This is particularly so where there is a need to introduce a normalization mechanism for correcting for quality across field and disciplines. In this paper, we offer insights from the “thermodynamic” approach in terms of quality, quantity and quasity and energy, exergy and entropy to show how the recently introduced expected value measure can be rationalized and improved. The normalized energy indicator E is proposed as a suitable single number scalar indicator of a scientist’s or group’s performance (i.e. as a multiplicative product of quality and quantity), when complete bibliometric information is available.

Keywords: Approach, Assessment, Bibliometric, Bibliometrics, Calculation, Citation, Citation Performance, Crown Indicator, Crown Indicator, Energy, Entropy, Exergy, Expected Value, Field, Impact, Indicator, Information, Measure, Mechanism, Normalization, Performance, Performance Indicators, Quality, Quantity, Quasity, Value

? Vinluan, L.R. (2012), Research productivity in education and psychology in the Philippines and comparison with ASEAN countries. *Scientometrics*, **91** (1), 277-294.

Full Text: [2012\Scientometrics91, 277.pdf](2012/Scientometrics91,%20277.pdf)

Abstract: An objective assessment using bibliometric indicators of research productivity in education and psychology in the Philippines was conducted. Results were then benchmarked against its Southeast Asian neighbors’ research productivity in the same fields. Results showed that the Philippines ranked low in research productivity compared to Singapore, Thailand, and Malaysia, particularly starting in the 1990s. Only a few researchers, mainly coming from a small number of higher education institutions, were publishing papers on a regular basis in a small range of journals. Those journals had either no or low impact factors and most papers had low citation counts. It also collaborated less with domestic and international institutions. This low research productivity was explained in terms of economic indicators, the local orientation of many social science research studies, funding, individual characteristics of researchers, and the epistemic culture of knowledge production in the country. However, the reforms initiated by the government, particularly in the higher education sector, would hopefully lead to a better research landscape and, consequently, improved research productivity in the near future.

Keywords: Achievement, Asean, Asian, Assessment, Behavioral-Sciences, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Characteristics, Citation, Citation Counts, Comparison, Countries, Country, Culture, Economic, Education, Funding, Gender, Higher Education, Impact, Impact Factors, Indicators, Institutions, International, Journals, Knowledge, Landscape, Lead, Local, Low, Malaysia, Papers, Periphery, Philippines, Productivity, Psychology, Publishing, Rankings, Research, Research Productivity, Research Quality, Science, Science Research, Sector, Small, Social, Social-Sciences, Thailand, Universities

? Egghe, L. and Rousseau, R. (2012), Theory and practice of the shifted Lotka function. *Scientometrics*, **91** (1), 295-301.

Full Text: [2012\Scientometrics91, 295.pdf](2012/Scientometrics91,%20295.pdf)

Abstract: One of the major drawbacks of the classical Lotka function is that arguments only start from the value 1. However, in many applications one may want to start from the value 0, e.g. when including zero received citations. In this article we consider the shifted Lotka function, which includes the case of zero items. Basic results for the total number of sources, the total number of items and the average number of items per source are given in this framework. Next we give the rank-frequency function (Zipf-type function) corresponding to the shifted Lotka function and prove their exact relation. The article ends with a practical example which can be fitted by a shifted Lotka function.

Keywords: Citations, Framework, Function, Law, Lotka, Power Laws, Practice, Shifted Lotka Function, Shifted Zipf Function, Source, Sources, Value, Zero Citations

? Schubert, A. (2012), A Hirsch-type index of co-author partnership ability. *Scientometrics*, **91** (1), 303-308.

Full Text: [2012\Scientometrics91, 303.pdf](2012/Scientometrics91,%20303.pdf)

Abstract: the partnership ability index (phi) combines the number of co-authors and the times each of them acted as co-authors with a given author exactly the same way as Hirsch’s h-Index combines the number of publications and their citation rate. The index phi was tested on the sample of the Hevesy medal awardees. It was found that phi is consistent with Glänzel’s model of h-Index, and that higher phi values-at least until a certain limit-may be accompanied with higher citation visibility (h-Index). Some further possibilities of application both within and outside the area of scientometrics are suggested.

Keywords: Application, Citation, Co-Author, Co-Author Networks, Co-Authors, h Index, h-Index, Hirsch-Type Indicators, Index, Model, Networks, Partnership Ability Index, Publications, Scientometrics, Visibility

? Rousseau, R. (2012), Comments on “A Hirsch-type index of co-author partnership ability”. *Scientometrics*, **91** (1), 309-310.

Full Text: [2012\Scientometrics91, 309.pdf](2012/Scientometrics91,%20309.pdf)

Keywords: Co-Author, Index

? Gumpenberger, C., Gorraiz, J., Glänzel, W., Debackere, K., Hornbostel, S. and Hinze, S. (2012), Event report: ESSS 2011-Scientometric education in Indian summer at the University of Vienna. *Scientometrics*, **91** (1), 311-313.

Full Text: [2012\Scientometrics91, 311.pdf](2012/Scientometrics91,%20311.pdf)

Keywords: Education, University

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Full Text: [2012\Scientometrics91, 315.pdf](2012/Scientometrics91,%20315.pdf)

Keywords: Conference, Scientometrics

Notes: CCountry

? Pouris, A. (2012), Scientometric research in South Africa and successful policy instruments. *Scientometrics*, **91** (2), 317-325.

Full Text: [2012\Scientometrics91, 317.pdf](2012/Scientometrics91,%20317.pdf)

Abstract: This document provides an analysis of scientometric research in South Africa and it discusses sources of growth in the country’s research literature in general. South Africa is identified to have limited expertise in the field revealed mainly during the last decade. However, the country is ranked 21st in the world among the countries publishing in the journal Scientometrics and it is the only African country with such a standing in the field. Identification of the forces affecting positively the growth in the number of research publications in the country indicates that the primary incentive fuelling the recent growth is the new funding formula in the country which subsidizes the universities by more than R100 000 for each publication that their staff produces. The increase in the number of journals indexed in the ISI Thomson Reuters database and the incorporation of social sciences at the NRF have also affected the growth of research publications, but to a lesser extent.

Keywords: Africa, Analysis, Countries, Country, Database, Field, Funding, General, Growth, Impact, Impact on Research, Incentives, ISI, Journal, Journals, Literature, Policy, Primary, Publication, Publications, Publishing, Recent, Research, Sciences, Scientometric, Scientometrics, Social, Social Sciences, Sources, South Africa, Thomson-Reuters, Universities, World

? Abercrombie, R.K., Udoeyop, A.W. and Schlicher, B.G. (2012), A study of scientometric methods to identify emerging technologies via modeling of milestones. *Scientometrics*, **91** (2), 327-342.

Full Text: [2012\Scientometrics91, 327.pdf](2012/Scientometrics91,%20327.pdf)

Abstract: This work examines a scientometric model that tracks the emergence of an identified technology from initial discovery (via original scientific and conference literature), through critical discoveries (via original scientific, conference literature and patents), transitioning through Technology Readiness Levels (TRLs) and ultimately on to commercial application. During the period of innovation and technology transfer, the impact of scholarly works, patents and on-line web news sources are identified. As trends develop, currency of citations, collaboration indicators, and on-line news patterns are identified. The combinations of four distinct and separate searchable on-line networked sources (i.e., scholarly publications and citation, patents, news archives, and on-line mapping networks) are assembled to become one collective network (a dataset for analysis of relations). This established network becomes the basis from which to quickly analyze the temporal flow of activity (searchable events) for the example subject domain we investigated.

Keywords: Analysis, Application, Citation, Citations, Collaboration, Discovery, Emerging Technologies, Emerging Technologies Identification, Events, Flow, Impact, Indicators, Innovation, Knowledge Exchange, Literature, Mapping, Methods, Model, Modeling, Network, Networks, News Archives, Normalization of Disparate Data Sets, On-Line Mapping Networks, Patents, Publications, Relations, Scholarly Publications and Citations, Scientometric, Sources, Technologies, Technology, Technology Life Cycle Modeling, Technology Transfer, Temporal, Trends, Web, Work

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Full Text: [2012\Scientometrics91, 343.pdf](2012/Scientometrics91,%20343.pdf)

Abstract: Google Scholar, the academic bibliographic database provided free-of-charge by the search engine giant Google, has been suggested as an alternative or complementary resource to the commercial citation databases like Web of Knowledge (ISI/Thomson) or Scopus (Elsevier). In order to check the usefulness of this database for bibliometric analysis, and especially research evaluation, a novel approach is introduced. Instead of names of authors or institutions, a webometric analysis of academic web domains is performed. The bibliographic records for 225 top level web domains (TLD), 19,240 university and 6,380 research centres institutional web domains have been collected from the Google Scholar database. About 63.8% of the records are hosted in generic domains like .com or .org, confirming that most of the Scholar data come from large commercial or non-profit sources. Considering only institutions with at least one record, one-third of the other items (10.6% from the global) are hosted by the 10,442 universities, while 3,901 research centres amount for an additional 7.9% from the total. The individual analysis show that universities from China, Brazil, Spain, Taiwan or Indonesia are far better ranked than expected. In some cases, large international or national databases, or repositories are responsible for the high numbers found. However, in many others, the local contents, including papers in low impact journals, popular scientific literature, and unpublished reports or teaching supporting materials are clearly overrepresented. Google Scholar lacks the quality control needed for its use as a bibliometric tool; the larger coverage it provides consists in some cases of items not comparable with those provided by other similar databases.

Keywords: Alternative, Analysis, Approach, Authors, Bibliometric, Bibliometric Analysis, Bibliometrics, Brazil, China, Citation, Complementary, Control, Coverage, Data, Database, Databases, Engine, Evaluation, Geographical Coverage, Global, Google Scholar, Impact, Index, Indonesia, Institutions, International, Journals, Literature, Local, Low, Papers, Quality, Quality Control, Record, Records, Research, Research Centres, Research Evaluation, Science, Scientific Literature, Scopus, Sources, Spain, Taiwan, Teaching, Top Institutions, Universities, University, Web, Webometrics

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Full Text: [2012\Scientometrics91, 353.pdf](2012/Scientometrics91,%20353.pdf)

Abstract: In this paper we have looked at a new measure of connectedness between research areas, namely, the migration of authors between subfields as seen from their contributions to different areas. Migration may be considered as an embodied knowledge flow that bridges some part of the cognitive gap between fields. Our hypothesis is that the rate of author migration will reflect cognitive similarity or affinity between disciplines. This is graphically shown to be reasonable, but only above certain levels of migration for our data from mathematical reviews spanning 17 years (1959-1975). The inter-related structure of Mathematics is then mapped using migration data in the appropriate range. We find the resulting map to be a good reflection of the disciplinary variation in the field of Mathematics.

Keywords: Affinity, Authors, Citation, Cocitation Analysis, Cognitive Mobility, Data, Embodied Knowledge, Field, Flow, Indicators, Journal Maps, Knowledge, Knowledge Flow, Mapping, Mapping of A Scientific Field, Mathematics, Measure, Migration, Mobility, Network, Reflection, Research, Reviews, Science, Similarity, Structure

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Full Text: [2012\Scientometrics91, 369.pdf](2012/Scientometrics91,%20369.pdf)

Abstract: the aim of this paper is to study the knowledge production of Colombian universities in terms of their accumulation of intellectual capital (IC). We observe Colombian universities’ publications between 1958 and 2008, categorizing each university according to growth trends in its scientific publications: early exponential growth, late exponential growth, and linear and irregular growth. This work describes the relationships between these growth trends and IC accumulation. It presents an historical description of some institutional changes in Colombian universities that improved the research activity. In addition, we present an empirical study of IC accumulation in universities from the three growth trend categories between 2003 and 2009. We suggest that the adapting capacity, the accumulation time, and the strategies of IC accumulation related to feedback structures are key factors in explaining the differences in knowledge production between growth categories of Colombian universities. The results show critical differences-on orders of magnitude-in IC accumulation across the three categories. Therefore, it would be possible to define a roadmap to improve the knowledge production in Colombian universities.

Keywords: Accumulation, Approach, Capacity, Changes, Colombian Universities, Feedback, Growth, Growth Trends of Scientific Publication, Intellectual Capital Accumulation, Knowledge, Production of Knowledge, Publications, Research, Scientific Production, Scientific Publications, Trend, Trends, Universities, University, Work

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Full Text: [2012\Scientometrics91, 383.pdf](2012/Scientometrics91,%20383.pdf)

Abstract: Indicators based on non-patent references (NPRs) are increasingly being used for measuring and assessing science-technology interactions. But NPRs in patent documents contain noise, as not all of them can be considered ‘scientific’. In this article, we introduce the results of a machine-learning algorithm that allows identifying scientific references in an automated manner. Using the obtained results, we analyze indicators based on NPRs, with a focus on the difference between NPR- and scientific non-patent references-based indicators. Differences between both indicators are significant and dependent on the considered patent system, the applicant country and the technological domain. These results signal the relevancy of delineating scientific references when using NPRs to assess the occurrence and impact of science-technology interactions.

Keywords: Algorithm, Assessing, Citations, Country, Impact, Indicators, Linkages, Machine Learning, Noise, Non-Patent References, Patent, Patents, Publications, References, Science, Science-Technology Interaction, Scientific Publications, Technology

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Full Text: [2012\Scientometrics91, 399.pdf](2012/Scientometrics91,%20399.pdf)

Abstract: the notion of ‘core documents’, first introduced in the context of co-citation analysis and later re-introduced for bibliographic coupling and extended to hybrid approaches, refers to the representation of the core of a document set according to given criteria. In the present study, core documents are used for the identification of new emerging topics. The proposed method proceeds from independent clustering of disciplines in different time windows. Cross-citations between core documents and clusters in different periods are used to detect new, exceptionally growing clusters or clusters with changing topics. Three paradigmatic types of new, emerging topics are distinguished. Methodology is illustrated using the example of four ISI subject categories selected from the life sciences, applied sciences and the social sciences.

Keywords: Analysis, Bibliographic Coupling, Citation, Clustering, Co-Citation, Co-Citation Analysis, Cocitation, Cocitation Analysis, Context, Core Documents, Criteria, Emerging Topics, First, Hybrid, Hybrid Clustering, Identification, ISI, ISI Subject Categories, Life, Life Sciences, Method, Methodology, Notion, Representation, Science, Sciences, Social, Social Sciences, Text, Text Mining, Topics

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Full Text: [2012\Scientometrics91, 417.pdf](2012/Scientometrics91,%20417.pdf)

Abstract: This bibliometric study on the collaboration of Austria and six target countries (Slovenia, Hungary, Czech Republic, Denmark, Switzerland and Israel) reveals the importance of differentiation between the bilateral and multilateral contingents in the assessment of international scientific collaboration. for this purpose a “degree of bilaterality” (DB) and a “citation degree of bilaterality” (CDB) are introduced. In our findings the DB and the CDB have values lower than 1/3 and 1/5, respectively. Therefore, the total collaboration is mostly shaped in its volume and impact by the multilateral contingent. Regarding the impact estimation of the collaboration publication output, a multi-faceted approach was used. It is recommended to separately analyze the following three aspects: the un-cited range, the average range and the excellence range. Considering different country specific parameters the total number of publications and citations were resized for each type of collaboration and the results discussed. Only a very weak correlation between ‘times cited’ and the number of affiliations or authors was observed at publication level. Neither the number of authors or affiliations determines impact increase. Rather internationalisation and cooperation seem to be the crucial factors.

Keywords: Approach, Assessment, Austria, Authors, Bibliometric, Bibliometric Study, Bilateral Collaboration, Case Study, Citation Impact, Citations, Co-Authorship, Coaffiliationship, Coauthorship, Collaboration, Cooperation, Correlation, Countries, Country, Czech Republic, Denmark, Differentiation, Hungary, Impact, Indicators, International, International Collaboration, Israel, Networks, Normalised Impact, Publication, Publications, Purpose, Scientific Collaboration, Slovenia, Switzerland, Volume

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Full Text: [2012\Scientometrics91, 435.pdf](2012/Scientometrics91,%20435.pdf)

Abstract: Key to accurate bibliometric analyses is the ability to correctly link individuals to their corpus of work, with an optimal balance between precision and recall. We have developed an algorithm that does this disambiguation task with a very high recall and precision. The method addresses the issues of discarded records due to null data fields and their resultant effect on recall, precision and F-measure results. We have implemented a dynamic approach to similarity calculations based on all available data fields. We have also included differences in author contribution and age difference between publications, both of which have meaningful effects on overall similarity measurements, resulting in significantly higher recall and precision of returned records. The results are presented from a test dataset of heterogeneous catalysis publications. Results demonstrate significantly high average F-measure scores and substantial improvements on previous and stand-alone techniques.

Keywords: Age, Algorithm, Analyses, Approach, Author Disambiguation, Bibliometric, Bibliometric Analyses, Catalysis, Citation Analysis, Community Detection, Data, Data Discarding, Disclosure, Dynamic, Effects, Homonyms, Indicators, Method, Precision, Precision and Recall, Publications, Recall, Records, Research Articles, Science, Similarity, Techniques, Work

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Full Text: [2012\Scientometrics91, 451.pdf](2012/Scientometrics91,%20451.pdf)

Abstract: New indicators, including the outgrow index, characterizing an article in its ego citation network are introduced. We take full advantage of the existing duality (cites-is cited by) in a citation network. Although algebraic aspects are emphasized, a first step towards their interpretation is attempted. Examples of their calculation and of future applications are provided.

Keywords: Algebraic Relations, Calculation, Citation, Citation Generations, Citation Network, Collaboration, Ego Citation Network, Fields, First, Graph-Theoretic Analysis, Index, Indicators, Information, Interpretation, Knowledge Diffusion, Network, Networks, Outgrow Index, Science, Structural Indicators

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Full Text: [2012\Scientometrics91, 461.pdf](2012/Scientometrics91,%20461.pdf)

Abstract: This paper investigates whether CiteULike and Mendeley are useful for measuring scholarly influence, using a sample of 1,613 papers published in Nature and Science in 2007. Traditional citation counts from the Web of Science (WoS) were used as benchmarks to compare with the number of users who bookmarked the articles in one of the two free online reference manager sites. Statistically significant correlations were found between the user counts and the corresponding WoS citation counts, suggesting that this type of influence is related in some way to traditional citation-based scholarly impact but the number of users of these systems seems to be still too small for them to challenge traditional citation indexes.

Keywords: Articles, Bibliometrics, Challenge, Citation, Citation Analysis, Citation Counts, Citation Indexes, Correlations, Google Scholar, Impact, Impact Measurement, Measurement, Online Reference Managers, Papers, Reference, Research Evaluation, Research Impact, Research Influence, Scholarly Impact, Science, Small, Systems, Validation, Web, Web of Science, Webometrics, Wos

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Full Text: [2012\Scientometrics91, 473.pdf](2012/Scientometrics91,%20473.pdf)

Abstract: Previous studies have shown that hybrid clustering methods based on textual and citation information outperforms clustering methods that use only one of these components. However, former methods focus on the vector space model. In this paper we apply a hybrid clustering method which is based on the graph model to map the Web of Science database in the mirror of the journals covered by the database. Compared with former hybrid clustering strategies, our method is very fast and even achieves better clustering accuracy. In addition, it detects the number of clusters automatically and provides a top-down hierarchical analysis, which fits in with the practical application. We quantitatively and qualitatively asses the added value of such an integrated analysis and we investigate whether the clustering outcome provides an appropriate representation of the field structure by comparing with a text-only or citation-only clustering and with another hybrid method based on linear combination of distance matrices. Our dataset consists of about 8,000 journals published in the period 2002-2006. The cognitive analysis, including the ranked journals, term annotation and the visualization of cluster structure demonstrates the efficiency of our strategy.

Keywords: Accuracy, Analysis, Application, Bibliometric Analysis, Citation, Cluster, Clustering, Combined Cocitation, Database, Efficiency, Field, Hybrid, Information, Information-Science, Journals, Mapping, Method, Methods, Model, Modularity Optimization, Network Analysis, Networks, Optimal and Hierarchical Clustering, Outcome, Representation, Science, Space, Strategy, Structure, Term, Text Mining, Value, Visualization, Web, Web of Science, Word Analysis

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Full Text: [2012\Scientometrics91, 495.pdf](2012/Scientometrics91,%20495.pdf)

Abstract: Traditional co-citation analysis has not taken the proximity of co-cited references into account. As long as two references are cited by the same article, they are retreated equally regardless the distance between where citations appear in the article. Little is known about what additional insights into citation and co-citation behaviours one might gain from studying distributions of co-citation in terms of such proximity. How are citations distributed in an article? What insights does the proximity of co-citation provide? In this article, the proximity of a pair of co-cited reference is defined as the nearest instance of the co-citation relation in text. We investigate the proximity of co-citation in full text of scientific publications at four levels, namely, the sentence level, the paragraph level, the section level, and the article level. We conducted four studies of co-citation patterns in the full text of articles published in 22 open access journals from BioMed Central. First, we compared the distributions of co-citation instances at four proximity levels in journal articles to the traditional article-level co-citation counts. Second, we studied the distributions of co-citations of various proximities across organizational sections in articles. Third, the distribution of co-citation proximity in different co-citation frequency groups is investigated. Fourth, we identified the occurrences of co-citations at different proximity levels with reference to the corresponding traditional co-citation network. The results show that (1) the majority of co-citations are loosely coupled at the article level, (2) a higher proportion of sentence-level co-citations is found in high co-citation frequencies than in low co-citation frequencies, (3) tightly coupled sentence-level co-citations not only preserve the essential structure of the corresponding traditional co-citation network but also form a much smaller subset of the entire co-citation instances typically considered by traditional co-citation analysis. Implications for improving our understanding of underlying factors concerning co-citations and developing more efficient co-citation analysis methods are discussed.

Keywords: Access, Analysis, Articles, Citation, Citation Contextual, Citations, Co-Citation, Co-Citation Analysis, Co-Citation Proximity, Cocitation, Developing, Distributed, Distribution, Gain, Index, Journal, Journal Articles, Journals, Low, Methods, Network, Open, Open Access, Organizational, Publications, Pubmed Central, Reference, References, Scientific Literature, Scientific Publications, Structure, Understanding

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Full Text: [2012\Scientometrics91, 513.pdf](2012/Scientometrics91,%20513.pdf)

Abstract: the Novosibirsk region is one of the most industrialized in Siberia. In 1957 the Siberian Branch of the Academy of Sciences of the USSR (now Siberian Branch of the RAS (SBRAS)) was set up to stimulate a rapid development of the Siberian and Far East research forces. The goal of this mainly bibliometric, empirical study is to obtain insight into R&D performance in the Novosibirsk region, domestic and international collaborations and the impact of new government science policies focused on boosting the research and innovation activities of regional universities. Key drivers of research performance are institutions of the SBRAS. Second place in terms of research output belongs to Novosibirsk State University. Its research focuses on hard sciences. 75% of its papers were published in collaboration with SBRAS institutions. Research output is growing. Novosibirsk area’s share of RFBR grants was stable around 8%. Publications from RFBR grantees in 34 subject categories had a level-aggregated indicator value of one or higher. In these hard-science areas Russian research develops in accordance with global trends. We observed a concentration of domestic collaboration in the Novosibirsk area as well as a strong international collaboration with advanced economies, in particular in the Asia-Pacific region.

Keywords: Asia Pacific, Bibliometric, Citation Score, Collaboration, Collaborations, Concentration, Development, Global, Global Trends, Impact, Impact Factor, Indicator, Indicator Value, Innovation, Institutions, International, International Collaboration, Level-Aggregated Indicator, Mean Weighted Indicators, Normalized Indicator of International Collaboration, Novosibirk Area, Papers, Performance, Policies, Publications, R&D, Rapid Development, RAS, Region, Regional, Research, Research Output, Research Performance, Russia, Science, Sciences, Trends, Universities, University, Value

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Full Text: [2012\Scientometrics91, 527.pdf](2012/Scientometrics91,%20527.pdf)

Abstract: Individualistic nature of research in the humanities is a common fact, as well as the notion that boundaries in humanities are poorly defined. Using citation analysis we have to take into account differences in citation practices not only between humanities and sciences but also within narrower fields of humanities. In the current study we observe differences between publication behaviour of historians and archaeologists, examine some aspects of citation practices in those fields, and show their effect on visibility.

Keywords: Analysis, Archaeology, Behavioral-Sciences, Behaviour, Boundaries, Citation, Citation Analysis, History, Humanities, Humanities, Indicators, Journals, Monographs, Notion, Practices, Publication, Publications, Research, Research Performance, Scholarship, Sciences, Social-Sciences, Sociology Citation Index, Visibility

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Full Text: [2012\Scientometrics91, 539.pdf](2012/Scientometrics91,%20539.pdf)

Abstract: This article, elaborating on mutuality of knowledge and social structure theory borrowed from sociology of knowledge literature, where knowledge is perceived as an essentially social and societal category, develops a coherent research framework which relates cognitive structure and the collaboration patterns into an integrated socio-knowledge analysis of a given scientific community. The framework extends co-word analysis combining it with social network analysis. The framework is enhanced by introducing a novel model. The new model maps actors from co-authorship networks into a strategic diagram of scientists. The mapping is based on cohesiveness and pervasiveness of issues each author has published in the field. The exemplary longitudinal case from Turkey covers scientific publication activities in Turkish management academia spanning the years from 1922 until 2008. It is seen that, while within local community diffusion of management knowledge is lead by academicians with certain socio-cognitive properties, academicians publishing at international arena do not show any significantly differing socio-cognitive properties, instead, they are merely embedded in strongly connected groups. Leading academicians within local community, however, exhibit a common socio-cognitive structure relative to the rest of the community. They have more social ties and more diversified disseminated knowledge compared to the rest. Knowledge they disseminate is distinct compared to their peers in the network, they hold certain part of their knowledge exclusively, thus knowledge-wise they don’t resemble the rest, but they keep a level of common knowledge with the rest of the community.

Keywords: Analysis, Co-Authorship, Co-Authorship Networks, Co-Word Analysis, Co-Word Analysis, Coauthorship, Collaboration, Community, Diffusion, Embeddedness, Field, Framework, International, Knowledge, Knowledge Diffusion, Lead, Literature, Local, Longitudinal, Management, Mapping, Maps, Model, Network, Network Analysis, Networks, Publication, Publishing, Research, Research Framework, Science, Scientific Collaboration, Scientific Publication, Social, Social Network Analysis, Socio-Cognitive Analysis, Sociology, Sociology of Knowledge, Strategic, Structure, Theory, Turkey

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Full Text: [2012\Scientometrics91, 557.pdf](2012/Scientometrics91,%20557.pdf)

Abstract: In this work the well known scientometric concepts of bibliographically coupled publications and co-cited references were applied to produce interactive maps of research fronts and knowledge bases of research fields. This article proposes a method and some standardization for the detection and visualization of research fronts and knowledge bases with two and three dimensional graphics inspired by geographical maps. Agglomerations of bibliographically coupled publications with a common knowledge base are identified and graphically represented by a density function of publications per area unit. The research fronts become visible if publications with similar vectors of common citations are associated and visualized as an ensemble in a three dimensional graphical representation as a mountain scenery measured with the help of a spatial density. Knowledge bases were calculated in the same way. Maps similar to the geographic representation of oceans and islands are used to visualize the two-dimensional spatial density function of references weighted by individual links. The proposed methodology is demonstrated by publications in the field of battery research.

Keywords: 3d-Visualisation, Battery Research, Bibliographic Coupling, Citation, Citations, Co-Citation Analysis, Emerging Research Fronts, Field, Function, Jaccard Index, Knowledge, Knowledge Base, Knowledge Bases, Local Paper Density, Method, Methodology, Publications, References, Representation, Research, Research Fronts, Science Mapping, Scientific Literature, Scientometric, Similarity, Spatial Density, Standardization, Three-Dimensional, Visualization, Work

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Full Text: [2012\Scientometrics91, 567.pdf](2012/Scientometrics91,%20567.pdf)

Abstract: A well-designed and comprehensive citation index for the social sciences and humanities has many potential uses, but has yet to be realised. Significant parts of the scholarly production in these areas are not published in international journals, but in national scholarly journals, in book chapters or in monographs. The potential for covering these literatures more comprehensively can now be investigated empirically using a complete publication output data set from the higher education sector of an entire country (Norway). We find that while the international journals in the social sciences and humanities are rather small and more dispersed in specialties, representing a large but not unlimited number of outlets, the domestic journal publishing, as well as book publishing on both the international and domestic levels, show a concentration of many publications in few publication channels. These findings are promising for a more comprehensive coverage of the social sciences and humanities.

Keywords: Analysis, Bibliographic Database, Books, Citation, Citation Index, Concentration, Country, Coverage, Data, Education, Higher Education, Humanities, Index, International, Journal, Journals, Norway, Performance, Potential, Publication, Publication Patterns, Publications, Publishing, Scholarly Journals, Scholarly Production, Sciences, Sector, Small, Social, Social Sciences

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Full Text: [2012\Scientometrics91, 577.pdf](2012/Scientometrics91,%20577.pdf)

Abstract: Citation relationships are commonly described with citation network or citation graph, but in this article, the author introduced the notion of citation genetic genealogy and apply it in citation analysis. A citing document usually only uses pieces of its cited document, so the author of this article defined these valuable pieces of a scientific document, which carry the information that have been used by its citing documents as its document genes. Besides, with the definition of symbolic information of a scientific document, the conclusion that a citing document inherited the document genes from its references can be drawn. Based on these understandings, citation genetic genealogy is constructed to describe citation relationships. With citation genetic genealogy, it is easy to map the citation relationships, like bibliographic coupling and co-citation, with familiar family relationships and illustrate the inheritance relationships in scientific literatures. Also, citation genetic genealogy may provide an interface between the citation analysis of a document set and the content analysis for each individual document inside this document set.

Keywords: Analysis, Bibliographic Coupling, Citation, Citation Analysis, Citation Family Relationships, Citation Genetic Genealogy, Citation Network, Co-Citation, Cocitation, Constructed, Content Analysis, Dimension, Document Gene, Document Genome Sequence, Document Genomes, Documents, Familiar, Family, Genes, Genetic, Indexes, Information, Interface, Literature, Network, Notion, References, Science, Scientific Literature

? Wang, X.W., Liu, D., Ding, K. and Wang, X.R. (2012), Science funding and research output: A study on 10 countries. *Scientometrics*, **91** (2), 591-599.

Full Text: [2012\Scientometrics91, 591.pdf](2012/Scientometrics91,%20591.pdf)

Abstract: This study reports research on analyzing the impact of government funding on research output. 500,807 SCI papers published in 2009 in 10 countries are collected and analyzed. The results show that, in China, 70.34% of SCI papers are supported by some research funding, among which 89.57% are supported by National Natural Science Foundation of China (NSFC). Average grants per funding-supported paper in China is 2.95, when in the USA the number is 2.93 and in Japan it is 2.40. The results of funding agency analysis show that, China, Germany and Spain are single funding agency dominated countries, while USA, Japan, Canada and Australia are double funding agencies dominated countries, and the source of funding in UK, France and Italy is diversified.

Keywords: Analysis, Australia, Canada, China, Countries, France, Funding, Funding Agency, Germany, Government Funding, Impact, Italy, Japan, NSFC, Papers, Research, Research Funding, Research Output, SCI, Science, Science Funding, Source, Spain, UK, USA

? Zelnio, R. (2012), Identifying the global core-periphery structure of science. *Scientometrics*, **91** (2), 601-615.

Full Text: [2012\Scientometrics91, 601.pdf](2012/Scientometrics91,%20601.pdf)

Abstract: While there is a consensus that there is a core-periphery structure in the global scientific enterprise, there have not been many methodologies developed for identifying this structure. This paper develops a methodology by looking at the differences in the power law structure of article outputs and degree centrality distributions of countries. This methodology is applied to five different scientific fields: astronomy and astrophysics, energy and fuels, nanotechnology and nanosciences, nutrition, and oceanography. This methodology uncovers a two-tiered power law structure that exists in all examined fields. The core-periphery structure that is unique to each field is characterized by the core’s size, minimum degree, and exponent of its power law distribution. Stark differences are identified between technology and non-technology intensive scientific fields.

Keywords: Consensus, Core-Periphery Structure, Countries, Distribution, Energy, Field, Global, Global Science, Globalization, International Collaboration, Law, Methodologies, Methodology, Minimum, Nanosciences, Nanotechnology, Network Centrality, Networks, Nutrition, Oceanography, Power, Power Law, Power Law Analysis, Science, Scientific Collaboration, Size, Structure, Structure of Science, Technology, World

? Zhang, L. and Glänzel, W. (2012), Where demographics meets scientometrics: Towards a dynamic career analysis. *Scientometrics* , **91** (2), 617-630.

Full Text: [2012\Scientometrics91, 617.pdf](2012/Scientometrics91,%20617.pdf)

Abstract: In an earlier exercise some demographic methods were reformulated for application in a scientometric context. Age-pyramids based on annual publication output and citation impact was supplemented by the change of the mean age of the publications in the h-core at any time. Although the method was introduced to shed some demographic-scientometric light on the career of individual researchers, the second component, i.e., the age dynamics of the h-core can however be applied to higher levels of aggregation as well. However, the found paradigmatic shapes and patterns do not only characterise individual careers and positions, but are also typical of life cycles and subject-specific peculiarities. In the present study, the proposed approach is used to visualise the careers of scientists active in different fields of the sciences and social sciences and notably the second component, the h-core dynamics, is extended to the analysis of scientific journals from the same fields. In addition to the dynamics of productivity and citation impact, the evolution of co-authorship patterns of the same scientists is studied to capture another facet of individual academic careers.

Keywords: Age, Age-Pyramids, Aggregation, Analysis, Application, Approach, Career Analysis, Careers, Citation, Citation Impact, Citations, Co-Authorship, Co-Authorship, Coauthorship, Coauthorship Networks, Collaborative Research, Context, Demographics, Dynamic, Dynamics, Evolution, Exercise, H-Core Dynamics, h-Index, Impact, Information-Science, Journals, Life, Method, Methods, Patterns, Productivity, Publication, Publications, Sciences, Scientific Journals, Scientific Literature, Scientometric, Scientometrics, Social, Social Sciences

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Full Text: [2012\Scientometrics91, 631.pdf](2012/Scientometrics91,%20631.pdf)

Abstract: the Science of Science and Innovation Policy (SciSIP) program at the National Science Foundation (NSF) supports research designed to advance the scientific basis of science and innovation policy. The program was established at NSF in 2005 in response to a call from Dr. John Marburger III, then science advisor to the U.S. President, for a “science” of science policy. As of January 2011, it has co-funded 162 awards that aim to develop, improve, and expand data, analytical tools, and models that can be directly applied in the science policy decision making process. The long-term goals of the SciSIP program are to provide a scientifically rigorous and quantitative basis for science policy and to establish an international community of practice. The program has an active listserv that, as of January 2011, has almost 700 members from academia, government, and industry. This study analyzed all SciSIP awards (through January 2011) to identify existing collaboration networks and co-funding relations between SciSIP and other areas of science. In addition, listserv data was downloaded and analyzed to derive complementary discourse information. Key results include evidence of rich diversity in communication and funding networks and effective strategies for interlinking researcher and science policy makers, prompting discussion, and resource sharing.

Keywords: Advance, Collaboration, Collaboration Networks, Communication, Community, Community Mapping, Complementary, Content Analysis, Data, Decision, Decision Making, Decision-Making, Discourse, Diversity, Evidence, Funding, Information, Innovation, International, Long Term, Long-Term, Mapping, Mixed Methods, Models, Networks, Policy, Policy Decision, Practice, Relations, Research, Science, Science Policy

? Gerken, J.M. and Moehrle, M.G. (2012), A new instrument for technology monitoring: novelty in patents measured by semantic patent analysis. *Scientometrics*, **91** (3), 645-670.

Full Text: [2012\Scientometrics91, 645.pdf](2012/Scientometrics91,%20645.pdf)

Abstract: Given that in terms of technology novel inventions are crucial factors for companies; this article contributes to the identification of inventions of high novelty in patent data. As companies are confronted with an information overflow, and having patents reviewed by experts is a time-consuming task, we introduce a new approach to the identification of inventions of high novelty: a specific form of semantic patent analysis. Subsequent to the introduction of the concept of novelty in patents, the classical method of semantic patent analysis will be adapted to support novelty measurement. By means of a case study from the automotive industry, we corroborate that semantic patent analysis is able to outperform available methods for the identification of inventions of high novelty. Accordingly, semantic patent information possesses the potential to enhance technology monitoring while reducing both costs and uncertainty in the identification of inventions of high novelty.

Keywords: Analysis, Approach, Automotive, Case Study, Citation Analysis, Citations, Classification Analysis, Co-Word Analysis, Costs, Data, Evolution, Experts, Identification, Indicators, Industry, Information, Innovation, Introduction, Inventions, Inventive Progress, Measurement, Method, Methods, Monitoring, Novelty, Novelty Measurement, Patent, Patent Analysis, Patent Information, Patents, Potential, Research-and-Development, Semantic Patent Analysis, Similarity, Support, Technology, Technology Monitoring, Trends, Uncertainty

? Azagra-Caro, J.M. (2012), Access to universities’ public knowledge: Who’s more nationalist? *Scientometrics*, **91** (3), 671-691.

Full Text: [2012\Scientometrics91, 671.pdf](2012/Scientometrics91,%20671.pdf)

Abstract: Access to public knowledge is a prerequisite for the good functioning of developed economies. Universities strive and are also requested to contribute to this knowledge both locally and internationally. Traditional studies on the geography of knowledge flows have identified a localisation effect; however, these studies do not use the country as the unit of observation and hence do not explore national patterns. In this paper, we hypothesise that the localisation of university knowledge flows is directly related to share of firm expenditure on research and development. To test this hypothesis, we use references to universities in patent documents as indicators based on a data set of around 20,000 university references, for 37 countries in the period 1990-2007, resulting in panels of around 300-500 observations. We build indicators for the university knowledge flows both inside and outside the applicant country, which we explain as a function of some proxies for national size and research structure based on econometric estimations. We draw some conclusions as to the importance of national business scientific strength for fostering increased domestic university knowledge flows.

Keywords: Business, Countries, Country, Data, Development, Examiner Citations, Flows, Function, Geography, Indicators, Internationalization, Knowledge, Knowledge Flows, Observation, Patent, Patent Citations, Patterns, Proximity, Public, R&D Expenditure, References, Research, Research and Development, Research Collaboration, Science, Size, Spillovers, Strength, Structure, Technology, the Good, Universities, University

? Wang, Y., Ma, R.M., Tang, T.H., Liu, X., Xie, P., Wang, J.X., Liu, J.X., Zhou, H.D. and Zhang, S.W. (2012), The comprehensive competitiveness evaluation of American universities in Bridge Engineering. *Scientometrics*, **91** (3), 693-701.

Full Text: [2012\Scientometrics91, 693.pdf](2012/Scientometrics91,%20693.pdf)

Abstract: This article explores a method of evaluating the comprehensive competitiveness of American universities in Bridge Engineering, which is beneficial for students’ picking up an ideal university for further study in America. Making use of ESI database, SCI database and EI database as well as the ranking of American universities from U.S. News and World Report, the author evaluates the comprehensive competitiveness of American universities in Bridge Engineering, and then develops the ranking of comprehensive competitiveness of American universities in Bridge Engineering specialty. From the ranking, the author reaches the conclusion that American universities such as University of Illinois-Urbana-Champaign and Georgia Institute of Technology and so on, have comparatively higher international influence and competitiveness in the field of Bridge Engineering.

Keywords: American Universities, Bridge Engineering, Competitiveness, Database, Evaluation, Field, Georgia, International, Method, News, Ranking, SCI, Specialty, Students, Universities, University, University Rankings

? Hua, W.N., Yuan, S.B., Yan, M.M. and Li, Y. (2012), A quantitative analysis of Arctic related articles in the humanities and social sciences appearing in the world core journals. *Scientometrics*, **91** (3), 703-718.

Full Text: [2012\Scientometrics91, 703.pdf](2012/Scientometrics91,%20703.pdf)

Abstract: To demonstrate the importance of Arctic studies in the humanities and social sciences, we collected data from the SSCI and A&HCI covering a period of over 100 years and focused on the number of papers published each year, the major journals, types of documents, major languages represented, authors and their countries publishing the most articles, author’s affiliations, collaboration and the major research subjects covered. The results indicate that worldwide scholars had never been absent in this field for more than one century. Countries near the Arctic, particularly in North America and the Nordic, show the most interest and have the most research results. Universities and colleges are the most important research institutions in this field. North America is the area that has conducted the largest amount of research, while some Western European countries such as Germany and France, performed with great enthusiasm research in relation with North Pole expeditions. Arctic research in the humanities and social sciences has gradually expanded from the historical, archaeological, and anthropological fields to the realm of political, social, educational sciences including international relations, music, art, etc.

Keywords: A&Hci, Analysis, Arctic, Arctic Studies, Art, Articles, Authors, Bibliometric Study, Collaboration, Controversy, Countries, Data, Field, France, Germany, Humanities, Humanities and Social Sciences, Index, Institutions, International, Journals, Languages, Network Analysis, North, North America, Papers, Publishing, Quantitative Analysis, Relations, Research, Research Institutions, Research Results, Sciences, Social, Social Sciences, SSCI, Universities, World

? Jeong, S. and Choi, J.Y. (2012), The taxonomy of research collaboration in science and technology: Evidence from mechanical research through probabilistic clustering analysis. *Scientometrics*, **91** (3), 719-735.

Full Text: [2012\Scientometrics91, 719.pdf](2012/Scientometrics91,%20719.pdf)

Abstract: This paper suggests an empirical framework to classify research collaboration activities with developed indicators that carry on a previous theoretical framework (Wagner [Science and Technology Policy for Development, Dialogues at the Interface, 2006]; Wagner et al. [Linking effectively: Learning lessons from successful collaboration in science and technology. DB-345-OSTP, 2002]) by employing the Gaussian mixture model, an advanced probabilistic clustering analysis. By further exploring the method upon a profound evidence-based reflection of actual phenomena, this paper also proposes an exploratory analysis to manage and evaluate research projects upon their differentiated classification in a preceding perspective of research collaboration and R&D management. In addition, the results show that international collaboration tends to be associated with more evenly committed collaboration, and that collaboration featuring a higher degree of funding or dispersed commitments generally results in larger outcomes than research clustered on the opposite side of the framework.

Keywords: Analysis, Classification, Clustering, Co-Authorships, Collaboration, Determinants, Evidence, Evidence Based, Evidence-Based, Framework, Funding, Gaussian Mixture, Impacts, Indicators, International, International Collaboration, Management, Method, Model, Outcomes, Policy, Projects, Quality, R&D, R&D Management, Reflection, Research, Research and Development Strategy, Research Collaboration, Science, Science and Technology, Taxonomy, Technology

? Wang, X.W., Xu, S.M., Liu, D. and Liang, Y.X. (2012), The role of Chinese-American scientists in China-US scientific collaboration: A study in nanotechnology. *Scientometrics*, **91** (3), 737-749.

Full Text: [2012\Scientometrics91, 737.pdf](2012/Scientometrics91,%20737.pdf)

Abstract: In this paper, we use bibliometric methods and social network analysis to analyze the pattern of China-US scientific collaboration on individual level in nanotechnology. Results show that Chinese-American scientists have been playing an important role in China-US scientific collaboration. We find that China-US collaboration in nanotechnology mainly occurs between Chinese and Chinese-American scientists. In the co-authorship network, Chinese-American scientists tend to have higher betweenness centrality. Moreover, the series of polices implemented by the Chinese government to recruit oversea experts seems to contribute a lot to China-US scientific collaboration.

Keywords: Analysis, Bibliometric, Bibliometric Methods, Chinese, Chinese-American, Co-Authorship, Coauthorship, Coauthorship Network, Collaboration, Collaboration Network, Experts, Methods, Nanotechnology, Network, Network Analysis, Pattern, Patterns, Role, Science-and-Technology, Scientific Collaboration, Social, Social Network Analysis

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Full Text: [2012\Scientometrics91, 751.pdf](2012/Scientometrics91,%20751.pdf)

Abstract: Excellence for Research in Australia (ERA) is an attempt by the Australian Research Council to rate Australian universities on a 5-point scale within 180 Fields of Research using metrics and peer evaluation by an evaluation committee. Some of the bibliometric data contributing to this ranking suffer statistical issues associated with skewed distributions. Other data are standardised year-by-year, placing undue emphasis on the most recent publications which may not yet have reliable citation patterns. The bibliometric data offered to the evaluation committees is extensive, but lacks effective syntheses such as the h-Index and its variants. The indirect H-2 index is objective, can be computed automatically and efficiently, is resistant to manipulation, and a good indicator of impact to assist the ERA evaluation committees and to similar evaluations internationally.

Keywords: Academic Institutions, Alternative, Australia, Australian, Bibliometric, Citation, Citation Analysis, Citation Patterns, Data, Economics, ERA, Evaluation, Excellence, Excellence for Research in Australia (ERA), Forestry, Google-Scholar, h Index, H-2, h-Index, Impact, Index, Indicator, Indicators, Institutions, Journal Ranking, Metrics, Percentile, Performance, Publications, Ranking, Recent, Research, Research Performance, Research Quality, Scale, Successive h-Index, Successive h-Indexes, Universities, Variants, Web

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Full Text: [2012\Scientometrics91, 773.pdf](2012/Scientometrics91,%20773.pdf)

Abstract: This study attempts to expand the work on patenting activities of China. The characteristics of foreign multinationals and indigenous entities’ patenting activities in the US patent system are examined in our analysis. This study also attempts to model the diffusion trajectories of patenting activities that result from the functioning of two competing innovation system models adopted by China-FDI and indigenous-to compare the extent of divergence of technological innovations. The findings are useful for highlighting the path of technological innovations and understanding the dynamic potentials through analysis of the growth process. While the results suggest a dominance of foreign firms in patenting activities since the early 2000s, there is a sign of transition from industrial-based to knowledge-driven activities and the formation of evolving propagating behaviour in the production of indigenous technology.

Keywords: Analysis, Behaviour, Case Study, Characteristics, China, Diffusion, Dynamic, Dynamics, Foreign Multinationals, Growth, Indicators, Indigenous Entities, Innovation, Innovation System, Mapping, Model, Models, Patent, Patent Analysis, Patents, Patterns, Policy, Science-and-Technology, System Reform, Technological Innovations, Technology, Understanding, US, Work

? Huang, M.H. and Chang, Y.W. (2012), A comparative study of interdisciplinary changes between information science and library science. *Scientometrics*, **91** (3), 789-803.

Full Text: [2012\Scientometrics91, 789.pdf](2012/Scientometrics91,%20789.pdf)

Abstract: This study employs the method of direct citation to analyze and compare the interdisciplinary characteristics of the two disciplines of library science and information science during the period of 1978-2007. Based on the research generated by five library science journals and five information science journals, library science researchers tend to cite publications from library and information science (LIS), education, business/management, sociology, and psychology, while researchers of information science tend to cite more publications from LIS, general science, computer science, technology, and medicine. This means that the disciplines with larger contributions to library science are almost entirely different from those contributing to information science. In addition, researchers of library science frequently cite publications from LIS; the rate is as high as 65.61%, which is much higher than the rate for information science, 49.50%. However, a decreasing trend in the percentage of LIS in library science indicates that library science researchers tend to cite more publications from non-LIS disciplines. A rising trend in the proportion of references to education sources is reported for library science articles, while a rising trend in the proportion of references to computer science sources has been found for information science articles. In addition, this study applies an interdisciplinary indicator, Brillouin’s Index, to measurement of the degree of interdisciplinarity. The results confirm that the trend toward interdisciplinarity in both information science and library science has risen over the years, although the degree of interdisciplinarity in information science is higher than that in library science.

Keywords: Articles, Author Cocitation, Changes, Characteristics, Citation, Communication, Comparative Study, Direct Citation, Disciplines, Education, Evolution, Field, General, Indicator, Information, Information Science, Interdisciplinarity, Interdisciplinary, Interdisciplinary Changes, Journals, LI, Library and Information Science, Library Science, LIS, Map, Measurement, Medicine, Method, Patterns, Psychology, Publications, References, Research, Scholars, Science, Science Journals, Sociology, Sources, Technology, Trend, Work

? Moehrle, M.G. and Gerken, J.M. (2012), Measuring textual patent similarity on the basis of combined concepts: Design decisions and their consequences. *Scientometrics*, **91** (3), 805-826.

Full Text: [2012\Scientometrics91, 805.pdf](2012/Scientometrics91,%20805.pdf)

Abstract: for certain tasks in patent management it makes sense to apply a quantitative measure of textual similarity between patents and/or parts thereof: be it the analysis of freedom to operate, the analysis of technology convergence, or the mapping of patents for strategic purposes. In this paper we intend to outline the process of measuring textual patent similarity on the basis of elements referred to as ‘combined concepts’. We are going to use this process in various operations leading to design decisions, and shall also provide guidance regarding these decisions. By way of two applications from patent management, namely the prioritization of patents and the analysis of convergence between two technological fields, we mean to demonstrate the crucial importance of design decisions in terms of patent analysis results.

Keywords: Analysis, Convergence Analysis, Design, Freedom, Guidance, Latent Semantic Analysis, Management, Mapping, Maps, Measure, Models, Patent, Patent Analysis, Patent Mapping, Patents, Prior Art Analysis, Prioritization, Similarity, Similarity Coefficients, Similarity Measurement, Strategic, Technology

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Full Text: [2012\Scientometrics91, 827.pdf](2012/Scientometrics91,%20827.pdf)

Abstract: the number of citations received by authors in scientific journals has become a major parameter to assess individual researchers and the journals themselves through the impact factor. A fair assessment therefore requires that the criteria for selecting references in a given manuscript should be unbiased with regard to the authors or journals cited. In this paper, we assess approaches for citations considering two recommendations for authors to follow while preparing a manuscript: (i) consider similarity of contents with the topics investigated, lest related work should be reproduced or ignored; (ii) perform a systematic search over the network of citations including seminal or very related papers. We use formalisms of complex networks for two datasets of papers from the arXiv and the Web of Science repositories to show that neither of these two criteria is fulfilled in practice. By representing the texts as complex networks we estimated a similarity index between pieces of texts and found that the list of references did not contain the most similar papers in the dataset. This was quantified by calculating a consistency index, whose maximum value is one if the references in a given paper are the most similar in the dataset. for the areas of “complex networks” and “graphenes”, the consistency index was only 0.11-0.23 and 0.10-0.25, respectively. To simulate a systematic search in the citation network, we employed a traditional random walk search (i.e. diffusion) and a random walk whose probabilities of transition are proportional to the number of the ingoing edges of the neighbours. The frequency of visits to the nodes (papers) in the network had a very small correlation with either the actual list of references in the papers or with the number of downloads from the arXiv repository. Therefore, apparently the authors and users of the repository did not follow the criterion related to a systematic search over the network of citations. Based on these results, we propose an approach that we believe is fairer for evaluating and complementing citations of a given author, effectively leading to a virtual scientometry.

Keywords: Approach, Assessment, Authors, Citation, Citation Network, Citations, Citing Behavior, Complex Networks, Consistency, Correlation, Criteria, Diffusion, Fawlty Towers, Impact, Impact Factor, Index, Journals, Network, Networks, Ombudsman, Papers, Practice, Quality, Random Walk, Recommendations, References, Science, Scientific Journals, Scientometry, Similarity, Similarity Network, Small, Topics, Value, Virtual Scientometry, Web of Science, Work

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Full Text: [2012\Scientometrics91, 843.pdf](2012/Scientometrics91,%20843.pdf)

Abstract: Whereas in traditional, closed peer review (CPR) a few, selected scientists (peers) are included in the process of manuscript review, public peer review (PPR) includes, in addition to invited reviewers, a wider circle of scientists who are interested in a manuscript and wish to write a comment on it. In this study, using the data of two comprehensive evaluation studies on the CPR process at Angewandte Chemie-International Edition and the PPR process at Atmospheric Chemistry and Physics, we examined the language characteristics in comments that were written by invited reviewers in CPR and by invited reviewers and interested members of the scientific community in PPR. We used Linguistic Inquiry and Word Count (LIWC), a text analysis software program that counts words in meaningful categories (e.g., positive or negative emotions) using a standardized dictionary. We examined 599 comments from the reviews of 229 manuscripts. The results show that the comments in PPR are much longer than the comments in CPR. This is an indication that PPR reviewing has more of an improvement function and CPR reviewing has more of a selection function. The results also show that CPR is not, as might be expected, more susceptible to the expression of negative emotions than PPR is. On the contrary, positive emotion words are used statistically significantly more frequently in CPR than in PPR.

Keywords: Abstracts, Analysis, Angewandte Chemie-International Edition, Angewandte-Chemie, Atmospheric Chemistry and Physics, Characteristics, Chemie-International-Edition, Chemistry, Comments, Community, CPR, Data, Evaluation, Evaluation Studies, Expression, Function, Improvement, Indication, Journal, Journal Peer Review, Linguistic Inquiry and Word Count (LIWC), Open, Peer Review, Peer-Review, Physics, Predictive-Validity, Public, Referees, Review, Reviews, Software, Text Analysis, Words

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Full Text: [2012\Scientometrics91, 857.pdf](2012/Scientometrics91,%20857.pdf)

Abstract: Purpose-this paper aims to look at the Hawthorne effect in editorial peer review. Design/methodology/approach-discusses the quality evaluation of refereed scholarly journals. Findings-a key finding of this research was that in the peer review process of one and the same manuscript, reviewers or editors, respectively, arrive at different judgments. This phenomenon is named as “Hawthorne effect” because the different judgements are dependent on the specific conditions under which the peer review process at the individual journals takes place. Originality/value-provides a discussion on the quality evaluation of scholarly journals.

Keywords: Acceptance, Agreement, Angewandte-Chemie, Bias, Editorial Peer Review, Evaluation, Fate, Hawthorne Effect, Journal, Journals, Manuscript Rejection, Manuscripts, Neuroradiology, Peer Review, Peer-Review, Predictive-Validity, Publication, Quality, Research, Review, Review Process, Scholarly Journals, Science

? Abt, H.A. (2012), A publication index that is independent of age. *Scientometrics*, **91** (3), 863-868.

Full Text: [2012\Scientometrics91, 863.pdf](2012/Scientometrics91,%20863.pdf)

Abstract: the Hirsch h-Index is widely used to measure a researcher’s major publications. It has the advantage of being easy to compute. However, it increases steeply with time and therefore does not allow a comparison of young and mature researchers. We find that if the h-Index is divided by the number of decades since publication of the researcher’s first paper, the result is statistically constant with age. Then the resulting index can be compared for young and old researchers. Its accuracy is the same as that of the h-Index and is as easy to compute as the h-Index.

Keywords: Accuracy, Age, Astronomy, Comparison, First, h Index, h-Index, Hirsch, Hirsch h-Index, Index, Measure, Publication, Publication Indexes, Publications

? Akritidis, L., Katsaros, D. and Bozanis, P. (2012), Identifying attractive research fields for new scientists. *Scientometrics*, **91** (3), 869-894.

Full Text: [2012\Scientometrics91, 869.pdf](2012/Scientometrics91,%20869.pdf)

Abstract: Prior to the beginning of a scientific career, every new scientist is obliged to confront the critical issue of defining the subject area where his/her future research will be conducted. Regardless of the capabilities of a new scholar, an erroneous selection may condemn a dignified effort and result in wasted energy, time and resources. In this article we attempt to identify the research fields which are attractive to these individuals. To the best of our knowledge, this is a new topic that has never been discussed or addressed in the literature. Here we formally set the problem and we propose a solution combining the characteristics of the attractive research areas and the new scholars. Our approach is compared against a statistical model which reveals popular research areas. The comparison of this method to our proposed model leads to the conclusion that not all trendy research areas are suitable for new scientists. A secondary outcome reveals the existence of scientific fields which although they are not so emerging, they are promising for scientists who are starting their career.

Keywords: Approach, Attractive, Author, Characteristics, Citations, Comparison, Energy, h-Index, Hirsch Index, Impact, Journals, Knowledge, Literature, Method, Model, Outcome, Ranking, Research, Research Area, Research Field, Resources, Science, Scientist, Scientometrics, Solution

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Full Text: [2012\Scientometrics91, 895.pdf](2012/Scientometrics91,%20895.pdf)

Abstract: This study analysed the technical and publication activities of the Institute of Electrical and Electronics Engineering (IEEE), The most influential academic publisher in engineering. We first constructed an original comprehensive database of periodicals (journal and magazine) and conference proceedings published by the IEEE between 1980 and 2008, which comprised approximately 0.36 million periodical articles and 1.14 million conference articles. We analysed the transitions in technical innovations from two perspectives: trends within (1) individual countries and (2) specialized fields represented in IEEE societies. The number of published periodical articles increased fourfold between 1980 and 2008, while that of published conference articles increased nearly 20-fold in the same period. In particular, the number of conference articles published by China increased dramatically from 2002, exceeding even the number published by the US in 2008. The IEEE has increasingly shifted away from its US-centred origins to literally becoming the ‘electrical and electronics association of the world’. The proportion of articles published by authors in North America, Europe and East Asia has increasingly balanced, thus leading to the formation of a tri-polar structure of IEEE technological activities. This comprehensive analysis of IEEE publications over a period of almost 30 years revealed that with the emergence of more active international competition, ‘glocalisation’ is occurring among publications and research activities of the IEEE. Consequently, quantitative analysis revealed structural changes in global competition and technological transition characterized by five phases.

Keywords: Analysis, Articles, Asia, Association, Authors, Bibliometric Analysis, Changes, China, Communication, Competition, Computer-Science, Conference Proceedings, Constructed, Countries, Database, Electronic, Engineering, Europe, First, Global, Globalisation, Index, Information, Information and Communication, International, Journal, North, North America, Periodical, Periodicals, Publication, Publications, Quantitative Analysis, Research, Scholarly Communication, Structure, Technological Transition, Trends, Tri-Polar Structure, US, World

? Smolinsky, L. and Lercher, A. (2012), Citation rates in mathematics: A study of variation by subdiscipline. *Scientometrics*, **91** (3), 911-924.

Full Text: [2012\Scientometrics91, 911.pdf](2012/Scientometrics91,%20911.pdf)

Abstract: Variation of citation counts by subdisciplines within a particular discipline is known but rarely systematically studied. This paper compares citation counts for award-winning mathematicians is different subdisciplines of mathematics. Mathematicians were selected for study in groups of rough equivalence with respect to peer evaluation, where this evaluation is given by the awarding of major prizes and grants: Guggenheim fellowships, Sloan fellowships, and National Science Foundation CAREER grants. We find a pattern in which mathematicians working in some subdisciplines have fewer citations than others who won the same award, and this pattern is consistent for all awards. So even after adjustment at the discipline level for different overall citation rates for disciplines, citation counts for different subdisciplines do not match peer evaluation. Demographic and hiring data for mathematics provides a context for a discussion of reasons and interpretations.

Keywords: Adjustment, Awardees, Awards, Career, Citation, Citation Analysis, Citation Counts, Citation Rates, Citations, Context, Data, Evaluation, Fields, Grantees, Grants, Hiring, Mathematics, Pattern, Peer Evaluation, Rates, Science, Scientific Impact, Subdisciplines

? Lee, D.H., Seo, I.W., Choe, H.C. and Kim, H.D. (2012), Collaboration network patterns and research performance: the case of Korean public research institutions. *Scientometrics*, **91** (3), 925-942.

Full Text: [2012\Scientometrics91, 925.pdf](2012/Scientometrics91,%20925.pdf)

Abstract: This study examines the impact of collaborating patterns on the R&D performance of public research institutions (PRIs) in Korea’s science and engineering fields. for the construction of R&D collaborating networks based on the co-authorship data of 127 institutions in Scopus, this paper proposes four types of collaborations by categorizing network analyses into two dimensions: structural positions (density, efficiency, and betweeness centrality) and the relational characteristics of individual nodes (eigenvector and closeness centralities). To explore the research performance by collaboration type, we employ a data envelopment analysis window analysis of a panel of 23 PRIs over a 10-year period. Comparing the R&D productivities of each group, we find that the PRIs of higher productivity adhere to a cohesive networking strategy, retaining intensive relations with their existing partners. The empirical results suggest that excessively cohesive alliances might end up in ‘lock-in’ relations, hindering the exploitation of new opportunities for innovation. These findings are implicit in relation to the Korean Government’s R&D policies on collaborating strategies to produce sustained research results with the advent of the convergence research era.

Keywords: Alliance, Analyses, Analysis, Characteristics, Co-Authorship, Coauthorship, Collaboration, Collaboration Pattern, Collaborations, Construction, Data, Data Envelopment, Data Envelopment Analysis, Dea Window, Efficiency, Engineering, Impact, Indicators, Industry, Innovation, Institutions, Knowledge, Network, Networks, Performance, Policies, Productivity, Public, R&D, R&D Performance, Relations, Research, Research Institutions, Research Performance, Research Results, Science, Science Policy, Scientific Collaboration, Scopus, Social Network, Social Network Analysis, Strategy, Triple-Helix

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Full Text: [2012\Scientometrics91, 943.pdf](2012/Scientometrics91,%20943.pdf)

Abstract: Ecologists writing research articles frequently cite their own papers. Self-citations are frequent in science, but the reasons behind abnormally high rates of self-citations are questionable. My goals were to assess the prevalence of author self-citations and to identify the combination of attributes that best predict high levels of self-citations in ecology articles. I searched 643 articles from 9 different ecology journals of various impact factors for synchronous (i.e., within reference lists) and diachronous (i.e., following publication) self-citations, using the Web of Science online database. I assessed the effect of the number of authors, pages, and references/citations, the proportion of diachronous/synchronous self-citations, and the impact factor, on the proportion of synchronous and diachronous self-citations separately. I compared various candidate models made of these covariates using Akaike’s Information Criterion. On average, ecologists made 6.0 synchronous self-citations (12.8% of references), and 2.5 diachronous self-citations (25.5% of citations received 2.8 to 4.5 years after publication) per article. The best predictor of the proportion of synchronous self-citations was the number of authors. My study is the first to report recidivism in the inclusion of self-citations by researchers, i.e., the proportion of diachronous self-citations was best explained by the proportion of synchronous self-citations. The proportion of self-citations also increased with the number of pages and the impact factor of ecology journals, and decreased with the number of references/citations. Although a lot of variance remained unexplained, my study successfully showed regularities in the propensity of ecologists to include self-citations in their research articles.

Keywords: Articles, Author, Authors, Bibliometrics, Citation Models, Citations, Collaboration, Database, Diachronous Self-Citations, Ecology, Field, First, Impact, Impact Factor, Impact Factors, Inclusion, Index, Journal Impact Factor, Journal Impact Factor, Journals, Models, Papers, Prevalence, Publication, Rates, Recidivism, Reference, Reference Lists, References, Research, Science, Self-Citations, Self-Reference, Synchronous Self-Citations, Web of Science

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Full Text: [2012\Scientometrics91, 955.pdf](2012/Scientometrics91,%20955.pdf)

Abstract: the present study proposes a bibliometric methodology for measuring the grade of correspondence between regional industry’s demand for research collaboration and supply from public laboratories. The methodology also permits measurement of the intensity and direction of the regional flows of knowledge in public-private collaborations. The aim is to provide a diagnostic instrument for regional and national policy makers, which could add to existing ones to plan interventions for re-balancing sectorial public supply of knowledge with industrial absorptive capacity, and maximizing appropriability of knowledge spillovers. The methodology is applied to university-industry collaborations in the hard sciences in all Italian administrative regions.

Keywords: Bibliometric, Bibliometrics, Capacity, Co-Authorship, Collaboration, Collaborations, Demand, Entrepreneurship, European Regions, Growth, Innovation Systems, Interventions, Italy, Knowledge, Knowledge Spillover, Knowledge Spillovers, Measurement, Methodology, Policy, Proximity, Public, Regional, Research, Research Collaboration, Research-and-Development, Science, Sciences, University-Industry Interaction

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Full Text: [2012\Scientometrics91, 977.pdf](2012/Scientometrics91,%20977.pdf)

Abstract: Over the last decades there has been a growing interest on developing research and formulating public policy by using the Innovation Systems approach. However, as evidenced on the academic literature there is a lack of systematic, chronological and synthesizing studies indicating how this field has evolved over time. This paper has as main objective to consolidate the state of the art of academic research on IS, based on a bibliometrics study on literature published over the past 35 years. The results are discussed under the following perspectives: general results, chronological distribution, author relevance, articles and cited references of relevance, journals relevance and institutions and countries relevance. The paper ends with a discussion of the main implications and limitations of the study.

Keywords: Approach, Art, Articles, Bibliometrics, Capacity, Countries, Determinants, Developing, Distribution, Field, General, Historical-Perspective, Innovation Systems, Institutions, International Competitiveness, IS, Journals, Literature, National Systems, Policy, Public, Public Policy, References, Relevance, Research, State, Systems of Innovation, Taxonomy, Technical Change, Technological Infrastructure, Trajectories

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Full Text: [2012\Scientometrics91, 997.pdf](2012/Scientometrics91,%20997.pdf)

Abstract: Scalar measures of research performance (Energy, Exergy, and Entropy or EEE) are based on what can be called the bibliometrics-thermodynamics consilience. Here, their application to the percentile ranking normalization scheme is demonstrated.

Keywords: Application, Bibliometric Indicators, Bibliometrics, Citation, Eee, Energy, Entropy, Exergy, I3, Indicators, Integrated Impact Indicator, Normalization, Performance, Quality, Quantity, Quasity, Ranking, Research, Research Performance, Scalar

? Tao, T.Z., Bo, L.L., Wang, F., Li, J.B. and Deng, X.M. (2012), Equal contributions and credit given to authors in anesthesiology journals during a 10-year period. *Scientometrics*, **91** (3), 1005-1010.

Full Text: [2012\Scientometrics91, 1005.pdf](2012/Scientometrics91,%201005.pdf)

Abstract: To investigate the prevalence and characteristics of the practice of explicitly giving authors equal credit in publications of major anesthesiology journals. Four major anesthesiology journals (Anesthesia and Analgesia (AA), Anesthesiology, British Journal of Anaesthesia (BJA) and Pain) were searched manually to identify original research articles published between January 1st, 2001 and December 31st, 2010 with respect to equally credited authors (ECAs). It was found that all journals explicitly gave authors equal credit, and articles with ECAs accounted for a greater proportion of the total number of articles published in each journal in 2010 versus that in 2000 (AA: 3.3% vs. 0%; Anesthesiology: 7.1% vs. < 1%; BJA: 5.7% vs. 0%; Pain: 11.0% vs. < 1%). The number of ECAs articles tended to increase significantly yearly in all journals (P < 0.0001 for each journal). The first two authors in the byline received equal credit in most cases. Furthermore, the ECAs articles involved institutions from different countries and regions and were sponsored by various funds. However, no specific guidance concerning this practice was provided in the instructions to authors in the four journals. It is increasingly common to give authors equal credit in original research articles in major anesthesiology journals. Detailed guidelines regarding this practice are warranted in future.

Keywords: Anesthesia, Anesthesiology, Articles, Authors, Authorship, Characteristics, Countries, Equal Contribution, First, Guidance, Guidelines, Institutions, Journal, Journals, P, Pain, Practice, Prevalence, Publications, Research

? Wang, F.F., Qiu, J.P. and Yu, H.Q. (2012), Research on the cross-citation relationship of core authors in scientometrics. *Scientometrics*, **91** (3), 1011-1033.

Full Text: [2012\Scientometrics91, 1001.pdf](2012/Scientometrics91,%201001.pdf)

Abstract: Generally speaking, citation relationship among authors can be divided into 3 types: co-citation, coupling and cross-citation. Since author co-citation analysis was first introduced in 1982, it has been widely applied to study discipline structure, research state and research trends. Afterwards, conception of author bibliographic-coupling analysis was put forward and related empirical studies provided a method for mapping active authors in a research field for a more realistic picture of the current state of its research activities. Additionally, if one of author A’s papers has a citation from one of author B’s, there is cross-citation relationship between A and B. However, studies based on author cross-citation relationship mainly describe citation behaviors themselves using citation identity and citation image; they rarely involve any implicit knowledge communication, author research correlation or discovering academic communities. Author cross-citation analysis infers to both citing and cited phenomenon, which can be roughly correspond to citation identity and citation image. The study will further explore the author cross-citation relationship with core authors in scientometrics field as study object in order to provide reference for development of scientometrics field and in-depth application of citation analysis.

Keywords: Academic Community, Analysis, Application, Author, Author Cocitation Analysis, Author Cross-Citation, Authors, Bibliographic Coupling, Citation, Citation Analysis, Co-Citation, Co-Citation Analysis, Cocitation, Cocitation Analysis, Communication, Conception, Correlation, Development, Empirical Studies, Field, First, Information-Science, Knowledge, Knowledge Communication, Mapping, Method, Papers, Reference, Research, Research Trends, Scientometrics, State, Structure, Trends, Web

? Hassan, S.U., Haddawy, P., Kuinkel, P., Degelsegger, A. and Blasy, C. (2012), A bibliometric study of research activity in ASEAN related to the EU in FP7 priority areas. *Scientometrics*, **91** (3), 1035-1051.

Full Text: [2012\Scientometrics91, 1035.pdf](2012/Scientometrics91,%201035.pdf)

Abstract: Two relevant recent developments in the area of science and technology (S&T) and related policy-making motivate this article: first, bibliometric data on a specific research area’s performance becomes an increasingly relevant source for S&T policy-making and evaluation. This trend is embedded in wider discussions on evidence-based policy-making. Secondly, the scientific output of Southeast Asian countries is rising, as is the number of international research collaborations with the second area of our interest: Europe. Against this background, we employ basic bibliometric methodology in order to draw a picture of Southeast Asian research strengths as well the amount and focus of S&T cooperation between the countries in Southeast Asia and the European Union. The results can prove useful for an interested public as well as for the scientific community and science, technology and innovation policy-making.

Keywords: Asean, Asia, Asian, Bibliometric, Bibliometric Study, Bibliometrics, Collaborations, Community, Cooperation, Countries, Data, EU, Europe, European Union, Evaluation, Evidence Based, Evidence-Based, First, FP7 Thematic Priority Areas, Innovation, International, International Research Collaboration, Methodology, Performance, Policy Making, Public, Recent, Research, Science, Science and Technology, Scientific Output, Source, Southeast Asia’s Research Activity, Technology, Trend

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Full Text: [2012\Scientometrics91, 1053.pdf](2012/Scientometrics91,%201053.pdf)

Abstract: It is shown that the age-independent index based on h-type index per decade, called hereafter an alpha index instead of the a index, suggested by Kosmulski (Journal of Informetrics 3, 341-347, 2009) and Abt (Scientometrics 2012) is related to the square-root of the ratio of citation acceleration a to the Hirsch constant A.

Keywords: Age-Independent Index Alpha, Citation, Citation Acceleration A, Hirsch, Hirsch Constant A, Hirsch Index h, Index, Journal, Output, Publication, Scientometrics

? Burrell, Q.L. (2012), Comments on “A publication index that is independent of age” by Abt. *Scientometrics*, **91** (3), 1059-1060

Full Text: [2012\Scientometrics91, 1059.pdf](2012/Scientometrics91,%201059.pdf)

Keywords: h-Index, Index, Publication

? Chuang, K.Y. and Ho, Y.S. (2012), Comments on “a bibliometric study of the trend in articles related to eutrophication published in Science Citation Index”. *Scientometrics*, **91** (3), 1061-1065.

Full Text: [2012\Scientometrics-Chuang-2.pdf](2012/Scientometrics-Chuang-2.pdf); [2012\Scientometrics-Chuang-1.pdf](2012/Scientometrics-Chuang-1.pdf); [2012\Scientometrics-Chuang.pdf](2012/Scientometrics-Chuang.pdf); [2012\Scientometrics91, 1061.pdf](2012/Scientometrics91,%201061.pdf)

Keywords: Articles, Bibliometric, Bibliometric Study, Citation, Eutrophication, Science, Trend

? Huang, Y. and Wang, J. (2012), Response to Chuang and Ho’s comments on “a bibliometric study of the trend in articles related to eutrophication published in Science Citation Index”. *Scientometrics*, **91** (3), 1067-1071.

Full Text: [2012\Scientometrics91, 1067.pdf](2012/Scientometrics91,%201067.pdf)

Abstract: This note is a response Chuang and Ho’s comments regarding to the appropriate selection of keywords for a bibliometric study entitled “a bibliometric study of the trend in articles related to eutrophication published in Science Citation Index” published in Scientometrics. Chuang’s inquiry was Huang and Yi’s careless use of filter, which had committed inaccurate results and wrong conclusions. This short note will explain the authors’ arguments to Chuang and Ho’s inquiry in two folds, the conceptual analysis of keywords selection, and bibliometric comparison between ‘eutrophication’ and ‘eutrophication and eutrophic’.

Keywords: Analysis, Articles, Authors, Bibliometric, Bibliometric Study, Citation, Comments, Comparison, Eutrophic, Eutrophication, SCI, Science, Scientometrics, Trend

? Tsay, M.Y. (2012), Scientometric research in Taiwan preface. *Scientometrics*, **92** (1), 1-5.

Full Text: [2012\Scientometrics92, 1.pdf](2012/Scientometrics92,%201.pdf)

Keywords: Research, Scientometric, Taiwan

? Lin, W.Y.C. (2012), Research status and characteristics of library and information science in Taiwan: A bibliometric analysis. *Scientometrics*, **92** (1), 7-21.

Full Text: [2012\Scientometrics92, 7.pdf](2012/Scientometrics92,%207.pdf)

Abstract: This study determines how library and information science (LIS) research in Taiwan has changed between 2001 and 2010. The major research questions address the research status of LIS in Taiwan, how the Taiwanese government supports the field, and the collaborative authorship of LIS journal articles in Taiwan. Bibliometric and content analysis methods were conducted to analyze 2,494 journal articles, 983 theses, and 191 research projects between 2001 and 2010. The results show LIS and Technology to be the most popular topics in journal articles. The most well-received thesis topics are LIS and Technology and User Services, accounting for more than 50 % of graduate theses. The same is true for research projects, with the subjects of LIS and Technology, LIS Theory and Foundation, and User Services having a ratio of more than 70 %. In government-sponsored research projects, the average amount of funding obtained had no significant differences or tendencies for various subjects over time. In authorship of journal articles, individual researchers conducted 66.11 % of articles in key LIS scholarly journals in Taiwan between 2001 and 2010.

Keywords: Analysis, Articles, Authorship, Bibliometric, Bibliometric Analysis, Characteristics, Content Analysis, Field, Funding, Graduate, Information, Information Science, Jasist, Journal, Journal Article, Journal Articles, Journal-of-Documentation, Journals, LI, Library and Information Science, Library and Information Science (LIS), LIS, Methods, Projects, Research, Research Project, Research Status, Scholarly Journals, Science, Spain, Taiwan, Thesis, Topics

? Hou, A.Y.C., Ince, M. and Chiang, C.L. (2012), A reassessment of Asian pacific excellence programs in higher education: the Taiwan experience. *Scientometrics*, **92** (1), 23-42.

Full Text: [2012\Scientometrics92, 23.pdf](2012/Scientometrics92,%2023.pdf)

Abstract: With the growth of competition between nations in our knowledge-based world economy, excellence programs are becoming a national agenda item in developing as well as developed Asian countries. The main purpose of this paper is to compare the goals, funding policies and selection criteria of excellence programs in China, Japan, Korea and Taiwan and to analyze the academic achievement of their top ranked universities in three areas: research output, internationalization, and excellence, by using data from the Shanghai Jiao Tong, QS, and HEEACT rankings. The effectiveness of Taiwan’s “Development Plan for World Class Universities and Research Centers of Excellence” was assessed as a case study in the paper via a survey targeting on 138 top administrators from 11 Taiwan’s universities and 30 reviewers. The study found that more funding nations had, the more outputs and outcomes they would gain, for example China. The Taiwan case demonstrates that world-class universities and research centers are needed in Asian nations despite the concerns for inequality which they raise.

Keywords: Academic Achievement, Achievement, Asian, Case Study, China, Competition, Countries, Criteria, Data, Developing, Economy, Education, Effectiveness, Excellence Initiative, Experience, Funding, Gain, Global Ranking, Growth, Higher Education, Inequality, Internationalization, Japan, Knowledge-Based, Korea, Nations, Outcomes, Policies, Purpose, Rankings, Research, Research Centers, Research Output, Selection Criteria, Survey, Taiwan, Targeting, Universities, World, World Class University

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Full Text: [2012\Scientometrics92, 43.pdf](2012/Scientometrics92,%2043.pdf)

Abstract: This article identifies patterns and structures in the social tagging of scholarly articles in CiteULike. Using a dataset of 4,215 tags attributed to 1,600 scholarly articles from 15 library and information science journals, a network was built to understand users’ information organization behavior. Social network analysis and the frequent-pattern tree method were used to discover the implicit patterns and structures embedded in social tags as well as in their use, based on 26 proposed tag categories. The pattern and structure of this network of social tags is characterized by power-law distribution, centrality, co-used tag categories, role sharing among tag categories, and similar roles of tag categories in associating distinct tag categories. Furthermore, researchers generated 21 path-based decision-making sub-trees providing valuable insights into user tagging behavior for information organization professionals. The limitations of this study and future research directions are discussed.

Keywords: Analysis, Articles, Author, Behavior, Citeulike, Citeulike, Collection, Decision Making, Decision-Making, Distribution, Flickr, Folksonomy, Frequent-Pattern Tree, Information, Information Science, Journals, Library and Information Science, Method, Network, Network Analysis, Organization, Pattern, Power Law, Research, Role, Science, Science Journals, Social, Social Network, Social Network Analysis, Social Tags, Structure, Usage, User

? Hung, W.C. (2012), Measuring the use of public research in firm R&D in the Hsinchu Science Park. *Scientometrics*, **92** (1), 63-73.

Full Text: [2012\Scientometrics92, 63.pdf](2012/Scientometrics92,%2063.pdf)

Abstract: Knowledge flow between public and private sectors is widely recognized as a way to stimulate innovation and regional development, particularly in science parks. This work employs a bibliometric approach, based on patent citation, non-patent citation, and public-private co-authorship of scientific publications to measure the use of public research in Hsinchu Science Park (HSP) in Taiwan. The result shows that the number of jointly published papers has increased constantly, implying the collaboration between HSP and universities has become more common. However, from the aspect of co-patenting, patent citation, and non-patent reference, technological innovation stemming from public research needs to be enhanced.

Keywords: Approach, Bibliometric, Citation, Co-Authorship, Coauthorship, Collaboration, Context, Development, Diffusion, Flow, Flows, Hsinchu Science Park, Industry, Innovation, Knowledge, Measure, Needs, Non-Patent Citation, Papers, Patent, Patent Citations, Public, Public-Private Co-Authored Publication, Publications, R&D, Reference, Regional, Regional Development, Research, Science, Scientific Publications, Taiwan, Technological Innovation, Technology, Universities, Work

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Full Text: [2012\Scientometrics92, 75.pdf](2012/Scientometrics92,%2075.pdf)

Abstract: Research performance is difficult to evaluate because most of the criteria are incommensurable, and assessing its improvement over time is even more difficult. This paper assesses the performance improvement in management research in Taiwan between 2006 and 2010 using the Malmquist productivity index (MPI). The criteria for measuring research performance are journal publications, where the journals are classified as SI-, TI-, other international-, and other local-types. While the number of papers has increased for three types and decreased in one, the MPI indicates that the aggregate performance has improved significantly. The areas of management covered in this study are management information systems, production and operations management, and marketing. for all these areas the performance has improved, although the improvement in marketing is insignificant. The assessment sheds some light on the area and category of journals that contribute to the improvement of research performance, and which are useful for setting goals to reach higher levels.

Keywords: Assessing, Assessment, Council, Countries, Criteria, Data Envelopment Analysis, Dea, Decision, Improvement, Index, Information, Information Systems, International, Journal, Journals, Malmquist Productivity Index, Malmquist Productivity Index, Management, Management Information, Management Information Systems, Marketing, Numbers, Output, Papers, Performance, Productivity, Publications, Ranking Efficient Units, Research, Research Performance, Research Performance, SI, Systems, Taiwan, TI, Universities

? Chen, K.H. and Liao, P.Y. (2012), A comparative study on world university rankings: A bibliometric survey. *Scientometrics*, **92** (1), 89-103.

Full Text: [2012\Scientometrics92, 89.pdf](2012/Scientometrics92,%2089.pdf)

Abstract: Recently there are many organizations conducting projects on ranking world universities from different perspectives. These ranking activities have made impacts and caused controversy. This study does not favor using bibliometric indicators to evaluate universities’ performances, but not against the idea either. We regard these ranking activities as important phenomena and aim to investigate correlation of different ranking systems taking bibliometric approach. Four research questions are discussed: (1) the inter-correlation among different ranking systems; (2) the intra-correlation within ranking systems; (3) the correlation of indicators across ranking systems; and (4) the impact of different citation indexes on rankings. The preliminary results show that 55 % of top 200 universities are covered in all ranking systems. The rankings of ARWU and PRSPWU show stronger correlation. With inclusion of another ranking, WRWU (2009-2010), These rankings tend to converge. In addition, intra-correlation is significant and this means that it is possible to find out some ranking indicators with high degree of discriminativeness or representativeness. Finally, it is found that there is no significant impact of using different citation indexes on the ranking results for top 200 universities.

Keywords: Approach, Bibliometric, Bibliometric Indicators, Bibliometric Survey, Bibliometrics, Citation, Citation Indexes, Comparative Study, Controversy, Correlation, Impact, Impacts, Inclusion, Indicators, Projects, Ranking, Ranking Indicators, Rankings, Research, Survey, Systems, Universities, University, World, World University Rankings

? Chen, T.T. (2012), The development and empirical study of a literature review aiding system. *Scientometrics*, **92** (1), 105-116.

Full Text: [2012\Scientometrics92, 105.pdf](2012/Scientometrics92,%20105.pdf)

Abstract: Literature review is an important but time-consuming task that involves many disparate steps. A simple query to a library database may return voluminous literature that often bewilders novices.We believe the bibliographic techniques developed by the information scientists provide useful process and methods that facilitate literature analysis and review. We thereby developed a citation-based literature analyzing and structuring system, which may facilitate novices to perform tasks that are usually carried out by trained professionals. A field study was carried out to gauge the utility as well as users’ perception using a questionnaire adopted from relevant empirical studies. Graduate students participated in the field study are able to publish papers in their first semester by utilizing this system. The utility and usefulness of the intellectual structuring system are demonstrated by the objective evidence of the high acceptance rate of papers utilizing the system as well as the subjective positive response from the users. A system utilization model utilizing the structure equation modeling technique found the task characteristics construct affects the information quality construct, which in turn affects the perceive usefulness of the system.

Keywords: Acceptance, Analysis, Characteristics, Citation Analysis, Cocitation, Database, Development, Empirical Studies, Empirical Study, Evidence, Extension, Field, Field Study, First, Information, Information-Systems, Intellectual Structure, Literature, Literature Review, Methods, Model, Modeling, Papers, Perception, Quality, Questionnaire, Review, Scientists, Structure, Students, Techniques, Technology, Utility, Utilization

? Chen, Y.S., Shih, C.Y. and Chang, C.H. (2012), The effects of related and unrelated technological diversification on innovation performance and corporate growth in the Taiwan’s semiconductor industry. *Scientometrics*, **92** (1), 117-134.

Full Text: [2012\Scientometrics92, 117.pdf](2012/Scientometrics92,%20117.pdf)

Abstract: This study uses the entropy-based patent measure to discuss the effects of related technological diversification (RTD) and unrelated technological diversification (UTD) on innovation performance and corporate growth. The results indicate that RTD has a monotonically positive influence on both of innovation performance and corporate growth and UTD has an inverse U-shaped influence on both of them. Furthermore, the results show that the extent of the positive effect of RTD on innovation performance and corporate growth is better than that of UTD on both of them. If Taiwan’s semiconductor companies would like to undertake technological diversification, this study suggests that they should adopt RTD, rather than UTD. Besides, this study points out that innovation performance mediates the relationship between corporate growth and both of RTD and UTD. It demonstrates that RTD and UTD can directly affect corporate growth or indirectly influence it via innovation performance.

Keywords: Capabilities, Competitive Advantage, Core Competences, Corporate Growth, Effects, Empirical-Analysis, Entropy Measure, Firm Performance, Growth, Innovation, Innovation Performance, Market Value, Measure, Patent, Patent Citations, Performance, Product Development, Related Technological Diversification, Research-And-Development, Resource-Based View, Semiconductor, Unrelated Technological Diversification

? Wang, J.O., Chen, T.J., Kao, S.Y., Yeh, T.C., Chou, L.F. and Ho, S.T. (2012), Scientific publications by anesthesia departments in East Asia. *Scientometrics*, **92** (1), 135-143.

Full Text: [2012\Scientometrics92, 135.pdf](2012/Scientometrics92,%20135.pdf)

Abstract: the rapid economic growth in East Asia might have an impact on the development of research output. Because previous bibliometric analysis about anesthesiology in this region had been limited to research within anesthesiology journals or anesthesia-related research, the total publications from anesthesia departments might not be well displayed. In this study, the databases of Web of Science and PubMed were used to assess the academic productivity and distribution of research diversity of anesthesia departments from four major countries in East Asia and compared those with the USA. From 2001 to 2010 the volume of scientific research from anesthesia departments in East Asia has stably increased. Although Japan was the most productive contributor in East Asia, its share declined annually. China increased most rapidly and exceeded Japan in 2010 in terms of annual number of papers. Research attributed to anesthesia departments in East Asia was diverse and present in a wide range of non-anesthesia field journals. Notably the annual number of randomized controlled trials in East Asia also had a strong growth.

Keywords: 10-Year Survey, Analysis, Anesthesia, Anesthesia Department, Anesthesiology, Asia, Authors, Bibliometric, Bibliometric Analysis, Bibliometrics, China, Countries, Databases, Development, Distribution, Diversity, East Asia, Economic, Field, Growth, Impact, Impact Factors, Japan, Journals, Language, Papers, Productivity, Publications, Pubmed, Randomized, Randomized Controlled Trials, Region, Research, Research Output, Science, Scientific Publications, Scientific Research, USA, Volume, Web of Science

? Liu, H.I., Chang, B.C. and Chen, K.C. (2012), Collaboration patterns of Taiwanese scientific publications in various research areas. *Scientometrics*, **92** (1), 145-155.

Full Text: [2012\Scientometrics92, 145.pdf](2012/Scientometrics92,%20145.pdf)

Abstract: This paper employs bibliometric methods to observe collaboration patterns of scientific publications in biotechnology, information and computer technology, future energy, and nanotechnology among different institutions in Taiwan. The results show primary domestic and international collaborative patterns, the effect of collaborative papers on the world-wide average, collaborative networks, and the distribution of institutions on global map. The findings suggest that domestic collaboration in each area is higher in proportion than international collaboration. Biotechnology leads in both domestic and international collaborative percentage. Among cooperative benchmarking countries, the US and China are the main partners. Collaboration among research institutes and universities is the most frequent collaborative pattern in each area except biotechnology, which tends to occur between hospitals and universities. On average, international collaborative papers tend to have greater effect, except in nanotechnology. Academia Sinica collaborated frequently with foreign institutes in each research field. A further analysis on how each collaborative group forms is recommended, especially collaboration among the Triple-Helix relationships.

Keywords: Analysis, Benchmarking, Bibliometric, Bibliometric Analysis, Bibliometric Methods, Biotechnology, China, Collaboration, Collaboration Patterns, Collaborative Pattern, Countries, Distribution, Energy, Field, Forms, Global, Hospitals, Information, Institutional Classification, Institutions, International, International Collaboration, Methods, Nanotechnology, Networks, Papers, Pattern, Primary, Publications, Research, Scientific Collaboration, Scientific Publications, Taiwan, Technology, Universities, US

? Chen, J.H., Lo, S.M., Jang, S.L. and Huang, C.C. (2012), Strategic partnership and its effect on external learning of technology descendants. *Scientometrics*, **92** (1), 157-179.

Full Text: [2012\Scientometrics92, 157.pdf](2012/Scientometrics92,%20157.pdf)

Abstract: We examine how strategic partnership affects external learning of technology descendants from emerging markets under the context of Taiwan’s flat panel display industry. The study takes patent citation as a trail of knowledge flow, and incorporates 1,726 pairs relations of the cited and citing firms. Our empirical evidence shows positive pattern of external learning through strategic technology partnership. After controlling the quality factor of the knowledge, technology descendants do learn more from their alliance partners than other non-allied firms; particularly, trading type of partnerships characterized by the asymmetric relations appears to bring more impact. Furthermore, a focused approach in extrapolating knowledge from strategic partners seems to be the dominant practice.

Keywords: Alliances, Approach, Citation, Context, Cooperation, Determinants, Diffusion, Evidence, External Learning, Flat Panel Display, Flow, Impact, Industry, Knowledge, Knowledge Flow, Knowledge Spillovers, Learning, Markets, Networks, Partnerships, Patent, Patent Citation, Patent Citations, Pattern, Practice, Product Development, Quality, Relations, Search, Strategic, Strategic Alliance, Technology, TFT-LCD, Trading

? Su, H.N., Chen, C.M.L. and Lee, P.C. (2012), Patent litigation precaution method: Analyzing characteristics of US litigated and non-litigated patents from 1976 to 2010. *Scientometrics*, **92** (1), 181-195.

Full Text: [2012\Scientometrics92, 181.pdf](2012/Scientometrics92,%20181.pdf)

Abstract: This study aims to propose an early precaution method which allows predicting probability of patent infringement as well as evaluating patent value. To obtain the purposes, a large-scale analysis on both litigated patents and non-litigated patents issued between 1976 and 2010 by USPTO are conducted. The holistic scale analysis on the two types of patents (3,878,852 non-litigated patents and 31,992 litigated patents in total) issued by USPTO from 1976 to 2010 has not been conducted in literatures and need to be investigated to allow patent researchers to understand the overall picture of the USPTO patents. Also, by comparing characteristics of all litigated patents to that of non-litigated patents, a precaution method for patent litigation can be obtained. Both litigated patents and non-litigated patents are analyzed to understand the differences between the two types of patents in terms of different variables. It is found that there are statistically significant differences for the two types of patents in the following 11 variables: (1) No. of Assignee, (2) No. of Assignee Country, (3) No. of Inventor, (4) Inventor Country, (5) No. of Patent Reference, (6) No. of Patent Citation Received, (7) No. of IPC, (8) No. of UPC, (9) No. of Claim, (10) No. of Non-Patent Reference, and (11) No. of Foreign Reference. Finally, logistic regression is used for predicting the probability of occurrence of a patent litigation by fitting the 11 characteristics of 3,910,844 USPTO patents to a logistic function curve.

Keywords: Analysis, Characteristics, Citation, Citations, Determinants, Empirical-Analysis, Extreme-Value, Function, Holistic, Indicators, Innovations, Litigation, Logistic Model, Logistic Regression, Method, Opposition, Patent, Patent Characteristics, Patent Litigation, Patents, Precaution, Regression, Scale, Size, Technology, Trolls, US, Value

? Miyairi, N. and Chang, H.W. (2012), Bibliometric characteristics of highly cited papers from Taiwan, 2000-2009. *Scientometrics*, **92** (1), 197-205.

Full Text: [2012\Scientometrics92, 197.pdf](2012/Scientometrics92,%20197.pdf)

Abstract: the present study analyzes bibliometric characteristics of Taiwan’s highly cited papers published from 2000 to 2009. During this period, Taiwan ranked within the top 30 countries by number of highly cited papers, defined in Thomson Reuters’ Essential Science Indicators (ESI) as those that rank in the top 1 % by citations for their category and year of publication. Taiwan made notable progress in world-class research in the two consecutive 5-year periods 2000-2004 and 2005-2009. for the group of highly cited papers from Taiwan, USA, China, Germany, and Japan were the top collaborating countries over the decade. In recent years, Taiwan has increasingly collaborated with European countries whose output of highly cited papers is relatively high and increasing, rather than with its neighboring countries in Asia. Overall, Taiwan produced highly cited papers in all the 22 ESI subject categories during the 10-year period. Taiwan’s output of highly cited papers was greatest in the categories of Engineering, Clinical Medicine, and Physics, while those in Agricultural Sciences and Mathematics exceeded the expected output level in relative terms. More detailed analyses would be useful for a holistic understanding of Taiwan’s research landscape and their progress in world-class research, combining both bibliometric and non-bibliometric data, such as researcher mobility, research grants, and output from internationally-collaborated research programs.

Keywords: Analyses, Asia, Bibliometric, Bibliometrics, Characteristics, China, Citation Patterns, Citations, Countries, Data, Excellence, Germany, Highly Cited Papers, Holistic, Indicators, Indicators, Japan, Landscape, Mathematics, Medicine, Mobility, Papers, Progress, Publication, Rank, Recent, Research, Research Grants, Science, Science, Taiwan, Thomson-Reuters, Understanding, Universities, USA

? Braun, T. (2012), Special discussion issue on journal impact factors. *Scientometrics*, **92** (2), 207-208.

Full Text: [2012\Scientometrics92, 207.pdf](2012/Scientometrics92,%20207.pdf)

Keywords: Impact, Journal, SI

? Vanclay, J.K. (2012), Impact factor: Outdated artefact or stepping-stone to journal certification? *Scientometrics*, **92** (2), 211-238.

Full Text: [2012\Scientometrics92, 211.pdf](2012/Scientometrics92,%20211.pdf)

Abstract: A review of Garfield’s journal impact factor and its specific implementation as the Thomson Reuters impact factor reveals several weaknesses in this commonly-used indicator of journal standing. Key limitations include the mismatch between citing and cited documents, the deceptive display of three decimals that belies the real precision, and the absence of confidence intervals. These are minor issues that are easily amended and should be corrected, but more substantive improvements are needed. There are indications that the scientific community seeks and needs better certification of journal procedures to improve the quality of published science. Comprehensive certification of editorial and review procedures could help ensure adequate procedures to detect duplicate and fraudulent submissions.

Keywords: American-Chemical-Society, Artificial Neural-Networks, Biomedical-Research, Certification, Citation Analysis, Community, Confidence, Confidence Intervals, Educational-Psychology, Impact, Impact Factor, Implementation, Indications, Indicator, Intervals, ISI, JCR, Journal, Journal Impact, Journal Impact Factor, Medical Journals, Minor, Needs, Normalized Impact, Precision, Procedures, Quality, Quality Control, Quality Of, Research Misconduct Policies, Retrospective Analysis, Review, Science, Scientific Publications, SI, Thomson Reuters, Thomson-Reuters

? Balaban, A.T. (2012), Positive and negative aspects of citation indices and journal impact factors. *Scientometrics*, **92** (2), 241-247.

Full Text: [2012\Scientometrics92, 241.pdf](2012/Scientometrics92,%20241.pdf)

Abstract: the Hirsch citation index h is nowadays the most frequently used numerical indicator for the performance of scientists as reflected in their output and in the reaction of the scientific community reflected in citations of individual contributions. A few of the possible improvements of h are briefly reviewed. Garfield’s journal impact factor (IF) characterizes the reaction of the scientific community to publications in journals, reflected in citations of all papers published in any given journal during the preceding 2 years, and normalized against all citable articles during the same period. Again, a few of the possible improvements or supplements of IF are briefly reviewed, including the journal-h Index proposed by Braun, Glänzel, and Schubert. Ascribing higher weighting factors to citations of individual papers proportionally to IF is considered to be a misuse of useful numerical indices based on citations. At most, one could turn this argument on its head and one can find reasons to ascribe an inverse proportionality relative to IF for individual citations: if a paper is considered worthy to be cited even if it was published in a low-IF journal, that citation ought to be worth more than if the citation would have been from a higher-impact journal. A weight factor reflecting the prestige of the citing author(s) may also be considered.

Keywords: Analogous Journal-h Index, Citation, Citation Indices, Citations, Community, Hirsch, Hirsch Index h for Individual Scientists, Hirsch-Index, Impact, Impact Factor, Impact Factors, Index, Index h, Indicator, Indices, Journal, Journal Impact, Journal Impact Factor, Journal Impact Factor (IF), Journal Impact Factors, Journals, Papers, Performance, Publications, Science, SI, Uses and Misuses of IF, Weight Factor of Citing Author(S), Weighting, Weighting Factors

? Bar-Ilan, J. (2012), Journal report card. *Scientometrics*, **92** (2), 249-260.

Full Text: [2012\Scientometrics92, 249.pdf](2012/Scientometrics92,%20249.pdf)

Abstract: the impact factor is one of the most used scientometric indicators. Its proper and improper uses have been discussed extensively before. It has been criticized extensively, yet it is still here. In this paper I propose the journal report card, which is a set of measures, each with an easily comprehensible meaning that provides a fuller picture of the journals’ standing. The set of measures in the report card include the impact factor, the h-Index, number of citations at different points on the ranked list of citations, extent of uncitedness and coverage of the h-core. The report card is computed for two sets of journals, the top-20 journals in JCR 2010 and the top-20 journals in JCR 2010 for the category Information and Library Science.

Keywords: 90% Percentile, Citations, Coverage, h Index, h-Core, h-Index, Impact, Impact Factor, Impact Factors, Index, Indicators, JCR, Journal, Journal Report Card, Journals, Median, Science, Scientometric, SI, Synchronous h-Index for Journals

? Bensman, S.J. (2012), The impact factor: its place in Garfield’s thought, in science evaluation, and in library collection management. *Scientometrics*, **92** (2), 263-275.

Full Text: [2012\Scientometrics92, 263.pdf](2012/Scientometrics92,%20263.pdf)

Abstract: This paper is a response to that of Vanclay, who proposes, that since the impact factor (IF) is so seriously flawed, Thomson Reuters should either correct the measure or-preferably-no longer publish it and restrict itself to journal certification. It is argued here that Vanclay’s analysis is itself seriously flawed, because he appears totally ignorant of the thought structure of Eugene Garfield, IF’s creator. As a result, Vanclay appears unaware of the importance of total cites and the close connection of IF with review journals, where the paradigms of science are defined. This paper’s author agrees that IF is a defective measure, analyzing its defects from the perspective of the frequency theory of probability, on which modern inferential statistics is based. However, he asserts that abandoning it would be counterproductive because of its demonstrated ability-even with its defects-to identify small important journals like review journals, giving it an important role in science evaluation and library collection management.

Keywords: Analysis, Certification, Citation Analysis, Collection, Eugene Garfield, Evaluation, Impact, Impact Factor, Journal, Journal Evaluation, Journals, Library Collection Management, Management, Market, Measure, Review, Role, Science, Science Evaluation, Scientific Journals, SI, Small, Statistics, Structure, Theory, Thomson Reuters, Thomson-Reuters

? Bornmann, L. and Marx, W. (2012), The effect of several versions of one and the same manuscript published by a journal on its journal impact factor. *Scientometrics*, **92** (2), 277-279.

Full Text: 2012\Scientometrics92, 277.[pdf](2012/Scientometrics92,%20281.pdf)

Abstract: In the discussion paper on this issue, Vanclay (2011) describes and uncovers several weaknesses of the JIF based on a thorough literature review and detailed empirical analyses. In this short comment we would like to add the results of two studies to the discussion around the JIF. In these studies we investigated the effect of several versions of one and the same manuscript published by a journal on its JIF.

Keywords: Analyses, Angewandte Chemie, Angewandte-Chemie, Atmospheric Chemistry and Physics, Impact, Impact Factor, Journal, Journal Impact, Journal Impact Factor, Literature, Literature Review, Review, SI

? Buela-Casal, G. and Zych, I. (2012), What do the scientists think about the impact factor? *Scientometrics*, **92** (2), 281-292.

Full Text: [2012\Scientometrics92, 281.pdf](2012/Scientometrics92,%20281.pdf)

Abstract: the impact factor is a highly polemic metric. It was designed to help scientists in searching for bibliographic references for their own works, enabling communication among researchers and helping librarians in deciding which journal they should purchase. Nevertheless, it has soon become the most important measure of scientific performance applied to journals, articles, scientists, universities, etc. Since then, some researchers argue that it is a useless and flawed measure, while others defend its utility. The current study is the first survey on the opinion on the topic of a broad sample of scientists from all over the world. The questionnaire was answered by 1,704 researchers from 86 different countries, all the continents and all the UNESCO major fields of knowledge. The results show that the opinion is slightly above the median which could be understood as “neither positive nor negative”. Surprisingly, there is a negative correlation between the number of articles published by the respondents and their opinion on the impact factor.

Keywords: Association, Citation-Index, Communication, Correlation, First, Impact, Impact Factor, Internationality Index, Journal, Journal Articles, Journal Citation Reports, Journals, Knowledge, Measure, Performance, Productivity, Psychology Professors, Purchase, Quality, Quality, Questionnaire, References, Science, Scientific Performance, SI, Spanish Public Universities, Survey, UNESCO, Universities, Utility, Web, Web of Science, World

? Campanario, J. (2012), Some research ideas on Journal Impact Factors as a crucial topic in science dynamics. *Scientometrics*, **92** (2), 293-295.

Full Text: [2012\Scientometrics92, 293.pdf](2012/Scientometrics92,%20293.pdf)

Abstract: In the interesting and provocative paper on Journal Impact Factors by Vanclay (in press) there are some interesting points worth further reflection. In this short commentary I will focus in those that I consider most relevant because they suggest some ideas that could be addressed by researchers interested in this topic.

Keywords: Dynamics, Impact, Impact Factor, Journal, Reflection, Research, Research Program, Science, Science Dynamics, SI

? Gonzalez-Alcaide, G., Valderrama-Zurian, J.C. and Aleixandre-Benavent, R. (2012), The Impact Factor in non-English-speaking countries. *Scientometrics*, **92** (2), 297-311.

Full Text: [2012\Scientometrics92, 297.pdf](2012/Scientometrics92,%20297.pdf)

Abstract: the representativeness of the ISI-Thomson Impact Factor rankings and the existing relationship between countries’ national languages and the diffusion of scientific publications is analyzed. We discuss literature on the Impact Factor related to language use, publication strategies for authors and editors from non-English-speaking countries, the effects of the inclusion of a new journal in the ISI-Thomson databases and the scientific policies articulated in some non-English-speaking countries. The adoption of the Impact Factor as the valuation criterion for scientific activities has favoured the consolidation of English language journals in the diffusion of scientific knowledge. The vernacular languages only conserve part of their importance in certain disciplines, such as Clinical Medicine or Social Sciences and Humanities. The Impact Factor, invented over 50 years ago now, could be a limitation for non-English authors and scientific journals, and does not consider some widely used practices among the scientific community concerning the development of Internet as a means for the diffusion of knowledge.

Keywords: Adoption, Articles, Authors, Citations, Community, Databases, Development, Diffusion, Effects, German-Language, Humanities, Impact, Impact Factor, Internationalization, Internet, Journal, Journal Impact Factor, Journals, Knowledge, Language, Languages, Limitation, Literature, Medicine, Policies, Practices, Publication, Publications, Publishing, Rankings, Science, Scientific Activities, Scientific Communication, Scientific Journals, Scientific Literature, Scientific Publications, SI, Social Sciences, Valuation

? Hartley, J. (2012), To cite or not to cite: Author self-citations and the impact factor. *Scientometrics*, **92** (2), 313-317.

Full Text: [2012\Scientometrics92, 313.pdf](2012/Scientometrics92,%20313.pdf)

Abstract: Author self-citations are another factor that affects the impact factor of a journal. Typically these self-citations are just counted as such. But to be more meaningful I suggest that when examining the contribution of authors’ self-citations to impact factors one should first count the number of citations in the text rather than in the reference list, and then discriminate between different kinds of author self-citations-from those that are informative to those that are self-enhancing-if these data are to be more credible.

Keywords: Articles, Author Self-Citation, Authors, Citations, Co-Authors, Data, First, Impact, Impact Factor, Impact Factors, Journal, Journal Self-Citation, Macro, Reference, Reference Lists, Self-Citations, SI

? Ingwersen, P. (2012), The pragmatics of a diachronic journal impact factor. *Scientometrics*, **92** (2), 319-324.

Full Text: [2012\Scientometrics92, 319.pdf](2012/Scientometrics92,%20319.pdf)

Abstract: With reference to Vanclay (Scientometrics in press, 2012) the paper argues for a pragmatic approach to the Thomson-Reuter’s journal impact factor. The paper proposes and discusses to replace the current synchronous Thomson-Reuter journal impact factor by an up-to-date diachronic version (DJIF), consisting of a three-year citation window over a one year publication window. The DJIF online data collection and calculation is exemplified and compared to the present synchronous journal impact factor. The paper discusses briefly the dimensions of currency, robustness, understandability and comparability to other impact factors used in research evaluation.

Keywords: Approach, Calculation, Citation, Collection, Data, Data Collection, Diachronic Impact Factor, Evaluation, Impact, Impact Factor, Impact Factors, Journal, Journal Impact, Journal Impact Factor, Publication, Reference, Research, Research Evaluation, Robustness, Scientometrics, SI, Synchronous JIF, Version

? Jacsó, P. (2012), Grim tales about the impact factor and the h-Index in the Web of Science and the Journal Citation Reports databases: Reflections on Vanclay’s criticism. *Scientometrics*, **92** (2), 325-354.

Full Text: [2012\Scientometrics92, 325.pdf](2012/Scientometrics92,%20325.pdf)

Abstract: This paper reflects on the most current and some of the recent contributions of JK Vanclay, focusing on his methods, findings, and criticism about the journal citations reports and the Web of Science databases, the journal impact factor and the h-Index. It is argued and demonstrated that some of the recent papers of the author about scientometric issues, measures and sources show so much demagoguery, ignorance and arrogance, have so much prejudice and bias, so profound errors in using the databases, calculating metrics, and interpreting search results that the papers are very unlikely to be meant as a genuine contribution from an academic who is a graduate of-among others-Oxford University, professor and dean in a respected university, a well-published and well-cited author and a recipient of the Queen’s Award (all the above in forest science). The papers are much more likely to serve as props for a staged, mock-up scenario based on slipshod research in an experiment, to illustrate the deficiencies in the processes and in the assessment of scholarly publishing productivity and impact in order to present the idealized solution of Vanclay: using the h-Index, portrayed as the Prince, mounted on the shoulder of the White Horse, Google Scholar.

Keywords: Assessment, Bias, Citation, Citations, Cited References, Cons, Databases, Errors, Experiment, Forest, Google, Google Scholar, Google Scholar, Graduate, h Index, h-Index, Impact, Impact Factor, Journal, Journal Citation Reports, Journal Citations, Journal Impact, Journal Impact Factor, Journal Impact Factors, Manipulation, Methods, Metrics, Papers, Prejudice, Productivity, Pros, Publishing, Rankings, Recent, Research, Research Assessment, Scenario, Science, Scientific Publications, Scientometric, Scientometric Indicators, Scopus, Si, Solution, Sources, University, Web, Web of Science

? Leydesdorff, L. (2012), Alternatives to the journal impact factor: I3 and the top-10% (or top-25%?) of the most-highly cited papers. *Scientometrics*, **92** (2), 355-365.

Full Text: [2012\Scientometrics92, 355.pdf](2012/Scientometrics92,%20355.pdf)

Abstract: Journal impact factors (IFs) can be considered historically as the first attempt to normalize citation distributions by using averages over 2 years. However, it has been recognized that citation distributions vary among fields of science and that one needs to normalize for this. Furthermore, the mean-or any central-tendency statistics-is not a good representation of the citation distribution because these distributions are skewed. Important steps have been taken to solve these two problems during the last few years. First, one can normalize at the article level using the citing audience as the reference set. Second, one can use non-parametric statistics for testing the significance of differences among ratings. A proportion of most-highly cited papers (the top-10% or top-quartile) on the basis of fractional counting of the citations may provide an alternative to the current IF. This indicator is intuitively simple, allows for statistical testing, and accords with the state of the art.

Keywords: Alternative, Art, Charts, Citation, Citation Analysis, Citations, Distribution, Fields, First, Impact, Impact Factor, Impact Factors, Indicator, Journal, Journal Impact, Journal Impact Factor, Journal Impact Factors, Maps, Needs, Nonparametric, Nonparametric Statistics, Papers, Reference, Relative Indicators, Representation, Research Performance, Science, Scientific Journals, SI, Significance, Source Normalization, State, Statistics, Terms, Testing, Time

? Moed, H.F., Colledge, L., Reedijk, J., Moya-Anegon, F., Guerrero-Bote, V., Plume, A. and Amin, M. (2012), Citation-based metrics are appropriate tools in journal assessment provided that they are accurate and used in an informed way. *Scientometrics*, **92** (2), 367-376.

Full Text: [2012\Scientometrics92, 367.pdf](2012/Scientometrics92,%20367.pdf)

Abstract: In a reply to Jerome K. Vanclay’s manuscript “Impact Factor: outdated artefact or stepping-stone to journal certification?” we discuss the value of journal metrics for the assessment of scientific-scholarly journals from a general bibliometric perspective, and from the point of view of creators of new journal metrics, journal editors and publishers. We conclude that citation-based indicators of journal performance are appropriate tools in journal assessment provided that they are accurate, and used with care and competence.

Keywords: Assessment, Bibliometric, Care, Citation Analysis, Citation Linking, Competence, Crosscheck, General, Impact Factors, Index, Indicators, Information, Journal, Journal Editors, Journal Impact Factor, Journal Metrics, Journal Performance, Journal Publishers, Journals, Metrics, Output, Peer Review, Performance, SI, SJR, Snip, Value

? Mutz, R. and Daniel, H.D. (2012), The generalized propensity score methodology for estimating unbiased journal impact factors. *Scientometrics*, **92** (2), 377-390.

Full Text: [2012\Scientometrics92, 377.pdf](2012/Scientometrics92,%20377.pdf)

Abstract: the journal impact factor (JIF) proposed by Garfield in the year 1955 is one of the most commonly used and prominent citation-based indicators of the performance and significance of a scientific journal. The JIF is simple, reasonable, clearly defined, and comparable over time and, what is more, can be easily calculated from data provided by Thomson Reuters, but at the expense of serious technical and methodological flaws. The paper discusses one of the core problems: the JIF is affected by bias factors (e.g., document type) that have nothing to do with the prestige or quality of a journal. for solving this problem, we suggest using the generalized propensity score methodology based on the Rubin CaUSAl Model. Citation data for papers of all journals in the ISI subject category “Microscopy” (Journal Citation Report) are used to illustrate the proposal.

Keywords: Bias, CaUSAl Inference, CaUSAl Inference, Citation, Data, Design, Generalized Propensity Score, Impact, Impact Factor, Impact Factors, Indicators, ISI, Journal, Journal Impact, Journal Impact Factor, Journal Impact Factors, Journals, Methodology, Model, Papers, Performance, Propensity Score, Publication, Quality, Quality of, Rubin CaUSAl Model, Science, Scientific Journal, SI, Significance, Subclassification, Thomson Reuters, Thomson-Reuters

? Narin, F. (2012), Decades of progress, or the progress of decades? *Scientometrics*, **92** (2), 391-393.

Full Text: [2012\Scientometrics92, 391.pdf](2012/Scientometrics92,%20391.pdf)

Abstract: In the almost 40 years since we wrote Evaluative bibliometrics enormous advances have been made in data availability and analytic technique. The journal impact factor of the 1960s has clearly not kept up with the state of the art. However, for both old and new indicators, basic validity and relevance issues remain, such as by what standard can we validate our results, and what external use can appropriately be made of them? As funding support becomes more difficult, we should not lose sight of the necessity to again demonstrate the importance of our research, and must keep in mind that it is the relevance of our results that count, not the elegance of our mathematics.

Keywords: Advances, Art, Availability, Bibliometrics, Data, Funding, Impact, Impact Factor, Indicators, Journal, Journal Impact, Journal Impact Factor, Progress, Relevance, Research, Science Policy, SI, Standard, State, Support, Validation, Validity

? Pendlebury, D.A. and Adams, J. (2012), Comments on a critique of the Thomson Reuters Journal Impact Factor. *Scientometrics*, **92** (2), 395-401.

Full Text: [2012\Scientometrics92, 395.pdf](2012/Scientometrics92,%20395.pdf)

Abstract: We discuss research evaluation, the nature of impact, and the use of the Thomson Reuters journal impact factor and other indicators in scientometrics in the light of recent commentary.

Keywords: ‘Journal Impact Factor, Bibliometrics, Citation, Citation Analysis, Citation Indicators, Criticism, Evaluation, Impact, Impact Factor, Indicators, Influence Measures, Journal, Journal Citation Reports, Journal Impact, Journal Impact Factor, Recent, Research, Research Evaluation, Science, Scientific Journals, Scientometrics, SI, Thomson Reuters, Thomson-Reuters, UK

? Prathap, G. (2012), Evaluating journal performance metrics. *Scientometrics*, **92** (2), 403-408.

Full Text: [2012\Scientometrics92, 403.pdf](2012/Scientometrics92,%20403.pdf)

Abstract: Journals have been ranked on the basis of impact factors for a long time. This is a quality indicator, and often favours review journals with few articles. Integrated impact indicators try to factor in size (quantity) as well, and are correlated with total number of citations. The total number of papers in a portfolio can be considered a zeroth order performance indicator and the total number of citations a first order performance indicator. Indicators like the h-Index and the g-Index are actually performance indicators in that they integrate both quality and quantity assessment into a single number. The p-Index is another variant of this class of performance indicators and is based on the cubic root of a second order performance indicator called the exergy indicator. The Eigenfactor score and article influence are respectively first order quantity and quality indicators. In this paper, we confirm the above relationships.

Keywords: Assessment, Bibliometrics, Citation, Citations, Eigenfactor, Exergy, First, First Order, G-Index, h-Index, Impact, Impact Factors, Index, Indicator, Indicators, Journal, Journal Evaluation, Journal Impact Factor, Journals, Metrics, P-Index, Papers, Performance, Quality, Quality Indicators, Quantity, Review, Second Order, Second-Order, SI, Size

? Pudovkin, A.I. and Garfield, E. (2012), Rank normalization of impact factors will resolve Vanclay’s dilemma with TRIF Comments on the paper by Jerome Vanclay. *Scientometrics*, **92** (2), 409-412.

Full Text: [2012\Scientometrics92, 409.pdf](2012/Scientometrics92,%20409.pdf)

Abstract: the ThomsonReuters impact factor is a viable, widely used and informative measure of journal visibility and frequency of use. It is accurate, transparent and easy to use. It is a live and evolving system, that can broaden its scope and implement new features and methods. Some of Vanclay’s suggestions, like wider use of order statistics, or our suggestion of rank normalization might be implemented by JCR in the future.

Keywords: Impact, Impact Factor, Impact Factors, JCR, Journal, Measure, Methods, Normalization, Rank, Rank-Normalized Impact Factor, Scope, SI, Statistics, Visibility

? Rousseau, R. (2012), Updating the journal impact factor or total overhaul? *Scientometrics*, **92** (2), 413-417.

Full Text: [2012\Scientometrics92, 413.pdf](2012/Scientometrics92,%20413.pdf)

Abstract: Vanclay’s proposal (Vanclay (2012). Impact factor: outdated artefact or stepping-stone to journal certification? Scientometrics doi: 10.1007/s11192-011-0561-0) is discussed. We agree that a major overhaul is necessary: journal evaluation must be performed using instruments and not artefacts.

Keywords: Certification, Evaluation, Impact, Impact Factor, Instrument, Journal, Journal Impact, Journal Impact Factor, Scientometrics, SI

? Smith, D.R. (2012), Impact factors, scientometrics and the history of citation-based research. *Scientometrics*, **92** (2), 419-427.

Full Text: [2012\Scientometrics92, 419.pdf](2012/Scientometrics92,%20419.pdf)

Abstract: Few contemporary inventions have influenced academic publishing as much as journal impact factors. On the other hand, debates and discussion on the potential limitations of, and appropriate uses for, journal performance indicators are almost as long as the history of the measures themselves. Given that scientometrics is often undertaken using bibliometric techniques, the history of the former is inextricably linked to the latter. As with any controversy it is difficult to separate an invention from its history, and for these reasons, the current article provides an overview of some key historical events of relevance to the impact factor. When he first proposed the concept over half a century ago, Garfield did not realise that impact factors would one day become the subject of such widespread controversy. As the current Special Issue of Scientometrics suggests, this debate continues today.

Keywords: Bibliometric, Bibliometric Techniques, Bibliometrics, Bibliometrics, Citation Indexing, Core Journals, Ergonomics, Events, Factor Trends, First, History, Impact, Impact Factor, Impact Factors, Indexes, Indicators, Inventions, Journal, Journal Impact, Journal Impact Factors, Nursing Scholarship, Occupational-Health, Performance, Potential, Publishing, Relevance, Research, Science, Scientific Journals, Scientometrics, SI, Techniques

? Thelwall, M. (2012), Journal impact evaluation: a webometric perspective. *Scientometrics*, **92** (2), 429-441.

Full Text: [2012\Scientometrics92, 429.pdf](2012/Scientometrics92,%20429.pdf)

Abstract: In theory, the web has the potential to provide information about the wider impact of academic research, beyond traditional scholarly impact. This is because the web can reflect non-scholarly uses of research, such as in online government documents, press coverage or public discussions. Nevertheless, there are practical problems with creating metrics for journals based on web data: principally that most such metrics should be easy for journal editors or publishers to manipulate. Nevertheless, two alternatives seem to have both promise and value: citations derived from digitised books and download counts for journals within specific delivery platforms.

Keywords: Alternatives, Citation Analysis, Citations, Counts, Coverage, Data, Delivery, Evaluation, Google Scholar, Impact, Information, Journal, Journal Editors, Journal Impact, Journals, Links, Metrics, Patterns, Potential, Public, Research, Scholarly Impact, Science, Scientific Impact, SI, Theory, Value, Web, Web Sites

? van Leeuwen, T. (2012), Discussing some basic critique on Journal Impact Factors: Revision of earlier comments. *Scientometrics*, **92** (2), 443-455.

Full Text: [2012\Scientometrics92, 443.pdf](2012/Scientometrics92,%20443.pdf)

Abstract: In this study the issue of the validity of the argument against the applied length of citation windows in Journal Impact Factors calculations is critically re-analyzed. While previous studies argued against the relatively short citation window of 1-2 years, this study shows that the relative short term citation impact measured in the window underlying the Journal Impact Factor is a good predictor of the citation impact of the journals in the next years to come. Possible exceptions to this observation relate to journals with relatively low numbers of publications, and the citation impact related to publications in the year of publication. The study focuses on five Journal Subject Categories from the science and social sciences, on normal articles published in these journals, in the 2 years 2000 and 2004.

Keywords: Citation, Comments, Document Types, Impact, Impact Factor, Information Impact, Journal, Journal Impact Factor, Journal Subject Categories, Journals, Length, Length of Citation Windows, Normal, Observation, Publication, Publications, Research-Institute, Science, Sciences, SI, Social, Social Sciences, System, Term, Validity

? van Raan, A.F.J. (2012), Properties of journal impact in relation to bibliometric research group performance indicators. *Scientometrics*, **92** (2), 457-469.

Full Text: [2012\Scientometrics92, 457.pdf](2012/Scientometrics92,%20457.pdf)

Abstract: In this paper we present a compilation of journal impact properties in relation to other bibliometric indicators as found in our earlier studies together with new results. We argue that journal impact, even calculated in a sufficiently advanced way, becomes important in evaluation practices based on bibliometric analysis only at an aggregate level. In the relation between average journal impact and actual citation impact of groups, the influence of research performance is substantial. Top-performance as well as lower performance groups publish in more or less the same range of journal impact values, but top-performance groups are, on average, more successful in the entire range of journal impact. We find that for the high field citation-density groups a larger size implies a lower average journal impact. for groups in the low field citation-density regions however a larger size implies a considerably higher average journal impact. Finally, we found that top-performance groups have relatively less self-citations than the lower performance groups and this fraction is decreasing with journal impact.

Keywords: Analysis, Author Self-Citations, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Bibliometric Research, Citation, Competition, Distributions, Evaluation, Field, Impact, Impact Factor, Indicators, Journal, Journal Impact, Macro, Performance, Practices, Research, Research Group Performance, Research Performance, Science System, Scientific Publication, Self-Citations, SI, Size, Statistical Properties

? Vinkler, P. (2012), The Garfield impact factor, one of the fundamental indicators in scientometrics. *Scientometrics*, **92** (2), 471-483.

Full Text: [2012\Scientometrics92, 471.pdf](2012/Scientometrics92,%20471.pdf)

Abstract: the paper summarizes some basic features of the Garfield impact factor (GF). Accordingly, GF should be regarded as a scientometric indicator representing the relative contribution of journals to the total impact of information in a field. for calculating GF, both from theoretical and practical reasons the “ratio of the sums” method is recommended over the “mean of the ratios” method. Scientific advances are made by the most influential, presumably most frequently cited articles. The distribution of citations among the publications is skewed in journals. Consequently, the GF index will be influenced primarily by the highly cited papers. It follows, GF represents the most valuable part of the information in journals quantitatively, and even therefore it may be regarded as a reliable impact indicator.

Keywords: A-Index, Advances, CDS-Index, Citations, Distribution, Field, Garfield Impact Factor, h-Core, h-Index, Highly Cited, Highly Cited Papers, Impact, Impact Factor, Index, Indicator, Indicators, Information, Journals, Papers, Pi(V)-Core, Pi(V)-Rate, Publications, Scientometric, Scientometrics, SI

? Zitt, M. (2012), The journal impact factor: angel, devil, or scapegoat? A comment on J.K. Vanclay’s article 2011. *Scientometrics*, **92** (2), 485-503.

Full Text: [2012\Scientometrics92, 485.pdf](2012/Scientometrics92,%20485.pdf)

Abstract: J.K. Vanclay’s article is a bold attempt to review recent works on the journal impact factor (JIF) and to call for alternative certifications of journals. The too broad scope did not allow the author to fulfill all his purposes. Attempting after many others to organize the various forms of criticism, with targets often broader than the JIF, we shall try to comment on a few points. This will hopefully enable us to infer in which cases the JIF is an angel, a devil, or a scapegoat. We shall also expand on a crucial question that Vanclay could not really develop in the reduced article format: the field-normalization. After a short recall on classical cited-side or ex post normalization and of the powerful influence measures, we will devote some attention to the novel way of citing-side or ex ante normalization, not only for its own interest, but because it directly proceeds from the disassembling of the JIF clockwork.

Keywords: Alternative, Bibliometric Measures, Citation Analysis, Citation Behavior, Citation Normalization, Citing-Side Normalization, Documentation, Field-Normalized Impact-Factor, Forms, h-Index, Impact, Impact Factor, Impact Factor Limitations, Indicators, Journal, Journal Impact, Journal Impact Factor, Journals, Methodology, Normalization, Normalized Impact, Performance, Publication, Recall, Recent, Relative Impact, Review, Science, Scope, SI, Source-Level Normalization

? Bigdeli, Z. and Gazni, A. (2012), Authors’ sources of information: A new dimension in information scattering. *Scientometrics*, **92** (3), 505-521.

Full Text: [2012\Scientometrics92, 505.pdf](2012/Scientometrics92,%20505.pdf)

Abstract: the purpose of this study is to determine the Usage patterns of core journals by scholars, and to address the differences among various academic disciplines. Thus, the references of 11,230 corresponding authors for the past 35 years from the world’s top five highly cited universities and institutions were analyzed. To build robust models of information scattering, we need a deeper understanding of this phenomenon. The results show that core journals Usage is a social phenomenon, in exactly the same way as Bradford’s law, Zipf’s law and Lotka’s law. The analysis of author references shows that if core scientific journals are arranged in order of decreasing productivity, then they could be divided into a small group of highly cited periodicals and a large group of minimally cited ones. Scholars may do browsing and similar information-seeking activities to form their core journals, and the findings may support Bates’s hypothesis that Bradford’s core zone is best searched by browsing. Bradford’s law and relevant research may consequently help to solve many of the practical problems that practitioners of the profession face, particularly in collection development in libraries, and help users to gather highly scattered information.

Keywords: Analysis, Authors, Bradford Law, Bradford’S Law, Browsing, Collection, Development, Diversity, Electronic Journals, Highly Cited, Highly-Cited, Information, Information Scattering, Institutions, Journals, Law, Lotka’s Law, Models, Periodicals, Productivity, Profession, Purpose, References, Research, Researchers, Scattering, Scholarly Information-Seeking Behavior, Scientific Journals, Seeking Behavior, Small, Social, Sources, Sources of Information, Support, Understanding, Universities, Users, Zipf’s Law

? Wong, C.Y. and Goh, K.L. (2012), The pathway of development: science and technology of NIEs and selected Asian emerging economies. *Scientometrics*, **92** (3), 523-548.

Full Text: [2012\Scientometrics92, 523.pdf](2012/Scientometrics92,%20523.pdf)

Abstract: Many emerging countries in Asia demonstrate a strong pattern of growth and potential of diffusion in science and technology that is dynamic and self-propagating. To elucidate the evolution in science and technology and the institutional dynamics that drive the self-propagating behavior, this paper examines the divergent models pursued by selected Asian economies in regard to science and technological catch-up. An analysis of papers and patents production for each nation was conducted to examine the indigenous science and technology capabilities. This study focuses on six major economies, namely China, Malaysia, South Korea, Singapore, Taiwan and Thailand. In addition, Japan, a country with advanced development of science and technology, is included for comparison. The findings provided insight and understanding of evolving science and technological waves and the dynamic potentials in science and technology. We demonstrate the pursued catching-up models that drive the self-propagating behavior and industrialization, thus providing a more complete understanding of the innovation systems than those examined in previous studies.

Keywords: Analysis, Asia, Asian, Asian Economies, Behavior, Catch-Up, Catching-Up, China, Comparison, Countries, Country, Development, Development System, Diffusion, Drive, Dynamic, Dynamics, Evolution, Growth, Innovation, Japan, Korea, Malaysia, Models, National Innovative Capacity, Papers, Papers and Patents, Patents, Pattern, Potential, Productivity Growth, Science, Science and Technology, South Korea, South-Korea, Spillover, Systems, Taiwan, Technology, Thailand, Understanding

? Rodriguez, V. and Soeparwata, A. (2012), ASEAN benchmarking in terms of science, technology, and innovation from 1999 to 2009. *Scientometrics*, **92** (3), 549-573.

Full Text: [2012\Scientometrics92, 549.pdf](2012/Scientometrics92,%20549.pdf)

Abstract: This article provides an empirical assessment of the performance of the member states of the Association of Southeast Asian Nations in terms of science, technology, and innovation. This study is relevant because it employs a larger data set, examines more countries, and covers more years than previous studies. The results indicate that these countries had differing patterns of performance, and the pattern of growth among them was asymmetrical. Additional findings suggest that these countries performed idiosyncratically with respect to the six quantitative dimensions we examined. Our research includes a form of comparative policy evaluation that might assist the monitoring of the implementation of “Vision 2020”. The results simplify how we determine the relative strengths and weaknesses of national innovation systems and are relevant to policy discussions. In relation to transferability, the findings demonstrate similarities to the European Union with regard to performance and governance.

Keywords: Asian, Assessment, Benchmarking, Data, European Union, Evaluation, Governance, Growth, Implementation, Innovation, Monitoring, Pattern, Performance, Policy, Research, Science, Systems, Technology

? Sangwal, K. (2012), Progressive nucleation mechanism for the growth behavior of items and its application to cumulative papers and citations of individual authors. *Scientometrics*, **92** (3), 575-591.

Full Text: [2012\Scientometrics92, 575.pdf](2012/Scientometrics92,%20575.pdf)

Abstract: A general expression based on the concepts of the progressive nucleation mechanism is proposed in the form to describe the growth behavior of items in an individual system and a collective of systems. In the above relation, alpha(t) is the ratio of items N(t) at time t to the maximum number C of possible items for the system, I similar to is the corresponding time constant and q is the exponent. The above relation is then used to analyze: (1) the growth behavior of cumulative number N(t) of papers published by individual authors and cumulative citations L(t) of N(t) papers of an author as a function of citation duration t, and (2) the relationship between cumulative citations L(t) of papers and cumulative number N(t) of papers. The proposed approach predicts that: (1) the fraction of items produced by successive systems is additive, (2) the cumulative fraction alpha (sum)(t) of maximum number of sites is the sum of contributions of fractions of maximum number of items produced by different systems, and (3) the values of time constants I similar to and exponent q increase with the addition of fraction of items produced by subsequent systems, but their values are the lowest for individual systems. The approach is applied to explain the growth behavior of cumulative N(t) papers and L(t) citations of four selected Polish professors.

Keywords: Application, Approach, Articles, Authors, Behavior, Citation, Citations, Cumulative, Cumulative Citations, Cumulative Papers, Duration, Expression, Function, General, Growth, Growth Behavior of Items, Individual Authors, Journals, Mechanism, Nucleation, Papers, Progressive Nucleation Mechanism (PNM), Systems, T

? Mohammadi, E. (2012), Knowledge mapping of the Iranian nanoscience and technology: A text mining approach. *Scientometrics*, **92** (3), 593-608.

Full Text: [2012\Scientometrics92, 608.pdf](2012/Scientometrics92,%20608.pdf)

Abstract: Nanoscience and technology (NST) is a relatively new interdisciplinary scientific domain, and scholars from a broad range of different disciplines are contributing to it. However, there is an ambiguity in its structure and in the extent of multidisciplinary scientific collaboration of NST. This paper investigates the multidisciplinary patterns of Iranian research in NST based on a selection of 1,120 ISI-indexed articles published during 1974-2007. Using text mining techniques, 96 terms were identified as the main terms of the Iranian publications in NST. Then the scientific structure of the Iranian NST was mapped through multidimensional scaling, based upon the co-occurrence of the main terms in the academic publications. The results showed that the NST domain in Iranian publications has a multidisciplinary structure which is composed of different fields, such as pure physics, analytical chemistry, chemistry physics, material science and engineering, polymer science, biochemistry and new emerging topics.

Keywords: Approach, Biochemistry, Chemistry, Co-Word Analysis, Collaboration, Emergence, Emerging Topics, Engineering, Field, Information-Science, Interdisciplinary, Knowledge Map, Mapping, Maps, Mining, Multidimensional, Multidimensional Scaling, Multidisciplinary, Nano Science and Technology, Nanoscience, Nanotechnology Literature, Neural-Network Research, Polymer, Publications, Representations, Research, Scaling, Science, Science Map, Science-And-Technology, Scientific Collaboration, Scientometrics, Structure, Techniques, Technology, Text Mining

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Full Text: [2012\Scientometrics92, 609.pdf](2012/Scientometrics92,%20609.pdf)

Abstract: Whether singleton approach (citation analysis of identified source journals) used by Gross and Gross (Science 66(1713):385-389, 1927) or differential approach (citation analysis of articles in specific subject field) applied by Bradford (Engineering 137:85-86, 1934) suitable to select or rank journals in multifaceted subject-’Oceanography’ is presented. This study discusses both the approaches analyzing citations of published literature in oceanography from 30 countries. The ranking correlation of journals showed better positive correlation (lowest rho = 0.662 for 2005-2009 to highest rho = 0.817 for 1995-1999) when top ranked journals from the list generated complying Gross and Gross approach (GA) were correlated with same journal titles of the list generated complying Bradford approach than the other way (lowest rho = 0.588 for 2005-2009 to highest rho = 0.726 for 1990-1994). Both the approaches matched similar number of journals to country-wise lists and give unbiased choice in preferring a ranking list. The journals distribution graphs showed typical Bradford-Leimkuhler curves in both the approaches for all the datasets. But the groos droop appears comparatively early with shorter straight line in GA. The high clustering of literature to limited number of journals is a disadvantage in multifaceted subject. So the differential approach used by Bradford is being considered suitable for multifaceted subject like, ‘Oceanography’.

Keywords: Analysis, Approach, Bradford Distribution, Choice, Citation, Citation Analysis, Citations, Clustering, Correlation, Distribution, Field, Information Process, Journal, Journals, Literature, Oceanography, Rank, Ranking, Ranking Correlation, Ranking Journals, Science, Singleton, Source

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Full Text: [2012\Scientometrics92, 621.pdf](2012/Scientometrics92,%20621.pdf)

Abstract: Among the most recent bibliometric indicators for normalizing the differences among fields of science in terms of citation behaviour, Kosmulski (J Informetr 5(3):481-485, 2011) proposed the NSP (number of successful paper) index. According to the authors, NSP deserves much attention for its great simplicity and immediate meaning-equivalent to those of the h-Index-while it has the disadvantage of being prone to manipulation and not very efficient in terms of statistical significance. In the first part of the paper, we introduce the success-index, aimed at reducing the NSP-index’s limitations, although requiring more computing effort. Next, we present a detailed analysis of the success-index from the point of view of its operational properties and a comparison with the h-Index’s ones. Particularly interesting is the examination of the success-index scale of measurement, which is much richer than the h-Index’s. This makes success-index much more versatile for different types of analysis-e.g., (cross-field) comparisons of the scientific output of (1) individual researchers, (2) researchers with different seniority, (3) research institutions of different size, (4) scientific journals, etc.

Keywords: Alternative, Analysis, Approach, Authors, Behaviour, Bibliometric, Bibliometric Indicators, Citation, Comparison, Crown Indicator, Examination, Field Normalization, First, h Index, h-Index, Hirsch Index, Impact, Index, Indicators, Institutions, Journals, Measurement, NSP-Index, Operational Properties, Recent, Reference Practices, Research, Research Institutions, Scale, Science, Scientific Journals, Scientific Output, Significance, Size, Successful Paper

? Sangwal, K. (2012), Application of progressive nucleation mechanism for the citation behavior of individual papers of different authors. *Scientometrics*, **92** (3), 643-655.

Full Text: [2012\Scientometrics92, 643.pdf](2012/Scientometrics92,%20643.pdf)

Abstract: the basic concepts and equations of the progressive nucleation mechanism (PNM) are presented first for the growth and decay of items. The mechanism is then applied to describe the cumulative citations L and citations Delta L per year of the individual most-cited papers i of four selected Polish professors as a function of citation duration t. It was found that the PNM satisfactorily describes the time dependence of cumulative citations L of the papers published by different authors with sufficiently high citations Delta L, as represented by the highest yearly citations Delta L (max) during the entire citation period t (normal citation behavior). The citation period for these papers is less than 15 years and it is even 6-8 years in several cases. However, for papers with citation periods exceeding about 15 years, the growth behavior of citations does not follow the PNM in the entire citation period (anomalous citation behavior), and there are regions of citations in which the citation data may be described by the PNM. Normal and anomalous citation behaviors are attributed, respectively, to the occurrence and nonoccurrence of stationary nucleation of citations for the papers. The PNM also explains the growth and decay of citations Delta L per year of papers exhibiting normal citation behavior.

Keywords: Application, Articles, Authors, Behavior, Citation, Citation Behavior, Citations, Cumulative, Data, Decay of Citations, Duration, First, Function, Growth, Individual Papers, Mechanism, Normal, Nucleation, Obsolescence, Papers, Progressive Nucleation Mechanism (PNM), T

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Full Text: [2012\Scientometrics92, 657.pdf](2012/Scientometrics92,%20657.pdf)

Abstract: This paper provides the profiling on the ‘relative absorptive capacity of knowledge’ research to provide insights of the field based on data collected from the ISI Web of Science database during the years 2001-2010. The analysis is established in three phases, namely, the general publication, the subject area, and the topic profiling. The study obtains patterns, characteristics, and attributes at country, institutions, journals, author, and core reference levels. It shows the increase of the research activity in the field, based on the publication productivity during the years mentioned. Most of these publications are classified in the subject areas of business and economics, engineering, and operations research and management science. We highlight the nascent interest of the computer science subject area as a way to operationalize the different studies conducted. We found a lack of contribution from African and Latin-American countries despite the importance of the field for them. Our results are useful in terms of science strategy, science and technology policy, research agendas, research alliances, and research networks according to the special interest of specific actors at the individual, institutional, and national levels.

Keywords: Analysis, Bibliometric Analysis, Bibliometrics, Business, Capabilities, Capacity, Characteristics, Collaboration, Country, Data, Database, Economics, Engineering, Field, Firm, General, Innovation, Institutions, ISI, Journals, Knowledge, Management, Management Science, Networks, Operations Research, Policy, Productivity, Profiling, Publication, Publication Analysis, Publication Productivity, Publications, Reference, Relative Absorptive Capacity, Research, Research Profiling, Science, Science and Technology, Science and Technology Policy, Strategic Alliances, Strategy, Technology, Tool

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Full Text: [2012\Scientometrics92, 675.pdf](2012/Scientometrics92,%20675.pdf)

Abstract: South Africa has 23 universities, of which five are placed in one or more of the 2011 Shanghai Jiao Tong, Times Higher Education, and Quacquarelli Symonds world university rankings. The five are: Cape Town, Witwatersrand, KwaZulu-Natal, Stellenbosch and Pretoria. They are ranked above the other 18 universities, with Cape Town in top position, mainly because they have significantly higher publication and citation counts. In the Shanghai Jiao Tong ranking Cape Town’s Nobel Prize alumni and highly-cited researchers give it an additional lead over second-placed Witwatersrand, which has Nobel Prize alumni but no highly-cited researchers. KwaZulu-Natal, in third place, has no Nobel Prize alumni but one highly-cited researcher, which places it ahead of Stellenbosch and Pretoria despite the latter two having higher publication output. However, in the Times Higher Education ranking, which places Cape Town first and Witwatersrand second, Stellenbosch is ranked but not KwaZulu-Natal, presumably because the publication and citation counts of Stellenbosch are higher. The other 18 universities are ranked by the SCImago and Webometrics rankings in an order consistent with bibliometric indicators, and consistent with approximate simulations of the Shanghai Jiao Tong and Times Higher Education methods. If a South African university aspires to rise in the rankings, it needs to increase publications, citations, staff-student ratio, and proportions of postgraduate students, international students and international staff.

Keywords: Academic Ranking, Africa, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Citation, Citation Counts, Citations, Fatal Attraction, First, Highly Cited, Highly-Cited, Indicators, International, Lead, Methods, Needs, Publication, Publications, Ranking, Rankings, Scimago, Shanghai Jiao Tong Ranking, South Africa, South African Universities, Students, Times Higher Education Ranking, Universities, University, World, World University Rankings

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Full Text: [2012\Scientometrics92, 697.pdf](2012/Scientometrics92,%20697.pdf)

Abstract: In the present study we analyzed the Brazilian scientific production in the area of science education. The study was structured on: data by research groups registered in Conselho Nacional de Desenvolvimento Cientifico e Tecnolgico; analysis of the post-graduate strictu sensu programs; analysis of theses and dissertations linked to post-graduate programs; and papers in international databases. Our research was conducted strictly via world wide web, from December 2009 to September 2010. It was found that both number of research groups, researchers, post-graduate programs, thesis, dissertations and papers presented a marked increase, especially in the last decade (from 2000 onwards). The major research centers were found to be located in public universities from Brazilian southeast and south regions. However, it was observed a tendency of decentralization, due to a recent investment in new public universities in the other Brazilian regions. So, this study sought to present an overview of the scientific production about science education and we expect that this information can help to expand the vision about the development of this research area in Brazil.

Keywords: Analysis, Brazil, Cbp-Latin-America, Data, Databases, Development, Education, Information, International, Issue, Papers, Public, Recent, Research, Research Centers, Science, Science Education, Scientific Production, Scientometrics, Universities, Web, World

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Full Text: [2012\Scientometrics92, 711.pdf](2012/Scientometrics92,%20711.pdf)

Abstract: Citation studies have become an important tool for understanding scientific communication processes, as they enable the identification of several characteristics of information-retrieval behavior. This study seeks to analyze citation behavior using two popular ethnobotany articles, and our analysis is guided by the following question: when an author references a work, is he pointing out the work’s theoretical contribution, or is bias a factor in citing this reference? Citation analysis reveals an interesting phenomenon, as the majority of citing texts do not consider the theoretical contributions made by the articles cited. Two possible conclusions can be drawn from this scenario: (1) citing authors read the original texts that they cite only superficially, and (2) the works cited are not read by the vast majority of people who reference them. Thus, it is clear that even with sufficient access to reference texts; ethnobotanical studies highlight elements less relevant to the research and reproduce discussions in a non-reflective manner.

Keywords: Access, Analysis, Authors, Behavior, Bias, Characteristics, Citation, Citation Analysis, Citation Behavior, Citation Studies, Citations, Communication, Identification, Information Retrieval, Papers, Plants, Reference, References, Research, Scenario, Scientific Communication, Scientific Quality, Scientometrics, Understanding, Work

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Full Text: [2012\Scientometrics92, 721.pdf](2012/Scientometrics92,%20721.pdf)

Abstract: Conventional patent citation analyses have focused mainly on the presence of citation relationships, the number of patents cited by the subject patent, and the number of times the subject patent is cited by others (i.e., the numbers of backward and forward citations of the subject patent). However, most of them have not focused on patent classifications. Assuming that a patent based on a variety of technological bases tends to be an important patent that is cited more often, this study examines and clarifies the relationship between the diversity of classifications assigned to backward citations and the number of forward citations for Japanese patents. The results show notable differences in the number of classifications assigned to backward citations between the often cited and less frequently cited groups. It is considered that the diversity of backward citations can be utilized in the evaluation criteria for grouping that roughly identifies the often cited patents or eliminates a large part of less frequently cited patents.

Keywords: Analyses, Bibliometrics, Citation, Citation Frequency, Citations, Criteria, Diversity, Evaluation, Japan, Patent, Patent Citation, Patent Classification, Patents

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Full Text: [2012\Scientometrics92, 735.pdf](2012/Scientometrics92,%20735.pdf)

Abstract: An effective bibliometric analysis was applied in this work to evaluate global scientific production of the subject category of “limnology” from 2001 to 2010. Data was based on the Science Citation Index compiled by Institute for Scientific Information (ISI), Philadelphia, USA. The h-Index and NetDraw were designed to characterize the limnology publications. The results showed that the limnology research constantly increased over the past decade. The researchers paid most attention to “diatoms”, “eutrophication” and “phosphorus”. Moreover, the keywords plus of “growth”, “model”, “dynamic”, offered a thorough description for the limnology research. Among the research institutes interested in limnologic research, the US Geological Survey was the flagship while the USA attained a dominant position in the global research in the field.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Citation, Database, Field, Global, h Index, h-Index, Index, Institute for Scientific Information, ISI, Journals, Limnology, Netdraw, Publications, Research, SCI, Science, Science Citation Index, Scientific Production, Trends, US, USA, Work

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Full Text: [2012\Scientometrics92, 747.pdf](2012/Scientometrics92,%20747.pdf)

Abstract: We evaluated earthquake research performance based on a bibliometric analysis of 84,051 documents published in journals and other outlets contained in the Scientific Citation Index (SCI) and Social Science Citation Index (SSCI) bibliographic databases for the period of 1900-2010. We summarized significant publication indicators in earthquake research, evaluated national and institutional research performance, and presented earthquake research development from a supplementary perspective. Research output descriptors suggested a solid development in earthquake research, in terms of increasing scientific production and research collaboration. We identified leading authors, institutions, and nations in earthquake research, and there was an uneven distribution of publications at authorial, institutional, and national levels. The most commonly used keywords appeared in the articles were evolution, California, deformation, model, inversion, seismicity, tectonics, crustal structure, fault, zone, lithosphere, and attenuation.

Keywords: Analysis, Authors, Bibliographic Databases, Bibliometric, Bibliometric Analysis, Bibliometric Study, Bibliometrics, California, Cannot, Citation, Collaboration, Databases, Deformation, Development, Distribution, Earthquake, Evaluation, Evolution, Indicators, Institutions, Inversion, Journals, Model, Nations, Performance, Publication, Publications, Research, Research Collaboration, Research Performance, SCI, Science, Science Citation Index, Scientific Production, Social Science Citation Index, SSCI, Structure

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Full Text: [2012\Scientometrics92, 767.pdf](2012/Scientometrics92,%20767.pdf)

Abstract: We compared three different bibliometric evaluation approaches: two citation-based approaches and one based on manual classification of publishing channels into quality levels. Publication data for two universities was used, and we worked with two levels of analysis: article and department. for the article level, we investigated the predictive power of field normalized citation rates and field normalized journal impact with respect to journal level. The results for the article level show that evaluation of journals based on citation impact correlate rather well with manual classification of journals into quality levels. However, the prediction from field normalized citation rates to journal level was only marginally better than random guessing. At the department level, we studied three different indicators in the context of research fund allocation within universities and the extent to which the three indicators produce different distributions of research funds. It turned out that the three distributions of relative indicator values were very similar, which in turn yields that the corresponding distributions of hypothetical research funds would be very similar.

Keywords: Allocation, Analysis, Bibliometric, Bibliometric Evaluation, Citation, Classification, Consequences, Context, Data, Evaluation, Field, Field Normalized Citation Rates, Impact, Indicator, Indicators, Institutions, Journal, Journal Impact, Journals, Norwegian Model, Performance, Power, Prediction, Predictive, Publication, Publishing, Quality, Rates, Research, Research Fund Allocation, Universities, University

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Full Text: [2012\Scientometrics92, 781.pdf](2012/Scientometrics92,%20781.pdf)

Abstract: the Leiden ranking 2011/2012 provides the Proportion top-10% publications (PP (top-10%) ) as a new indicator. This indicator allows for testing performance differences between two universities for statistical significance.

Keywords: Comparison, Expectation, Indicator, Performance, Publications, Ranking, Significance, Test, Testing, Universities, University

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Full Text: [2012\Scientometrics92, 785.pdf](2012/Scientometrics92,%20785.pdf)

Abstract: It is often said that successive generations of researchers face an increasing educational burden due to knowledge accumulation. On the other hand, technological advancement over time can improve the productivity of researchers and even change their cognitive processes. This paper presents a longitudinal study (2004-2011) of citation behavior in doctoral theses at the Massachusetts Institute of Technology’s Department of Electrical Engineering and Computer Science. It is found that the number of references cited has increased over the years. At the same time, there has been a decrease in the length of time in the doctoral program and a relative constancy in the culture of the department. This suggests that students are more productive in facing an increased knowledge burden, and indeed seem to encode prior literature as transactive memory to a greater extent, as evidenced by the greater use of older literature.

Keywords: Accumulation, Behavior, Burden, Citation, Citation Behavior, Culture, Doctoral Theses, Google, Impact, Information, Knowledge, Knowledge Burden, Length, Literature, Longitudinal, Massachusetts, Memory, Productivity, References, Science, Students

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Full Text: [2012\Scientometrics92, 795.pdf](2012/Scientometrics92,%20795.pdf)

Abstract: the phenomenon of all-elements-sleeping-beauties in science is revealed by four special cases. The ‘sleeping beauties’ prick their fingers on the ‘spindles’ so that they fall into sleep then are awakened by their ‘princes’. The authors speculate that the phenomenon could happen in scientific literatures with high quality.

Keywords: Authors, Delayed Recognition, Literature, Prematurity, Prince, Quality, Science, Scientific Literature, Sleep, Sleeping Beauty, Spindle

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Full Text: [2012\Scientometrics93, 1.pdf](2012/Scientometrics93,%201.pdf)

Keywords: Conference, Scientometrics

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Full Text: [2012\Scientometrics93, 3.pdf](2012/Scientometrics93,%203.pdf)

Abstract: An evaluation exercise was performed involving 313 papers of research staff (66 persons) of the Deutsche Rheuma-Forschungszentrum (DRFZ) published in 2004-2008. The records and citations to them were retrieved from the Web of Science (Thomson Reuters) in March 2010. The authors compared productivity and citedness of “group leaders” vs. “regular scientists”, of “male scientists” vs. “female scientists” using citation-based indexes. It was found that “group leaders” are more prolific and cited more often than “regular scientists”, the same is true considering “male” vs. “female scientists”. The greatest contrast is observed between “female leaders” and “female regular scientists”. The above mentioned differences are significant in indexes related to the number of papers, while values of indexes characterizing the quality of papers (average citation rate per paper and similar indexes) are not substantially different among the groups compared. The mean value of percentile rank index for all the 313 papers is 58.5, which is significantly higher than the global mean value of about 50. This fact is evidence of a higher citation status, on average, of the publications from the DRFZ.

Keywords: Authors, Citation, Citations, Evaluation, Evidence, Exercise, Gender, Global, Group Leaders, Index, Medical, Medical Research, Papers, Percentile, Percentile Rank Index, Productivity, Publications, Quality, Quality Of, Rank, Records, Research, Research Evaluation, Science, Thomson Reuters, Thomson-Reuters, Universities, Value, Web of Science

? Hildrun, K., Alexander, P. and Johannes, S. (2012), Research evaluation. Part II: gender effects of evaluation: Are men more productive and more cited than women? *Scientometrics*, **93** (1), 17-30.

Full Text: [2012\Scientometrics93, 17.pdf](2012/Scientometrics93,%2017.pdf)

Abstract: Productivity and citedness of the staff of a German medical research institution are analyzed. It was found in our previous study (Pudovkin et al.: Scientometrics, doi: 10.1007/s11192-012-0659-z, 2012) that male scientists are more prolific and cited more often than female scientists. We explain in our present study one of the possible causes for obtaining this result with reference to Abramo et al. (Scientometrics 84(3): 821-833, 2009), who found in the small subgroups of star scientists a higher performance of male star scientists with respect to female star scientists; but in the remaining complementary subpopulations the performance gap between the two sexes is marginal. In agreement with Abramo et al. (2009), in our small subgroup of star scientists a higher performance of male star scientists with respect to female star scientists could be found. Contrasting, in the large complementary subgroup even a slightly higher performance of female scientists with respect to male scientists was identified. The last is even stronger expressed in favor of women than Abramo’s result that the performance gap between the two sexes is truly marginal. In addition to Abramo et al. (2009), we already found in our previous study, special indexes characterizing the quality of papers (but not quantity) are not substantially different among sexes compared.

Keywords: Citations, Complementary, Effects, Evaluation, Female, Gender, Gender Gap, Index, Male, Medical, Medical Research, Men, Papers, Performance, Productivity, Quality, Quality Of, Reference, Research, Research Evaluation, Scientists, Scientometrics, Small, Star Scientists, Women

? Beaver, D.D. (2012), Quantity is only one of the qualities. *Scientometrics*, **93** (1), 33-39.

Full Text: [2012\Scientometrics93, 33.pdf](2012/Scientometrics93,%2033.pdf)

Abstract: As our fields have become more sophisticated, complex, and specialized, we deal with ever larger masses of data, and our quantitative results have become more detailed and esoteric, and difficult to interpret. Because our methods are predominantly quantitative, we tend to overlook or underemphasize the qualitative judgments that enter at every stage of our work, and to forget that quantity is only one of the qualities. As in our world today, where we face a flood of factoids and quantitative data stripped of context, and struggle to evaluate it, to give it meaning, and make it into information, so ought we qualitatively to acknowledge and contextualize our research results, not only to make them more relevant, meaningful, and useful to the larger world, but to give our work greater impact and value.

Keywords: Context, Contextualization, Data, Flood, Holism, Impact, Information, Interpretation, Methods, Qualitative, Qualitative Meaning, Quantitative Methodology, Quantity, Research, Research Results, Value, Work, World

? Benavent-Perez, M., Gorraiz, J., Gumpenberger, C. and de Moya-Anegon, F. (2012), The different flavors of research collaboration: A case study of their influence on university excellence in four world regions. *Scientometrics*, **93** (1), 41-58.

Full Text: [2012\Scientometrics93, 41.pdf](2012/Scientometrics93,%2041.pdf)

Abstract: This study on research collaboration (RC) is an attempt to estimate the degree of internationalization of academic institutions and regions. Furthermore potential influences of RC on excellence initiatives of modern universities are investigated relying on source data obtained from SCImago Institutions Rankings. A positive correlation exists between the degree of collaboration and the normalized impact. However, in contrast to output the normalized impact increase progression is non-linear and fluctuating. Differences occur regarding output volume and normalized impact at geographical region level for the leading universities. Different patterns of the Brute force distribution for each collaboration type were also observed at region level as well as at subject area level. A continuously reduced percentage of the domestic (non-collaboration) academic output is a world trend, whereas a steady increase of “international + national” collaboration is observed globally, however, less distinctive in Asia than in the other regions. The impact of Latin American papers originating from domestic production as well as from national collaboration remains considerably below world average values.

Keywords: Asia, Case Study, Citation, Citation Impact, Co-Authorship, Collaboration, Cooperation, Correlation, Data, Distribution, Excellence Universities, Force, Geographical Regions, Impact, Institutions, Internationalization, Nonlinear, Papers, Potential, Rankings, Region, Research, Research Collaboration, Scientific Collaboration, Scimago, Source, Subject Areas, Trend, Universities, University, Volume, World

? Bhattacharya, S., Shilpa and Bhati, M. (2012), China and India: the two new players in the nanotechnology race. *Scientometrics*, **93** (1), 59-87.

Full Text: [2012\Scientometrics93, 59.pdf](2012/Scientometrics93,%2059.pdf)

Abstract: Nanotechnology is promising to be the ‘transformative’ technology of the 21st century with its boundless potential to revolutionize a wide range of industries. Stakes are high as projected estimate of market value and economic and social benefits are immense for countries that can attain competency in this technology. This has stimulated OECD countries as well as emerging economies to channel huge resources for developing core capabilities in this technology. Unlike, other key technologies, recent influential reports highlight China in particular and to some extent India, Brazil and other emerging economies competing with advanced OECD countries in ‘nanotechnology’. The present paper investigates through bibliometric and innovation indicators to what extent China and India have been able to assert their position in the global stage. The paper also underscores the importance of capturing indications from standards and products/processes along with publications and patents to capture more accurately the latent variable ‘performance’. Study shows that China’s progress is remarkable; it has already attained leading position in publications and standard development. India is making its presence more visible particularly in publications. China’s research is more sophisticated and addresses nano-materials and its applications whereas India’s research shows healthy trend towards addressing developmental problems.

Keywords: Bibliometric, Brazil, China, Competency, Developing, Development, Economic, Global, India, Indications, Indicators, Innovation, Market, Nanomaterials, Nanotechnology, Patents, Performance, Performance Indicators, Potential, Progress, Publications, Race, Recent, Research, Resources, Science, Social, Standard, Standards, Technologies, Technology, Trend, Value

? Franceschini, F. and Maisano, D. (2012), Publication and patent analysis of European researchers in the field of production technology and manufacturing systems. *Scientometrics*, **93** (1), 89-100.

Full Text: [2012\Scientometrics93, 89.pdf](2012/Scientometrics93,%2089.pdf)

Abstract: This paper develops a structured comparison among a sample of European researchers in the field of Production Technology and Manufacturing Systems, on the basis of scientific publications and patents. Researchers are evaluated and compared by a variegated set of indicators concerning (1) the output of individual researchers and (2) that of groups of researchers from the same country. While not claiming to be exhaustive, the results of this preliminary study provide a rough indication of the publishing and patenting activity of researchers in the field of interest, identifying (dis)similarities between different countries. of particular interest is a proposal for aggregating analysis results by means of maps based on publication and patent indicators. A large amount of empirical data are presented and discussed.

Keywords: Academic Research, Analysis, Comparison, Country, Data, Field, Index, Indication, Indicators, Manufacturing, Manufacturing Systems, Output, Patent, Patent Analysis, Patents, Production Technology, Publication, Publications, Publishing, Quality, Research Evaluation, Researchers, Science, Scientific Publications, Systems, Technology, Technology Transfer

? Gautam, P. and Yanagiya, R. (2012), Reflection of cross-disciplinary research at Creative Research Institution (Hokkaido University) in the Web of Science database: Appraisal and visualization using bibliometry. *Scientometrics*, **93** (1), 101-111.

Full Text: [2012\Scientometrics93, 101.pdf](2012/Scientometrics93,%20101.pdf)

Abstract: This study describes the results of a preliminary bibliometric analysis of 611 research items, published between 1996 and 2011 by researchers affiliated with Creative Research Institution (CRIS) and the Center for Advanced Science and Technology (CAST), Hokkaido University (HU), retrieved from the Web of Science (WoS) database. CRIS has a primary mission to promote cutting-edge, world-class, trans-departmental research within HU, and it conducts fundamental, commercialization-related, cross-disciplinary research and nurtures young in-house/recruited researchers through targeted, innovative tenure-track programs in multiple disciplines. Its research output derives from 3- to 7-year-long time-bound projects funded strategically by HU, external grants [e.g., MEXT Super-COE HU Research and Business Park Project (FY2003-7)], industry-university collaboration with regional businesses, and endowments (e.g., Meiji Dairies). Analyses using co-words, bibliographic coupling, overlay map aided with visualization, etc., lead to the following inferences: (i) the published items comprise a dozen well-defined (inter-)disciplinary clusters, dominated by 3 macro-disciplines (biomedical science, 33%; chemistry, 21%; agricultural science, ca. 10%) that constitute 18 clusters used for mapping; (ii) research conducted by externally funded or endowed projects in the biomedical, physical and environmental science and technology fields (3 broad areas of aggregation derived from the Science Overlay Map) is interdisciplinary; and (iii) there is an apparently low visibility of publications from projects jointly executed with industries to an almost complete absence of output from CRIS in the fields of social sciences in the WoS database.

Keywords: Aggregation, Agricultural, Analysis, Bibliographic, Bibliographic Coupling, Bibliometric, Bibliometric Analysis, Bibliometrics, Bibliometry, Biomedical, Chemistry, Co-Word Analysis, Collaboration, Cross-Disciplinary Research, Database, Environmental, Environmental Science, Interdisciplinarity, Interdisciplinary, Japan, Lead, Mapping, Physical, Primary, Publications, Regional, Research, Research Output, Science, Science and Technology, Science Map, Sciences, Social, Social Sciences, Technology, University, Visibility, Visualization, Web of Science

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Full Text: [2012\Scientometrics93, 113.pdf](2012/Scientometrics93,%20113.pdf)

Abstract: the notion of core documents and their application is discussed in the context of scientometric networks. An interesting solution of the problem of the arbitrariness of thresholds emerges from the application of Hirsch-type indices to dense networks as are typically observed in local clustering. Examples from several disciplines in the sciences and social sciences illustrate how these core vertices can be determined using this approach, and visualise how core documents are applied to represent the internal structure of the complete network or of parts of it.

Keywords: Analysis, Application, Approach, Bibliometric, Clustering, Context, Core Documents, Emerging Fields, H-Core, h-Index, Hybrid Clustering, Indices, Level, Local, Network, Network Analysis, Networks, Notion, Role, Sciences, Scientometric, Social, Social Sciences, Solution, Structure, Thresholds

? Jones, T.H., Donovan, C. and Hanney, S. (2012), Tracing the wider impacts of biomedical research: A literature search to develop a novel citation categorisation technique. *Scientometrics*, **93** (1), 125-134.

Full Text: [2012\Scientometrics93, 125.pdf](2012/Scientometrics93,%20125.pdf)

Abstract: There is an increasing need both to understand the translation of biomedical research into improved healthcare and to assess the range of wider impacts from health research such as improved health policies, health practices and healthcare. Conducting such assessments is complex and new methods are being sought. Our new approach involves several steps. First, we developed a qualitative citation analysis technique to apply to biomedical research in order to assess the contribution that individual papers made to further research. Second, using this method, we then proposed to trace the citations to the original research through a series of generations of citing papers. Third, we aimed eventually to assess the wider impacts of the various generations. This article describes our comprehensive literature search to inform the new technique. We searched various databases, specific bibliometrics journals and the bibliographies of key papers. After excluding irrelevant papers we reviewed those remaining for either general or specific details that could inform development of our new technique. Various characteristics of citations were identified that had been found to predict their importance to the citing paper including the citation’s location; number of citation occasions and whether the author(s) of the cited paper were named within the citing paper. We combined these objective characteristics with subjective approaches also identified from the literature search to develop a citation categorisation technique that would allow us to achieve the first of the steps above, i.e., being able routinely to assess the contribution that individual papers make to further research.

Keywords: Analysis, Approach, Assessments, Bibliographies, Bibliometrics, Biomedical, Biomedical Research, Characteristics, Citation, Citation Analysis, Citation Categorisation, Citation Generations, Citations, Cite, Citing Behavior, Classification, Databases, Development, First, General, Health, Health Practices, Health Research, Impacts, Journal Articles, Journals, Literature, Location, Methodology, Methods, Papers, Payback, Policies, Practices, Psychology, Qualitative, Quality, Reasons, Research, Research Assessment, Translation, Wider Impacts of Research

? Kretschmer, H., Kundra, R., Beaver, D.D. and Kretschmer, T. (2012), Gender bias in journals of gender studies. *Scientometrics*, **93** (1), 135-150.

Full Text: [2012\Scientometrics93, 135.pdf](2012/Scientometrics93,%20135.pdf)

Abstract: the causes of gender bias favoring men in scientific and scholarly systems are complex and related to overall gender relationships in most of the countries of the world. An as yet unanswered question is whether in research publication gender bias is equally distributed over scientific disciplines and fields or if that bias reflects a closer relation to the subject matter. We expected less gender bias with respect to subject matter, and so analysed 14 journals of gender studies using several methods and indicators. The results confirm our expectation: the very high position of women in co-operation is striking; female scientists are relatively overrepresented as first authors in articles. Collaboration behaviour in gender studies differs from that of authors in PNAS. The pattern of gender studies reflects associations between authors of different productivity, or “masters” and “apprentices” but the PNAS pattern reflects associations between authors of roughly the same productivity, or “peers”. It would be interesting to extend the analysis of these three-dimensional collaboration patterns further, to see whether a similar characterization holds, what it might imply about the patterns of authorship in different areas, what those patterns might imply about the role of collaboration, and whether there are differences between females and males in collaboration patterns.

Keywords: Analysis, Authors, Authorship, Behaviour, Bias, Characterization, Co-Authorship, Co-Operation, Collaboration, Collaboration Patterns, Cooperation, Distributed, Female, First, Gender, Gender Bias, Gender Studies, Indicators, Journals, Men, Methods, Networks, Pattern, Pnas, Productivity, Publication, Research, Role, Social Networks, Systems, Three-Dimensional, Women, World

? Lamirel, J.C. (2012), A new approach for automatizing the analysis of research topics dynamics: Application to optoelectronics research. *Scientometrics*, **93** (1), 151-166.

Full Text: [2012\Scientometrics93, 151.pdf](2012/Scientometrics93,%20151.pdf)

Abstract: the objective of this paper is to propose a new unsupervised incremental approach in order to follow the evolution of research themes for a given scientific discipline in terms of emergence or decline. Such behaviors are detectable by various methods of filtering. However, our choice is made on the exploitation of neural clustering methods in a multi-view context. This new approach makes it possible to take into account the incremental and chronological aspects of information by opening the way to the detection of convergences and divergences of research themes at a large scale.

Keywords: Analysis, Application, Approach, Bayesian Reasoning, Choice, Clustering, Context, Diachronic Analysis, Dynamics, Evolution, Information, Methods, Multiple Viewpoint Analysis, Neural Networks, Research, Scale, Unsupervised Learning

? Lewison, G. and Roe, P. (2012), The evaluation of Indian cancer research, 1990-2010. *Scientometrics*, **93** (1), 167-181.

Full Text: [2012\Scientometrics93, 167.pdf](2012/Scientometrics93,%20167.pdf)

Abstract: Cancer research outputs in India have expanded greatly in recent years, with some concomitant increase in their citation scores. Part of the increase in output is attributable to greater coverage in the Web of Science of Indian journals, which are more clinical than international ones, and much less often cited. Other measures of esteem have also increased, such as the percentage of reviews and the immediacy with which Indian cancer articles are cited. Most of the output came from just nine of the 35 Indian states and Union Territories, led by New Delhi and Maharashtra. The distribution of the amount of research by cancer site correlates moderately positively with the relative disease burden, with mouth (head and neck) cancer (often caused by the chewing of tobacco or areca, betel or paan) causing the highest number of deaths and also being well researched. We also analysed the articles by type of research, with articles in genetics and chemotherapy being the most numerous. for articles published in 2009-2010, data were available on the funding acknowledgements, and we found, as expected, that articles in clinical subjects were less often supported by external funding than ones in basic research. The major source of support was the Government of India, with relatively small contributions from charities and industry, unlike the situation in the UK and other western European countries.

Keywords: Bibliometric Analysis, Burden, Cancer, Cancer Sites, Chemotherapy, Citation, Citations, Clinical, Correlates, Coverage, Data, Disease, Disease Burden, Distribution, Evaluation, Funding, Genetics, Geographical Distribution, Impact, India, International, Journals, Male Circumcision, Neck, New Delhi, Oncology, Performance, Recent, Research, Research Output, Research Outputs, Research Types, Reviews, Science, Science-Citation-Index, Scopus, Site, Small, Source, Support, Tobacco, Trends, UK, Web of Science

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Full Text: [2012\Scientometrics93, 183.pdf](2012/Scientometrics93,%20183.pdf)

Abstract: This article proposes a conceptual framework to study diffusion of knowledge via collaborative social interactions. The framework primes deliberation on (i) nature of knowledg, (ii) chain of knowledge process, and (iii) modes of knowledge transfer while examining mechanisms of knowledge diffusion and collaboration structure. Within such a differentiation scheme while information is considered as a form of filtered data within a context of relevancies, knowledge is considered as a systematically processed information that is bound to individual or collective actions and praxis. The framework is applied employing an empirical research method based on meta-network analysis. The examplary case traces how management sciences related knowledge is diffused and what collaboration structures are exhibited by Turkish management academia from 1920s until 2008. Results from knowledge diffusion models which have been devised and tested in this study hint that management knowledge within local publications follows patterns of information diffusion rather than patterns of knowledge transfer found elsewhere. On the other hand, it is seen that cognitive demand of publishing in citation indexed global journals have given way to cohesive collaborating teams as mean of collaborative knowledge production and transfer.

Keywords: Analysis, Citation, Co-Authorship Networks, Collaboration, Context, Data, Demand, Diffusion, Diffusion Models, Embeddedness, Empirical Research, Evolution, Framework, Global, Information, Information Diffusion, Innovation, Journals, Knowledge, Knowledge Diffusion, Knowledge Transfer, Local, Management, Mechanisms, Models, Publications, Publishing, Research, Research Method, Science, Sciences, Scientific Collaboration, Small Worlds, Small-Worlds, Social, Social Network Analysis, Social Network Analysis, Structure, Ties

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Full Text: [2012\Scientometrics93, 207.pdf](2012/Scientometrics93,%20207.pdf)

Abstract: This paper examines the Web visibility of researchers in the field of communication. First, we measured the Web visibility of authors who have recently published their research in communication journals contained in the Social Science Citation Index (SSCI) provided by the Web of Science. Second, we identified a subset of authors based on their publication outlets and summarize those researchers with the highest Web presence. Lastly, we determined the factors affecting their Web visibility by using a set of national and linguistic variables of the individual researchers. Web data were collected by using a Bing.com advanced search tool based on the API. Web presence is defined as the number of Web (co-) mentions of each researcher. We identified the most solely-visible scholars in the entire communication webosphere and scholars with the most networked visibility based on co-mentions. There is a weak but statistically significant correlation between researchers’ Web visibility and their SSCI publication counts. Further, US-based and/or English-speaking scholars were more noticeable than others on cyberspace.

Keywords: Authors, Citation, Citations, Co-Authorship Networks, Communication, Correlation, Data, Field, Impact, Journals, Linguistic Variables, Media, Media and Communication Science, Patterns, Productivity, Publication, Publication Counts, Research, Science, Science Citation Index, Scientometrics, Sites, Social Science Citation Index, SSCI, Visibility, Web of Science, Web Visibility, Webometrics

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Full Text: [2012\Scientometrics93, 217.pdf](2012/Scientometrics93,%20217.pdf)

Abstract: the study explored the feasibility of using Web keyword analysis as an alternative to link analysis and tested the feasibility in a multi-industry environment. The keyword is the organization’s name, in this case the company name. American companies from five industries were included in the study. The study found that the Web visibility of a company as measured by the number of Webpages on which the company name appears correlates with the company’s business measures (revenue, profits, and assets). The correlation coefficients are similar to that between the inlink counts and the business measures. This suggests that the keyword count (searched by the company name) could replace inlink count as an alternative indicator of some commonly used business measures. The co-word (the co-occurrence of the names of two companies on Webpages) count was used as a measure of the relatedness of the two companies. Multidimensional scaling (MDS) analysis was applied to the co-word matrices and generated MDS maps that showed relationships among companies in a multi-industry context. Keyword data were collected from three different types of Websites (general Websites, blog sites, and Web news sites) and results were compared. The study found blog sites to be the better source to collect data for this type of study. The comparison of MDS maps generated from co-link data and the blog co-word data showed that the co-word analysis is as effective as co-link analysis in mapping business relationships. The value of the study is not limited to the business sector as the co-word method could be applied to analysing relationships among other types of organizations.

Keywords: Academic Web, Alternative, Analysis, Business, Business Performance, Business Relationships, Co-Word Analysis, Comparison, Context, Correlates, Correlation, Data, Environment, Feasibility, General, Hyperlink, Impact Factors, Indicator, Keyword, Mapping, Mds, Measure, Multidimensional Scaling, Patterns, Scaling, Sector, Source, Value, Visibility, Web Keyword Analysis, Web Visibility, Webometrics

? Yang, K. and Lee, J. (2012), Analysis of publication patterns in Korean library and information science research. *Scientometrics*, **93** (2), 233-251.

Full Text: [2012\Scientometrics93, 233.pdf](2012/Scientometrics93,%20233.pdf)

Abstract: This study assessed research patterns and trends of library and information science (LIS) in Korea by applying bibliometric analysis to 159 Korean LIS professors’ 2,401 peer-reviewed publications published between 2001 and 2010. Bibliometric analysis of publication data found an increasing trend for collaboration, robust publication patterns, increasing number of international publications, and internationalization of LIS in Korea. The maturation and internalization of LIS research was evidenced in increased number of publications in high impact journals (e.g., SSI, SSCI), growing participation in leading international conferences (e.g., ASIST, TREC), increasing proportion of Korean LIS faculty with international degrees, and high publication rates by professors with international degrees. Though limited in its evaluative power without citation data, publication data can be a rich source for bibliometric analysis as this study has shown. The analysis of publication patterns conducted by the study, which is a first step in our aim to establish a multi-faceted approach for assessing the impact of scholarly work, will be followed up in a future study, where the question of quantity versus quality will be examined by comparing publication counts with citation counts.

Keywords: Analysis, Approach, Assessing, Bibliometric, Bibliometric Analysis, Bibliometric Analysis, Citation, Citation Counts, Collaboration, Conferences, Data, Faculty, First, Impact, Information, Information Science, Internalization, International, Internationalization, Journals, Korea, Li, Library and Information Science, Lis, Lis Research, Maturation, Nov, Participation, Peer-Reviewed, Power, Publication, Publication Counts, Publication Patterns, Publications, Quality, Rates, Research, Research Productivity, Science, Science Research, Source, SSCI, Trend, Trends, Work

? Ohba, N. and Nakao, K. (2012), Sleeping beauties in ophthalmology. *Scientometrics*, **93** (2), 253-264.

Full Text: [2012\Scientometrics93, 253.pdf](2012/Scientometrics93,%20253.pdf)

Abstract: To identify delayed recognition publications, or ‘Sleeping Beauties’ (SBs), that are scarcely cited in the years or decades following their publication, but then go on to become highly cited, we screened citation histories of 184,606 articles in 52 ophthalmology journals using the Science Citation Index-Expanded (Thomson Reuters). Nine articles were identified as SBs, which accounted for 0.005% of basic materials. The SBs were published in Archives of Ophthalmology (n = 3), American Journal of Ophthalmology (n = 3), Acta Ophthalmologica (n = 1), Investigative Ophthalmology and Visual Science (n = 1), and Japanese Journal of Clinical Ophthalmology (n = 1). for citation histories according to the conjuring SB from the fairy tale, the sleep duration ranged from 7 to 59 years with mean of 19.7 years, the depth of sleep as evaluated by the average citations per year during the sleeping period ranged from 0.09 to 0.82 with mean of 0.45 citations, and the awake intensity as determined by the average citations per year during the first 5 years period following awakening ranged from 3.60 to 17.80 with mean of 8.51 citations. The number of total citations up to 2010 ranged from 109 to 375 with mean of 176.3 citations. Topics of the SBs covered description of new clinical diseases including acute retinal necrosis syndrome, cancer-associated retinopathy, and polypoidal choroidal vasculopathy, correlate of central corneal thickness with intraocular pressure readings, inadvertent eyeball perforation in retrobulbar anesthesia, pharmacologic weakening of extraocular muscles, amniotic membrane graft for ocular surface reconstruction, and refractive surgery. These data provide a perspective of rare but interesting delayed citation articles in ophthalmology.

Keywords: Amniotic Membrane Transplantation, Anesthesia, Citation, Citation Analysis, Citation History, Citations, Clinical, Corneal Thickness, Data, Delayed Recognition, Diseases, Duration, First, Frequently Cited Articles, Graft, Highly Cited, Highly-Cited, Inadvertent, Journal, Journal Impact Factors, Journals, Membrane, Muscles, Necrosis, Nov, Ophthalmology, Photoreceptor Degeneration, Polypoidal Choroidal Vasculopathy, Pressure, Publication, Publications, Reconstruction, Retinal Necrosis Syndrome, Science, Science Citation Index Expanded, Sleep, Sleeping Beauties, Surface, Surface Reconstruction, Surgery, Syndrome, Thomson Reuters, Thomson-Reuters, Topics, Toxin Injection

? Pachi, C.G.D., Yamamoto, J.F., da Costa, A.P.A. and Lopez, L.F. (2012), Relationship between connectivity and academic productivity. *Scientometrics*, **93** (2), 265-278.

Full Text: [2012\Scientometrics93, 265.pdf](2012/Scientometrics93,%20265.pdf)

Abstract: A relevant factor in the growth of academic productivity in the second half of 20th century is the implementation of the internet, particularly in developing countries. One of the first networks in Brazil is the Academic Network at Sao Paulo (ANSP), a regional network implemented in the state of Sao Paulo, which contains the largest concentration of researchers in the country. This study presents a unique metric for analyzing the impact of ANSP in academic productivity in the state of Sao Paulo. We correlate academic production and available bandwidth using Fisher ideal price index with suitable variables to evaluate the impact of the internet on research centers and universities. We find that the members of ANSP show a steady growth in academic productivity compared with other institutions outside of the ANSP network. These results suggest that policies which increase available bandwidth can positively affect academic productivity.

Keywords: Academic Productivity, Brazil, Concentration, Connectivity, Country, Developing, Developing Countries, First, Growth, Health, Impact, Implementation, Index, Index Number, Institutions, Internet, Internet, Network, Networks, Nov, Policies, Productivity, Regional, Research, Research Centers, State, Universities

? Pratt, J.A., Hauser, K. and Sugimoto, C.R. (2012), Defining the intellectual structure of information systems and related college of business disciplines: A bibliometric analysis. *Scientometrics*, **93** (2), 279-304.

Full Text: [2012\Scientometrics93, 279.pdf](2012/Scientometrics93,%20279.pdf)

Abstract: Information systems permeate every business function, thereby requiring holistic Information Systems (IS) approaches. Much academic research is still discipline specific. More interdisciplinary research is needed to inform both industry and academe. Interdisciplinary research has been positively associated with increased levels of innovation, productivity and impact. IS research contributes to the knowledge creation and innovation within IS and other College of Business (COB) disciplines. This research defines the intellectual structures within IS and between IS and other COB disciplines. We use a large scale, diachronic bibliometric analysis of COB journals to assess reciprocal knowledge exchange and also to identify potential intra- and interdisciplinary publication outlets. Our findings show an increase in IS knowledge contributions to other COB disciplines, which supports the discussion that IS is a reference discipline. Our research also visually depicts the intellectual structures within IS and between IS and other COB disciplines. Anyone exploring research in IS and allied COB disciplines can peruse the proximity maps to identify groups of similar journals. The findings from this research inform decisions related to which journals to read, target as publication outlets, and include on promotion and tenure lists.

Keywords: Analysis, Author Cocitation, Bibliometric, Bibliometric Analysis, Business, Citation Analysis, Citation Analysis, Cocitation Analysis, Collaboration, College, Economics, Et-Al, Function, Holistic, Impact, Information, Information Systems, Innovation, Intellectual Structure, Interdisciplinarity, Interdisciplinary, Interdisciplinary Research, Is, Journals, Knowledge, Knowledge Exchange, Management, Network Analysis, Nov, Perspective, Potential, Productivity, Promotion, Promotion and Tenure, Publication, Reference, Research, Scale, Structure, Systems, Tenure

? Raj, R.G. and Zainab, A.N. (2012), Relative measure index: A metric to measure the quality of journals. *Scientometrics*, **93** (2), 305-317.

Full Text: [2012\Scientometrics93, 305.pdf](2012/Scientometrics93,%20305.pdf)

Abstract: Journal impact factors (JIF) have been an accepted indicator of ranking journals. However, there has been increasing arguments against the fairness of using the JIF as the sole ranking criteria. This resulted in the creation of many other quality metric indices such as the h-Index, g-index, immediacy index, Citation Half-Life, as well as SCIMago journal rank (SJR) to name a few. All these metrics have their merits, but none include any great degree of normalization in their computations. Every citation and every publication is taken as having the same importance and therefore weight. The wealth of available data results in multiple different rankings and indexes existing. This paper proposes the use of statistical standard scores or z-scores. The calculation of the z-scores can be performed to normalize the impact factors given to different journals, the average of z-scores can be used across various criteria to create a unified relative measurement (RM) index score. We use the 2008 JCR provided by Thompson Reuters to demonstrate the differences in rankings that would be affected if the RM-index was adopted discuss the fairness that this index would provide to the journal quality ranking.

Keywords: Bibliometrics, Calculation, Citation, Criteria, Data, Diffusion Factors, G Index, G-Index, h Index, h-Index, Immediacy Index, Impact, Impact Factor, Impact Factors, Index, Indicator, Indicators, Indices, Jcr, Journal, Journal Impact, Journal Impact Factors, Journal Quality, Journal Quality Measure, Journals, Measure, Measurement, Metrics, Networks, Normalization, Nov, Publication, Quality, Quality Of, Rank, Ranking, Rankings, Relative Measurement Index, Sjr, Standard, Wealth

? Jovanovic, M., Jeremic, V., Savic, G., Bulajic, M. and Martic, M. (2012), How does the normalization of data affect the ARWU ranking? *Scientometrics*, **93** (2), 319-327.

Full Text: [2012\Scientometrics93, 319.pdf](2012/Scientometrics93,%20319.pdf)

Abstract: the aim of this paper is to present new ideas in evaluating Shanghai University’s Academic Ranking of World Universities (ARWU). In particular, this paper shall try to determine whether the normalization of data affects University ranks. In accordance with this, both the normalized and original (raw) data for each of the six variables has been obtained. Based on a sample containing the 54 US universities which are placed in the ARWU top 100, the statistical I-distance method was performed. The results showed great inconsistencies between university ranks obtained for the original and normalized data. These findings were then analyzed and the universities that had the greatest fluctuation in their ranks were noted.

Keywords: Arwu, Classification, Countries, Data, Fatal Attraction, Health, Index, Maps, Normalization, Normalization of Data, Nov, Perspective, Ranking, Ranking of Universities, Scores, Statistical Methods, Systems, the I-Distance Method, Universities, University, University Rankings, US

? Le Moigne, P. and Ragouet, P. (2012), Science as instrumentation. The case for psychiatric rating scales. *Scientometrics*, **93** (2), 329-349.

Full Text: [2012\Scientometrics93, 329.pdf](2012/Scientometrics93,%20329.pdf)

Abstract: the aim of this article is to test the model analysis conceived by Terry Shinn on the autonomy and unity of science. for him, the differentiation of sciences can be explained in a large part by the diffusion of generic instruments created by research-technologists moving in interstitial arenas between higher education, industry, statistics institutes or the military. We have applied this analysis to research on depression by making the hypothesis that psychiatric rating scales could have played a similar role in the development of this scientific field. To that purpose, we proceeded to a lexicographic study of keywords mentioned in articles listed by the PsycINFOA (c) data base on this subject between 1950 and 2000. In order to realize an associated words analysis, we constructed a co-occurrence matrix and used clustering analysis based on a grouping index; that is, the equivalency index. We obtained significant aggregates of keywords associated with significant periods, or major moments, of the development of research on depression. This periodization confirmed the structural role played by psychiatric rating scales in the development of this scientific field, and led us to discuss and to extend some elements of the model initiated by Shinn.

Keywords: Aggregates, Analysis, Autonomy, Clustering, Co-Word Analysis, Co-Word Analysis, Constructed, Data, Data Base, Depression, Depression, Development, Diagnostic Criteria, Diffusion, Education, Field, Higher Education, History, Index, Instrument, Instrumentation, Matrix, Model, Nov, Psychiatry, Purpose, Reliability, Research, Role, Scales, Science, Sciences, Standardization, Statistics, Thinking, Validity

? Carayol, N., Filliatreau, G. and Lahatte, A. (2012), Reference classes: A tool for benchmarking universities’ research. *Scientometrics*, **93** (2), 351-371.

Full Text: [2012\Scientometrics93, 351.pdf](2012/Scientometrics93,%20351.pdf)

Abstract: Based on new comparison principles that take into account both the volume of scientific production and its impact, this paper proposes a method for defining reference classes of universities. Several tools are developed in order to enable university managers to define the value system according to which their university shall be compared to others. We apply this methodology to French universities and illustrate it using the reference classes of the best ranked universities according to several value systems.

Keywords: Benchmarking, Citations, Comparison, Dominance Relations, Impact, Index, Methodology, Nov, Output, Principles, Reference, Reference Classes, Research, Scientific Production, Systems, Universities, University, Value, Volume

? Engels, T.C.E., Ossenblok, T.L.B. and Spruyt, E.H.J. (2012), Changing publication patterns in the Social Sciences and Humanities, 2000-2009. *Scientometrics*, **93** (2), 373-390.

Full Text: [2012\Scientometrics93, 373.pdf](2012/Scientometrics93,%20373.pdf)

Abstract: An analysis of the changing publication patterns in the Social Sciences and Humanities (SSH) in the period 2000-2009 is presented on the basis of the VABB-SHW, a full coverage database of peer reviewed publication output in SSH developed for the region of Flanders, Belgium. Data collection took place as part of the Flemish performance-based funding system for university research. The development of the database is described and an overview of its contents presented. In terms of coverage of publications by the Web of Science we observe considerable differences across disciplines in the SSH. The overall growth rate in number of publications is over 62.1%, but varies across disciplines between 7.5 and 172.9%. Publication output grew faster in the Social Sciences than in the Humanities. A steady increase in the number and the proportion of publications in English is observed, going hand in hand with a decline in publishing in Dutch and other languages. However, no overall shift away from book publishing is observed. In the Humanities, the share of book publications even seems to be increasing. The study shows that additional full coverage regional databases are needed to be able to characterise publication output in the SSH.

Keywords: Analysis, Belgium, Books, Collection, Coverage, Database, Databases, Development, Dutch, Flanders, Funding, Growth, Growth Rate, Humanities, Language Use, Languages, Monograph, Nov, Peer-Reviewed, Productivity, Publication, Publication Types, Publications, Publishing, Region, Regional, Research, Research Performance, Science, Social Sciences, University, Web of Science

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Full Text: [2012\Scientometrics93, 391.pdf](2012/Scientometrics93,%20391.pdf)

Abstract: This paper proposes a method for classifying true papers of a set of focal scientists and false papers of homonymous authors in bibliometric research processes. It directly addresses the issue of identifying papers that are not associated (“false”) with a given author. The proposed method has four steps: name and affiliation filtering, similarity score construction, author screening, and boosted trees classification. In this methodological paper we calculate error rates for our technique. Therefore, we needed to ascertain the correct attribution of each paper. To do this we constructed a small dataset of 4,253 papers allegedly belonging to a random sample of 100 authors. We apply the boosted trees algorithm to classify papers of authors with total false rate no higher than 30% (i.e. 3,862 papers of 91 authors). A one-run experiment achieves a testing misclassification error 0.55%, testing recall 99.84%, and testing precision 99.60%. A 50-run experiment shows that the median of testing classification error is 0.78% and mean 0.75%. Among the 90 authors in the testing set (one author only appeared in the training set), The algorithm successfully reduces the false rate to zero for 86 authors and misclassifies just one or two papers for each of the remaining four authors.

Keywords: Affiliation, Algorithm, Author Name, Authors, Bibliometric, Bibliometric Research, Boosted Trees, Classification, Classification Tree, Common Names, Constructed, Construction, Error, Experiment, Homonyms, Name Disambiguation, Networks, Nov, Papers, Precision, Random Sample, Rates, Recall, Research, Screening, Similarity, Small, Testing, Training, Trees

? Monteleone, S. and Torrisi, B. (2012), Geographical analysis of the academic brain drain in Italy. *Scientometrics*, **93** (2), 413-430.

Full Text: [2012\Scientometrics93, 413.pdf](2012/Scientometrics93,%20413.pdf)

Abstract: To study the behavior of Italian researchers living in Italy with a view to creating appropriate policies to tackle the brain drain and discourage academics from weight in driving emigrating, we constructed a survey based on a sample of 4,700 Italian researchers (assistant professors) in several universities in Italy. The outlook is far from rosy: Italian researchers are generally dissatisfied with the economic and social situation of the country. Strong family ties represent the element keeping them at home in Italy. In this regard, no particular differences were noted between the North and South of the country. In analyzing the Italian academic system we identified factors that have greater weight in driving Italian intellectual talent to emigrate: the country’s higher education system leaves all dissatisfied. Furthermore, we discovered other factors that, albeit weak, keep Italian researchers in Italy. However, one wonders how much longer family and national ties will be able to keep Italian skilled agents in Italy, and whether such dissatisfaction may jeopardize the country’s future economic development.

Keywords: Academics, Analysis, Behavior, Brain, Constructed, Country, Development, Driving, Economic, Economic Development, Education, Family, Higher Education, Italy, Living, North, Nov, Policies, Social, Survey, Universities

? O’Leary, J.D. and O’Sullivan, O. (2012), Research productivity among trainee anaesthetists in Ireland: A cross-sectional study. *Scientometrics*, **93** (2), 431-438.

Full Text: [2012\Scientometrics93, 431.pdf](2012/Scientometrics93,%20431.pdf)

Abstract: Objective measures of research performance are necessary to facilitate academic advancement of trainee physicians. In this cross-sectional study, all anaesthetists (n = 98) in higher specialist training in Ireland were surveyed to determine bibliometrics of their scientific publications and individual and institutional characteristics that can influence research productivity. for trainees with publications, the median (range) h-Index was 1 (0-4). There was a positive correlation between participation in a formal research program and increased research productivity using mean citations per publication (r (2) = 0.26, P = 0.006) and h-Index (r (2) = 0.26, P = 0.006). There was a positive correlation between formal mentorship and mean citations per publication (r (2) = 0.15, P = 0.04) and h-Index (r (2) = 0.17, P = 0.03).

Keywords: Anaesthesia, Bibliometrics, Characteristics, Citations, Correlation, h Index, h-Index, Index, Ireland, Medical Education and Training, Nov, P, Participation, Performance, Physicians, Productivity, Publication, Publications, Research, Research Performance, Research Productivity, Scientific Publications, Training

? Mehta, A., Herron, P., Motoyama, Y., Appelbaum, R. and Lenoir, T. (2012), Globalization and de-globalization in nanotechnology research: the role of China. *Scientometrics*, **93** (2), 439-458.

Full Text: [2012\Scientometrics93, 439.pdf](2012/Scientometrics93,%20439.pdf)

Abstract: the share of nanotechnology publications involving authors from more than one country more than doubled in the 1990s, but then fell again until 2004, before recovering somewhat during the latter years of the decade. Meanwhile, the share of nanotechnology papers involving at least one Chinese author increased substantially over the last two decades. Papers involving Chinese authors are far less likely to be internationally co-authored than papers involving authors from other countries. Nonetheless, this appears to be changing as Chinese nanotechnology research becomes more advanced. An arithmetic decomposition confirms that China’s growing share of such research accounts, in large part, for the observed stagnation of international collaboration. Thus two aspects of the globalization of science can work in opposing directions: diffusion to initially less scientifically advanced countries can depress international collaboration rates, while at the same time scientific advances in such countries can reverse this trend. We find that the growth of China’s scientific community explains some, but not all of the dynamics of China’s international collaboration rate. We therefore provide an institutional account of these dynamics, drawing on Stichweh’s [Social Science information 35(2):327-340, 1996] original paper on international scientific collaboration, which, in examining the interrelated development of national and international scientific networks, predicts a transitional phase during which science becomes a more national enterprise, followed by a phase marked by accelerating international collaboration. Validating the application of this approach, we show that Stichweh’s predictions, based on European scientific communities in the 18th and 19th centuries, seem to apply to the Chinese scientific community in the 21st century.

Keywords: Advances, Application, Approach, Authors, China, Chinese, Citation, Collaboration, Community, Country, Decomposition, Development, Diffusion, Dynamics, Globalization, Growth, Indigenous Innovation, Information, Infrastructure, International, International Collaboration, International Collaboration, Journals, Nanoscience, Nanotechnology, Nanotechnology Research, Networks, Nov, Papers, Predictions, Publications, Rates, Research, Role, Science, Scientific Collaboration, Technology, Terms, Trend, Work

? Gao, J.P., Ding, K., Teng, L. and Pang, J. (2012), Hybrid documents co-citation analysis: Making sense of the interaction between science and technology in technology diffusion. *Scientometrics*, **93** (2), 459-471.

Full Text: [2012\Scientometrics93, 459.pdf](2012/Scientometrics93,%20459.pdf)

Abstract: the paper presents a methodology called hybrid documents co-citation analysis, for studying the interaction between science and technology in technology diffusion. Our approach rests mostly on patent citation, cluster analysis and network analysis. More specifically, with the patents citing Smalley RE in Derwent innovations index as the data sets, the paper implemented hybrid documents co-citation network through two procedures. Then spectrum cluster algorithm was used to reveal the knowledge structure in technology diffusion. After that, with the concordance between network properties and technology diffusion mechanisms, three indicators containing degree, betweenness and citation half-life, were calculated to discuss the basic documents in the pivotal position during the technology diffusion. At last, the paper summarized the hybrid documents co-citation analysis in practise, thus concluded that science and technology undertook different functions and acted dominatingly in the different period of technology diffusion, though they were co-activity all the time.

Keywords: Algorithm, Analysis, Approach, Business, Citation, Cluster, Cluster Analysis, Co-Citation, Co-Citation Analysis, Cocitation, Data, Diffusion, Functions, Half-Life, Hybrid, Hybrid Documents Co-Citation, Index, Indicators, Interaction, Knowledge, Linkage, Literatures, Mechanisms, Methodology, Nanotechnology, Network, Network Analysis, Nov, Patent, Patents, Patterns, Perspective, Procedures, Science, Science and Technology, Scientific Literature, Structure, Technology, Technology Diffusion, Trends

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Full Text: [2012\Scientometrics93, 473.pdf](2012/Scientometrics93,%20473.pdf)

Abstract: We find evidence for the universality of two relative bibliometric indicators of the quality of individual scientific publications taken from different data sets. One of these is a new index that considers both citation and reference counts. We demonstrate this universality for relatively well cited publications from a single institute, grouped by year of publication and by faculty or by department. We show similar behaviour in publications submitted to the arXiv e-print archive, grouped by year of submission and by sub-archive. We also find that for reasonably well cited papers this distribution is well fitted by a lognormal with a variance of around sigma(2) = 1.3 which is consistent with the results of Radicchi et al. (Proc Natl Acad Sci USA 105:17268-17272, 2008). Our work demonstrates that comparisons can be made between publications from different disciplines and publication dates, regardless of their citation count and without expensive access to the whole world-wide citation graph. Further, it shows that averages of the logarithm of such relative bibliometric indices deal with the issue of long tails and avoid the need for statistics based on lengthy ranking procedures.

Keywords: Access, Behaviour, Bibliometric, Bibliometric Indicators, Bibliometrics, Citation, Citation Analysis, Crown Indicator, Data, Distribution, Distributions, Evidence, Faculty, Impact, Index, Indicators, Indices, Networks, Nov, Output, Papers, Performance, Procedures, Publication, Publications, Quality, Quality Of, Ranking, Reference, Science, Scientific Publications, Statistics, Universality, University, USA, Work

? Yang, L.Y., Yue, T., Ding, J.L. and Han, T. (2012), A comparison of disciplinary structure in science between the G7 and the BRIC countries by bibliometric methods. *Scientometrics*, **93** (2), 497-516.

Full Text: [2012\Scientometrics93, 497.pdf](2012/Scientometrics93,%20497.pdf)

Abstract: Using a collection of papers gathered from the Web of Science, and defining disciplines by the JCR classification, this paper compares the disciplinary structure of the G7 countries (representing high S&T level countries) and the BRIC countries (representing fast breaking countries in S&T) by using bibliometric methods. It discusses the similarity and the balance of their disciplinary structure. We found that: (1) High S&T level countries have a similar national disciplinary structure; (2) In recent years the disciplinary structure of the BRIC countries has become more and more similar to that of the G7 countries; (3) the disciplinary structure of the G7 countries is more balanced than that of the BRIC countries (4) In the G7 countries more emphasis goes to the life sciences, while BRIC countries focus on physics, chemistry, mathematics and engineering.

Keywords: Bibliometric, Bibliometric Methods, Bric Countries, Chemistry, Classification, Collection, Comparison, Disciplinary Structure, Engineering, Europe, G7 Countries, Jcr, Life, Life Sciences, Methods, Nov, Papers, Profiles, Recent, Science, Sciences, Similarity, Structure, Web of Science

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Full Text: [2012\Scientometrics93, 517.pdf](2012/Scientometrics93,%20517.pdf)

Abstract: In the present work we analyze the Country Profiles, open access data from ISI Thomson Reuter’s Science Watch. The country profiles are rankings of the output (indexed in Web of Science) in different knowledge fields during a determined time span for a given country. The analysis of these data permits defining a Country Profile Index, a tool for diagnosing the activity of the scientific community of a country and their possible strengths and weakness. Furthermore, such analysis also enables the search for identities among research patterns of different countries, time evolution of such patterns and the importance of the adherence to the database journals portfolio in evaluating the productivity in a given knowledge field.

Keywords: Access, Activity Index, Adherence, Analysis, Citation, Community, Country, Country Research Profile, Data, Database, Evolution, Field, Indicators, ISI, Journals, Knowledge, Learning, Nov, Open, Open Access, Performance, Productivity, Profiles, Rankings, Research, Research Patterns, Science, Scientific Cultures, Web of Science, Work

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Full Text: [2012\Scientometrics93, 533.pdf](2012/Scientometrics93,%20533.pdf)

Abstract: the institutional environment of science differs across countries. Its particularities have an impact on outcomes of scientific enterprise in terms of authorship patterns and patterns of citations. The paper analyzes scholarly papers produced by faculty and graduate students affiliated with six universities, two of them operate in the Russian institutional environment of science and four others-in the Western European and North American. The citation analysis of papers included in two major databases, eLibrary (Russian) and Web of Knowledge (international), shows that the lists of predictors for the number of references to a scholarly article significantly differ in the Western and Russian cases.

Keywords: Analysis, Authorship, Citation, Citation Analysis, Citations, Co-Authorship, Databases, Elibrary, Environment, Faculty, Graduate, Graduate Students, Impact, Institutional Environment of Science, International, North, Nov, Outcomes, Papers, Predictors, Publication, Publication Patterns, References, Russia, Science, Students, Universities

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Full Text: [2012\Scientometrics93, 553.pdf](2012/Scientometrics93,%20553.pdf)

Abstract: Research assessment carries important implications both at the individual and institutional levels. This paper examines the research outputs of scholars in business schools and shows how their performance assessment is significantly affected when using data extracted either from the Thomson ISI Web of Science (WoS) or from Google Scholar (GS). The statistical analyses of this paper are based on a large survey data of scholars of Canadian business schools, used jointly with data extracted from the WoS and GS databases. Firstly, the findings of this study reveal that the average performance of B scholars regarding the number of contributions, citations, and the h-Index is much higher when performances are assessed using GS rather than WoS. Moreover, the results also show that the scholars who exhibit the highest performances when assessed in reference to articles published in ISI-listed journals also exhibit the highest performances in Google Scholar. Secondly, the absence of association between the strength of ties forged with companies, as well as between the customization of the knowledge transferred to companies and research performances of B scholars such as measured by indicators extracted from WoS and GS, provides some evidence suggesting that mode 1 and 2 knowledge productions might be compatible. Thirdly, the results also indicate that senior B scholars did not differ in a statistically significant manner from their junior colleagues with regard to the proportion of contributions compiled in WoS and GS. However, the results show that assistant professors have a higher proportion of citations in WoS than associate and full professors have. Fourthly, the results of this study suggest that B scholars in accounting tend to publish a smaller proportion of their work in GS than their colleagues in information management, finance and economics. Fifthly, the results of this study show that there is no significant difference between the contributions record of scholars located in English language and French language B schools when their performances are assessed with Google Scholar. However, scholars in English language B schools exhibit higher citation performances and higher h-indices both in WoS and GS. Overall, B scholars might not be confronted by having to choose between two incompatible knowledge production modes, but with the requirement of the evidence-based management approach. As a consequence, the various assessment exercises undertaken by university administrators, government agencies and associations of business schools should complement the data provided in WoS with those provided in GS.

Keywords: Academic Researchers, Analyses, Approach, Assessment, Association, Business, Business Scholars, Citation, Citations, Complementarities, Contributions Record, Data, Databases, Economics, Evidence, Evidence Based, Evidence-Based, Exercises, Field, Google, Google Scholar, GS, h Index, h-Index, h-Index, Impact, Indicators, Information, ISI, ISI Web of Science, Journals, Knowledge, Language, Management, Mode, Performance, Record, Reference, Relevance, Requirement, Research, Research Assessment, Research Outputs, Science, Scopus, Statistical Analyses, Strength, Survey, University, Web of Science, Work

? Di Caro, L., Cataldi, M. and Schifanella, C. (2012), The d-index: Discovering dependences among scientific collaborators from their bibliographic data records. *Scientometrics*, **93** (3), 583-607.

Full Text: [2012\Scientometrics93, 583.pdf](2012/Scientometrics93,%20583.pdf)

Abstract: the evaluation of the work of a researcher and its impact on the research community has been deeply studied in literature through the definition of several measures, first among all the h-Index and its variations. Although these measures represent valuable tools for analyzing researchers’ outputs, they usually assume the co-authorship to be a proportional collaboration between the parts, missing out their relationships and the relative scientific influences. In this work, we propose the d-index, a novel measure that estimates the dependence degree between authors on their research environment along their entire scientific publication history. We also present a web application that implements these ideas and provides a number of visualization tools for analyzing and comparing scientific dependences among all the scientists in the DBLP bibliographic database. Finally, relying on this web environment, we present case and user studies that highlight both the validity and the reliability of the proposed evaluation measure.

Keywords: Application, Authors, Bibliographic, Co-Authorship, Coauthorship, Coauthorship Network, Collaboration, Collaboration Analysis, Community, Data, Data Visualization, Database, Environment, Estimates, Evaluation, Evaluation Metrics, First, h Index, h-Index, History, Impact, Literature, Measure, Publication, Records, Reliability, Research, Research Evaluation, Science, Scientific Publication, Social Network, Social Networks, User Studies, Validity, Visualization, Web, Work

? Guan, J.C. and Shi, Y. (2012), Transnational citation, technological diversity and small world in global nanotechnology patenting. *Scientometrics*, **93** (3), 609-633.

Full Text: [2012\Scientometrics93, 609.pdf](2012/Scientometrics93,%20609.pdf)

Abstract: Despite the extensive studies conducted in the field of nanotechnology based on US patent data, the choice of a single database may impede a wider view of this technology frontier. Based on patent data from the Derwent Innovation Index database that covers the data of 41 major patent offices, we review the development of nanotechnology patenting from the dimensions of patenting authority and technological classification. We find that a small number of countries dominating the technology have similar technological diversity in terms of nanotechnology patents. After the discussion and summary of the citation modes and citation rate curve, we construct the patent citation networks at the patent document level and discuss the distinctive transnational citation patterns. We then use Search Path Count Method to extract the technological trajectory, where we find very high selectiveness. In the final section of this paper, we discover the small world phenomenon in the citation networks, which is widely investigated in undirected networks such as co-authorship networks, but rarely touched in citation networks due to the limitations of the presumptions. We propose the reachable path length and citation clustering in the revised small world model for acyclic directed networks and provide the realistic meaning of the new measures.

Keywords: Choice, Citation, Citation Patterns, Classification, Clustering, Co-Authorship, Co-Authorship Networks, Coauthorship, Collaboration, Creativity, Data, Database, Determinants, Development, Diversity, Emerging Field, Evolution, Field, Global, Innovation, Length, Model, Nanoscience, Nanotechnology, Network, Networks, Patent, Patent Citation Network, Patents, Review, Science, Search, Small, Small World, Technological Classification, Technology, Trajectories, Trajectory, Us, World

? Wang, M.Y., Yu, G., An, S. and Yu, D.R. (2012), Discovery of factors influencing citation impact based on a soft fuzzy rough set model. *Scientometrics*, **93** (3), 635-644.

Full Text: [2012\Scientometrics93, 635.pdf](2012/Scientometrics93,%20635.pdf)

Abstract: In this paper, the machine learning tools were used to identify key features influencing citation impact. Both the papers’ external and quality information were considered in constructing papers’ feature space. Based on the feature space, the soft fuzzy rough set was used to generate a series of associated feature subsets. Then, the KNN classifier was used to find the feature subset with the best classification performance. The results show that citation impact could be predicted by objectively assessed factors. Both the papers’ quality and external features, mainly represented as the reputation of the first author, are contributed to future citation impact.

Keywords: Authors, Behavior, Citation, Citation Impact, Classification, Classifier, Counts, Discovery, Feature, First, Highly Cited Papers, Impact, Information, Journals, Learning, Machine, Machine Learning, Model, Papers, Performance, Quality, Reputation, Science, Soft Fuzzy Rough Set

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Full Text: [2012\Scientometrics93, 645.pdf](2012/Scientometrics93,%20645.pdf)

Abstract: the intellectual structure and its evolution of library and information science (LIS) in China are analyzed with time series data from Chinese Social Sciences Citation Index which is the properest database for ACA practice in the field of social science at present. The result indicates that the subfields of Library and Information Science in China kept changing from 1998 to 2007: some subfields have emerged and developed a lot, e.g., webometrics and competitive intelligence; some subfields maintain, e.g., bibliometrics and intellectual property; and some subfields have begun to decline, e.g., cataloging. Through the comparison with the international LIS, it is found that there are some unique subfields in Chinese LIS from 1998 to 2007, such as competitive intelligence and intellectual property. At the same time, I also suggest that Chinese authors in LIS should pay more attention to the applied research in the future.

Keywords: Applied Research, Author Cocitation Analysis, Author Cocitation Analysis, Authors, Bibliometrics, China, Chinese, Citation, Comparison, Competitive, Data, Database, Domain Mapping, Evolution, Field, Information, Information Science, Information-Science, Intellectual Property, Intellectual Structure, International, Li, Library and Information Science, Lis, Practice, Property, Research, Science, Social, Social Sciences, Social Sciences Citation Index, Structure, Time Series, Visualization, Webometrics

? Vela, B., Caceres, P. and Cavero, J.M. (2012), Participation of women in software engineering publications. *Scientometrics*, **93** (3), 661-679.

Full Text: [2012\Scientometrics93, 661.pdf](2012/Scientometrics93,%20661.pdf)

Abstract: To the best of our knowledge, no works analyzing the participation of women as authors and editors in software engineering research publications currently exist. We have therefore followed a well-defined procedure in order to conduct an empirical study of female participation in 12 leading software engineering journals. We have analyzed the gender of the authors, editorial board members, associate editors and editors-in-chief over a two-year period in order to analyze, on the one hand, the rate of participation of women as authors and as editors in software engineering publications, and on the other, whether women are underrepresented. We have also analyzed the female distribution of authors and editors according to the geographical location of their institutions. This was done by first selecting the journals to be used as the population for data collection which then allowed us to identify female authors of papers and female editors, including the country in which their institutions are located. This eventually led to an analysis of female participation in order to understand representation rates. We analyzed 3,546 authors of 1,266 papers in 61 different countries, and 363 members of editorial boards in 30 different countries. The results of this analysis provide quantitative data concerning the participation of women as authors and editors in major software engineering journals including their distribution per country, in which important differences have been found. The results obtained were first used to compare the participation of women as authors and editors and were then used to carry out a series of simulations in order to be able to statistically confirm whether women are underrepresented. The study shows, amongst other things, that women are not underrepresented as editorial boards members and as editors-in-chief of the journals studied, although their representation as editors-in-chief is low.

Keywords: Analysis, Authors, Collection, Computer-Science, Country, Data, Data Collection, Distribution, Empirical Research, Engineering, Female, First, Gender, Gender Study, Institutions, Journals, Knowledge, Location, Papers, Participation, Population, Procedure, Publications, Rates, Representation, Research, Research Productivity, Research Publications, Software, Software Engineering, Women

? Garcia, J.A., Rodriguez-Sanchez, R. and Fdez-Valdivia, J. (2012), A comparison of top economics departments in the US and EU on the basis of the multidimensional prestige of influential articles in 2010. *Scientometrics*, **93** (3), 681-698.

Full Text: [2012\Scientometrics93, 681.pdf](2012/Scientometrics93,%20681.pdf)

Abstract: Here we show a comparison of top economics departments in the US and EU based on a summary measure of the multidimensional prestige of influential papers in 2010. The multidimensional prestige takes into account that several indicators should be used for a distinct analysis of structural changes at the score distribution of paper prestige. We argue that the prestige of influential articles should not only consider one indicator as a single dimension, but in addition take into account further dimensions, since several different indicators have been developed to evaluate the impact of academic papers. After having identified the multidimensionally influential articles from an economics department, their prestige scores can be aggregated to produce a summary measure of the multidimensional prestige of research output of this department, which satisfies numerous properties.

Keywords: Analysis, Canada, Changes, Citation Impact, Comparison, Distribution, Economics, Economics Department, EU, Impact, Indicator, Indicators, Influential Articles, ISI Impact Factor, Measure, MIT, Multidimensional, Multidimensional Prestige, Oxford University, Papers, Poverty, Princeton University, Publication-Based Ranking, Publications, Rankings, Research, Research Output, Scopus, US

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Full Text: [2012\Scientometrics93, 699.pdf](2012/Scientometrics93,%20699.pdf)

Abstract: the paper introduces the use of blockmodeling in the micro-level study of the internal structure of co-authorship networks over time. Variations in scientific productivity and researcher or research group visibility were determined by observing authors’ role in the core-periphery structure and crossing this information with bibliometric data. Three techniques were applied to represent the structure of collaborative science: (1) the blockmodeling; (2) the Kamada-Kawai algorithm based on the similarities in co-authorships present in the documents analysed; (3) bibliometrics to determine output volume, impact and degree of collaboration from the bibliographic data drawn from publications. The goal was to determine the extent to which the use of these two complementary approaches, in conjunction with bibliometric data, provides greater insight into the structure and characteristics of a given field of scientific endeavour. The paper describes certain features of Pajek software and how it can be used to study research group composition, structure and dynamics. The approach combines bibliometric and social network analysis to explore scientific collaboration networks and monitor individual and group careers from new perspectives. Its application on a small-scale case study is intended as an example and can be used in other disciplines. It may be very useful for the appraisal of scientific developments.

Keywords: Algorithm, Analysis, Application, Approach, Argentina, Authors, Bibliographic, Bibliometric, Bibliometrics, Blockmodeling, Careers, Case Study, Characteristics, Co-Authorship, Co-Authorship Networks, Coauthorship, Collaboration, Collaboration Networks, Complementary, Composition, Crossing, Data, Dynamics, Field, Impact, Information, Information Science, Library and Information Science, Network, Network Analysis, Networks, Patterns, Productivity, Publication, Publications, Research, Role, Science, Scientific Collaboration, Scientific Collaboration, Scientific Productivity, Self-Organization, Social, Social Network Analysis, Software, Structure, Techniques, Visibility, Volume

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Full Text: [2012\Scientometrics93, 719.pdf](2012/Scientometrics93,%20719.pdf)

Abstract: the study of university-industry (U-I) relations has been the focus of growing interest in the literature. However, to date, a quantitative overview of the existing literature in this field has yet to be accomplished. This study intends to fill this gap through the use of bibliometric techniques. By using three different yet interrelated databases-a database containing the articles published on U-I links, which encompass 534 articles published between 1986 and 2011; a ‘roots’ database, which encompasses over 20,000 references to the articles published on U-I relations; and a ‘influences’ database which includes more than 15,000 studies that cited the articles published on U-I relations-we obtained the following results: (1) ‘Academic spin offs’, ‘Scientific and technological policies’ and (to a greater extent) ‘Knowledge Transfer Channels’ are topics in decline; (2) ‘Characteristics of universities, firms and scientists’, along with ‘Regional spillovers’, show remarkable growth, and ‘Measures and indicators’ can be considered an emergent topic; (3) clear tendency towards ‘empirical’ works, although ‘appreciative and empirical’ papers constitute the bulk of this literature; (4) the multidisciplinary nature of the intellectual roots of the U-I literature-an interesting blending of neoclassical economics (focused on licensing, knowledge transfer and high-tech entrepreneurship) and heterodox approaches (mainly related to systems of innovation) is observed in terms of intellectual roots; (5) the influence of the U-I literature is largely concentrated on the industrialized world and on the research area of innovation and technology (i.e., some ‘scientific endogamy’ is observed).

Keywords: Bayh-Dole Act, Bibliometric, Bibliometric Techniques, Bibliometrics, Database, Economics, Entrepreneurial Orientation, Entrepreneurial Universities, Entrepreneurship, Evolution, Field, Government Relations, Growth, Indicators, Innovation, Knowledge, Knowledge Exchange, Knowledge Transfer, Licensing, Life Sciences, Literature, Multidisciplinary, Network Analysis, Papers, Policies, References, Relations, Research, Research Collaborations, Research-And-Development, Systems, Techniques, Technology, Technology Transfer, Technology-Transfer, Universities, University Spin Offs, University-Industry Links, Us Universities, World

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Full Text: [2012\Scientometrics93, 745.pdf](2012/Scientometrics93,%20745.pdf)

Abstract: Most scientific research has some form of local geographical bias. This could be caused by researchers addressing a geographically localized issue, working within a nationally or regionally defined research network, or responding to research agendas that are influenced by national policy. These influences should be reflected in citation behavior, e.g., more citations than expected by chance of papers by scientists from institutions within the same country. Thus, assessing adjusted levels of national self-citation may give insights into the extent to which national research agendas and scientific cultures influence the behavior of scientists. Here we develop a simple metric of scientific insularism based on rates of national self citation corrected for total scientific output. Based on recent publications (1996-2010), higher than average levels of insularism are associated with geographically large rapidly developing nations (Brazil, Russia, India, and China-the so-called BRIC nations), and countries with strongly ideological political regimes (Iran). Moreover, there is a significant negative correlation between insularism and the average number of citations at the national level. Based on these data we argue that insularism (higher than average levels of national self-citation) may reflect scientific cultures whose priorities and focus are less tightly linked to global scientific norms and agendas. We argue that reducing such insularity is an overlooked challenge that requires policy changes at multiple levels of science education and governance.

Keywords: Assessing, Behavior, Bias, Brazil, Challenge, Changes, Citation, Citations, Correlation, Country, Data, Developing, Education, Global, Governance, India, Institutions, Iran, Knowledge Production, Local, National Ranking, Nations, Network, Norms, Papers, Policy, Publications, Rates, Recent, Research, Russia, Science, Scientific Output, Scientific Research, Self, Self-Citation

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Full Text: [2012\Scientometrics93, 751.pdf](2012/Scientometrics93,%20751.pdf)

Abstract: Guidelines on authorship requirements are common in biomedical journals but it is not known how authorship is defined by journals and scholarly professional organizations across research disciplines. Prevalence of authorship statements, their specificity and tone, and contributions required for authorship were assessed in 185 journals from Science Citation Index (SCI) and Social Science Citation Index (SSCI), 260 journals from Arts & Humanities Citation Index (A&HCI) and 651 codes of ethics from professional organizations from the online database of the Center for the Study of Ethics in the Profession, USA. In SCI, 53 % of the top-ranked journals had an authorship statement, compared with 32 % in SSCI. In a random sample of A&HCI-indexed journals, only 6 % of the journals addressed authorship. Only 71 (11 %) codes of ethics carried a statement on authorship. Almost all journals had defined authorship criteria compared with 33 % of the ethics codes (chi(2)(1) = 75.975; P < 0.001). The tone of the statements in the journals was aspirational, whereas ethics codes used a normative language for defining authorship (chi(2)(1) = 51.709, P < 0.001). Journals mostly required both research and writing contributions for authorship, while two-thirds of the ethics codes defined only research as a mandatory contribution. In conclusion, the lack of and variety of authorship definitions in journals and professional organizations across scientific disciplines may be confusing for the researchers and lead to poor authorship practices. All stakeholders in research need to collaborate on building the environment where ethical behaviour in authorship is a norm.

Keywords: Authorship, Behaviour, Biomedical, Biomedical Journals, Bodies, Building, Citation, Codes, Criteria, Database, Environment, Ethical, Ethics, Ethics Codes, Faculty, Guidelines, Humanities, Indexing Databases, Indicators, Journal, Journals, Language, Lead, Mandatory, P, Patterns, Policy, Practices, Professional Organizations, Publications, Publishers, Random Sample, Research, Research Performance, Review, SCI, Science, Science Citation Index, Social Science Citation Index, Social-Sciences, Specificity, SSCI, Stakeholders, Tone, USA

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Full Text: [2012\Scientometrics93, 765.pdf](2012/Scientometrics93,%20765.pdf)

Abstract: the complexity and variety of bibliographic data is growing, and efforts to define new methodologies and techniques for bibliometric analysis are intensifying. In this complex scenario, one of the most crucial issues is the quality of data and the capability of bibliometric analysis to cope with multiple data dimensions. Although the problem of enforcing a multidimensional approach to the analysis and management of bibliographic data is not new, a reference design pattern and a specific conceptual model for multidimensional analysis of bibliographic data are still missing. In this paper, we discuss ten of the most relevant challenges for bibliometric analysis when dealing with multidimensional data, and we propose a reference data model that, according to different goals, can help analysis designers and bibliographic experts in working with large collections of bibliographic data.

Keywords: Analysis, Approach, Bibliographic, Bibliometric, Bibliometric Analysis, Classification, Complexity, Conceptual Model, Data, Databases, Design, Dimensional Data Modeling, Experts, Google-Scholar, Indicators, Management, Methodologies, Model, Modeling, Multidimensional, Multidimensional Data Analysis, Multivariate Statistics, Pattern, Quality, Quality Of, Rankings, Reference, Scenario, Science, Scopus, Techniques, Topics Models, Web

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Full Text: [2012\Scientometrics93, 787.pdf](2012/Scientometrics93,%20787.pdf)

Abstract: Building on the ideas of Stirling (J R Soc Interface, 4(15), 707-719, 2007) and Rafols and Meyer (Scientometrics, 82(2), 263-287, 2010), we borrow models of genetic distance based on gene diversity and propose a general conceptual framework to investigate the diversity within and among systems and the similarity between systems. This framework can be used to reveal the relationship of systems weighted by the similarity of the corresponding categories. Application of the framework to scientometrics is explored to evaluate the balance of national disciplinary structures, and the homogeneity of disciplinary structures between countries.

Keywords: Application, Bibliometric Methods, Classification, Co-Concentration, Cosine Index, Countries, Cross-Disciplinary, Diversity, Evenness of National Disciplinary Structure, Field-Similarity Weighted Cosine Measure, Framework, Gene, General, Genetic, Genetic Distance, Genetic-Distance, Homogeneity, Informetrics, Interdisciplinarity, Interdisciplinarity, Models, Populations, R, Restriction Endonucleases, Science, Scientometrics, Similarity, Systems

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Full Text: [2012\Scientometrics93, 813.pdf](2012/Scientometrics93,%20813.pdf)

Abstract: Due to rapid environmental change, policymakers no longer choose foresight issues based on their own experience. Instead, they need to consider all the possible factors that will influence new technological developments and formulate an appropriate future technological development strategy to the country through the technology foresight system. for the sake of gathering more objective evidence to convince stakeholders to support the foresight issues, researchers can employ bibliometric analysis to describe current scientific development and forecast possible future development trends. Through this process, a consensus is reached about the direction of future technology development. However, we believe that bibliometric analysis can do more for technology policy formulation, such as (1) offer quantitative data as evidence to support the results of qualitative analysis; (2) review the situations of literature publication in specific technological fields to seize the current stage of technology development; and (3) help us grasp the relative advantage of foresight issues development in Taiwan and the world and develop profound strategic planning in accordance with the concept of Revealed Comparative Advantage. for those reasons, our research will revisit the role that bibliometric analysis plays for nations while choosing the foresight issues. In addition, we will analyze the development of the technology policy in Taiwan based on bibliometric analysis, and complete the foresight issues selection by processing key issue integration, key word collection related to this field, the searching and confirmation of literature, development opportunities exploration, comparative development advantage analysis and the innovation-foresight matrix construction, etc.

Keywords: Agricultural, Agricultural Technology, Analysis, Bibliometric, Bibliometric Analysis, Collection, Consensus, Construction, Country, Data, Development, Energy, Environmental, Evidence, Experience, Field, Forecast, Foresight, Formulation, Government, Indicators, Innovation, Integration, Literature, Matrix, Nations, Netherlands, Planning, Policy, Productivity, Publication, Qualitative, Qualitative Analysis, Research, Research Policy-Making, Research Strategies, Revealed Comparative Advantage (RCA), Review, Role, S-Curve, Science, Selection, Stakeholders, Strategic, Strategic Planning, Strategy, Support, Taiwan, Technology, Technology Foresight, Trends, World

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Full Text: [2012\Scientometrics93, 831.pdf](2012/Scientometrics93,%20831.pdf)

Abstract: Recently there has been huge growth in the number of articles displayed on the Web of Science (WoS), but it is unclear whether this is linked to a growth of science or simply additional coverage of already existing journals by the database provider. An analysis of the category of journals in the period of 2000-2008 shows that the number of basic journals covered by Web of Science (WoS) steadily decreased, whereas the number of new, recently established journals increased. A rising number of older journals is also covered. These developments imply a crescive number of articles, but a more significant effect is the enlargement of traditional, basic journals in terms of annual articles. All in all it becomes obvious that the data set is quite instable due to high fluctuation caused by the annual selection criteria, the impact factor. In any case, it is important to look at the structures at the level of specific fields in order to differentiate between “real” and “artificial” growth. Our findings suggest that even-though a growth of about 34 % can be measured in article numbers in the period of 2000-2008, 17 % of this growth stems from the inclusion of old journals that have been published for a longer time but were simply not included in the database so far.

Keywords: Analysis, Coverage, Criteria, Data, Database, Database Coverage, Enlargement, Growth, Growth of Science, Impact, Impact Factor, Journals, Provider Policy, Publication, Science, Selection, Selection Criteria, Web of Science

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Full Text: [2012\Scientometrics93, 847.pdf](2012/Scientometrics93,%20847.pdf)

Abstract: Patents are used as an indicator to assess the growth of science and technology in a given country or area. They are being examined to determine research potentials of research centers, universities, and inventors. The aim of this study is to map the past and current trends in patenting activities with a view to better understanding and tracking the changing nature of science and technology in Iran. The patenting activity in the Iran was investigated for the period 1976-2011, based on the USPTO, WIPO, and EPO (Esp@cenet). We analyzed the affiliation of inventers and collected patents which have at least an Iranian inventor. The collected data were analyzed applying Microsoft Excel. Analytical results demonstrate that between 1976 and 2011, 212 patents have been registered by Iranian inventors in the three above-mentioned databases. The average number of Iranian patents registered per year has increased significantly from 25 in 1976-1980 period to 119 in 2006-2011. It was noted that the highest number of registered patents (27 %) were in “chemistry, metallurgy” area of International Patent Classification (IPC), followed by “human necessities” (18 %), “electricity” (17 %), and “performing operations; transporting” (15 %). Overall, it can be concluded that patent-activities are highly country-specific, the results indicate that Iran is focused on “chemistry, metallurgy” technology.

Keywords: Affiliation, Biotechnology Sectors, Classification, Content Analysis, Country, Data, Databases, France, Germany, Growth, Indicator, Indicators, International Patent Offices, Iran, Iranian Invertors, Mapping, Patent Analysis, Patent Database, Patent Trends, Patents, Research, Research Centers, Science, Science and Technology, Scientometrics, Statistics, Technology, Topic Map Analysis, Trends, UK, Understanding, Universities

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Full Text: [2012\Scientometrics93, 857.pdf](2012/Scientometrics93,%20857.pdf)

Abstract: There is substantial literature on research performance differences between male and female researchers, and its explanation. Using publication records of 852 social scientists, we show that performance differences indeed exist. However, our case study suggests that in the younger generation of researchers these have disappeared. If performance differences exist at all in our case, young female researchers outperform young male researchers. The trend in developed societies, that women increasingly outperform men in all levels of education, is also becoming effective in the science system.

Keywords: Case Study, Determinants, Education, Explanation, Faculty, Female, Gender, Gender Differences, Generation, Generation Differences, Impact, Literature, Male, Men, Nepotism, Performance, Productivity, Publication, Records, Research, Research Collaboration, Research Performance, Scholarly Performance, Science, Scientific Productivity, Sex-Differences, Social, Trend, Women

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Full Text: [2012\Scientometrics93, 569.pdf](2012/Scientometrics93,%20569.pdf)

Abstract: As a novel tool for evaluating research competences of R&D actors, science overlay maps have recently been introduced in the scientometric literature, with associated measures for assessing the degree of diversification in research profiles. In this study, we continue the elaboration of this approach: based on science overlay maps (called here m-maps), a new type of map is introduced to reveal the competence structure of R&D institutions (i-maps). It is argued, that while m-maps represent the multidisciplinarity of research profiles, i-maps convey the extent of interdisciplinarity realized in them. Upon i-maps, a set of new measures are also proposed to quantify this feature. With these measures in hand, and also as a follow-up to our previous work, we apply these measures to a sample of Hungarian Research Institutions (HROs). Based on the obtained rankings, a principal component analysis is conducted to reveal main structural dimensions of researh portfolios (of HROs) covered by these measures. The position of HROs along these dimensions then allows us to draw a typology of organizations, according to various combinations of inter- and multidisciplinarity characteristic of their performance.

Keywords: Analysis, Approach, Assessing, Centrality, Competence, Diversity, Diversity Index, Evidence, Feature, Follow-Up, Hungary, Institutions, Integration Index, Interdisciplinarity, Interdisciplinarity, Journals, Literature, Mapping, Multi Disciplinarity, Multidisciplinarity, Network Analysis, Pca, Performance, Polarization Index, Principal Component Analysis, Profiles, Rankings, Research, Science, Science Mapping, Science Overlay Maps, Scientometric, Structure, Work

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Full Text: [2012\Scientometrics93, 893.pdf](2012/Scientometrics93,%20893.pdf)

Abstract: the recent literature on high skilled labor migration has taken a turn from analyzing processes of ‘brain drain’ to processes of ‘brain gain’ and ‘brain circulation’. Returning scientists, having been affiliated to foreign institutes, are able to facilitate knowledge exchanges between the two locations, and facilitate the linkage of the national scientific community to international scientific cooperation projects. In this way, return scientists can have a disproportionate impact on the development of the scientific community in their country of origin. However, not all flows of return migrants have had such a positive impact. Returnees failed to affect developments in some localities, while producing ambiguous effects in others. These studies typically argue that the impact of return migrants is dependent on the absorptive capacity and the local social, cultural, and institutional context in the country of origin. Using data on return migrants within the Taiwanese economic academic community, this paper seeks to add to this literature by arguing that the impact of return migrants is not only dependent on the circumstances in their country of origin, but is also contingent on the nature and quality of the context in which they acquired their international labor experience. Skills and access to knowledge networks are heterogeneously spread over geographical space, so that the context in which a return migrant acquired his or her international labor experience matters.

Keywords: Academic Mobility, Access, Biotechnology, Brain, Capacity, Clusters, Co-Authorship, Community, Context, Cooperation, Country, Country of Origin, Cultural, Data, Development, Drain, Economic, Effects, Experience, High Skill Labor Migration, Impact, Innovation, International, International Collaboration, Knowledge, Knowledge Networks, Labor, Linkage, Literature, Local, Localities, Migrants, Migration, Networks, Origin, Quality, Quality Of, Recent, Return Migration, Science, Scientific Cooperation, Scientific Development, Social, Strategies, Taiwan

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Full Text: [2012\Scientometrics93, 915.pdf](2012/Scientometrics93,%20915.pdf)

Abstract: Whereas in traditional peer review a few selected researchers (peers) are included in the manuscript review process, public peer review includes both invited reviewers (who write ‘reviewer comments’) and interested members of the scientific community who write comments (‘short comments’). Available to us for this investigation are 390 reviewer comments and short comments assessing 119 manuscripts submitted to the journal Atmospheric Chemistry and Physics (ACP). We conducted a content analysis of these comments to determine differences in the main thematic areas considered by the scientists in their assessment comments. The results of the analysis show that in contrast to interested members of the scientific community, reviewers focus mainly on (1) the formal qualities of a manuscript, such as writing style, (2) the conclusions drawn in a manuscript, and (3) the future “gain” that could result from publication of a manuscript. All in all, it appears that ‘reviewer comments’ better than ‘short comments’ by interested members of the scientific community support the two main functions of peer review: selection and improvement of what is published.

Keywords: Agreement, Analysis, Assessing, Assessment, Atmospheric Chemistry and Physics, Comments, Community, Content Analysis, Criteria and Reasons in Manuscript Review, Functions, Improvement, Investigation, Journal, Misconduct, Peer Review, Peer-Review, Predictive-Validity, Public, Public Peer Review, Publication, Quality, Referees, Review, Review Process, Selection, Support, Thematic Areas for Manuscript Review, Trial

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Full Text: [2012\Scientometrics93, 931.pdf](2012/Scientometrics93,%20931.pdf)

Abstract: Since 1968 the Croatian Mathematical Society has issued annual reports on activities of its members in the scientific journal Glasnik Matematiki. Based on these data was analysed production of mathematical scientific articles published in national and international journals in the period of forty years. A rough estimate of the intensity and dynamics of the publication shows that the publication of the reference period can be divided into two stages separated by the War in Croatia. After a period of uncertainty of the 2nd World war the period preceding was characterized by establishing new institutes, colleges and university departments. After the War in Croatia a gradual but large increase in the number of published articles was evident, especially in foreign journals. The War diminished technical writing almost to the zero while increase of scientific production was 9 times greater in 2008 than in 1968.

Keywords: Croatia, Data, Discipline Development, Dynamics, International, Journal, Journals, Mathematics, Publication, Reference, Scientific Journal, Scientific Production, Technical Writing, Uncertainty, University, War

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Full Text: [2012\Scientometrics93, 937.pdf](2012/Scientometrics93,%20937.pdf)

Abstract: This study examines the effect of international collaboration of Slovenian authors and the status of journals where papers are published (as determined by their impact factors) on the impact of papers as measured by the number of citations papers receive. Research programme groups working in Slovenia in the 2004-2008 period in the fields of physics, chemistry, biology, biotechnology, and medical science were used for analyses. The results of the analyses show that the effects of the two factors differ among the fields. We discuss possible reasons for this, including the possibility that differences are the result of Slovenia’s science policy.

Keywords: Analyses, Authors, Biology, Biotechnology, Chemistry, Citations, Co-Authorship, Co-Authorship, Collaboration, Effects, Higher Citation, Impact, Impact Factors, Indicators, International, International Collaboration, Journal, Journal Impact Factor, Journals, Medical, Papers, Policy, Research, Science, Science Policy, Scientific Collaboration, Slovenia

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Full Text: [2012\Scientometrics93, 949.pdf](2012/Scientometrics93,%20949.pdf)

Abstract: the world-wide popularity of university rankings has spurred the debate about the quality and performance of higher education systems and has had a considerable impact on global society in light of the internationalisation of higher education. While useful for policy makers, such rankings also furnish information on an institution’s “prestige”, which may in turn contribute to more effective resource capture (students, funding, projects). Certain university profiles and missions may prevent many universities from climbing to higher positions, however. One important question in this regard is: how many of a country’s universities can stand at the top of international rankings? the present article attempts to answer this question on the grounds of a study of the Spanish higher education system, and more specifically of an institutional alliance consisting of four high quality universities. A series of research activity indicators drawn from the IUNE Observatory are used to compare this alliance to leading Spanish and international universities and explore whether their visibility and consequently their position in international rankings would be enhanced if they were able to appear under a joint identity. This prospective study also addresses a series of strategies that the Spanish higher education system might implement to successfully rise to the challenges posed by future scenarios.

Keywords: Education, Funding, Global, Higher Education, Impact, Indicators, Information, International, Internationalisation, Iune Observatory, Performance, Policy, Profiles, Prospective, Prospective Study, Quality, Rankings, Research, Scenarios, Society, Spanish Universities, Students, Systems, Universities, University, University Rankings, Visibility

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Full Text: [2012\Scientometrics93, 967.pdf](2012/Scientometrics93,%20967.pdf)

Abstract: This paper examines the influence of economic, linguistic, and political factors in the scientific productivity of countries across selected scientific disciplines. Using a negative binomial regression model, I show that the effect of these determinants is contingent upon the scientific field under analysis. The only variable that exerts a positive and significant effect across all disciplines is the size of the economy. The linguistic variable only has a positive influence in the social sciences as well as in medicine and agricultural sciences. In addition, it is also demonstrated that the degree of political authoritarianism has a negative and statistically significant effect in some of the selected fields.

Keywords: Agricultural, Agricultural Sciences, Analysis, Authoritarianism, Count Models, Economic, Economic Development, Economy, Field, Journals, Lesser Developed-Countries, Medicine, Model, Output, Productivity, Regression, Regression Model, Science, Sciences, Scientific Productivity, Size, Social, Social Sciences, Technology

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Full Text: [2012\Scientometrics93, 987.pdf](2012/Scientometrics93,%20987.pdf)

Abstract: the nature of the empirical proportionality constant A in the relation L = Ah(2) between total number of citations L of the publication output of an author and his/her Hirsch Index h is analyzed using data of the publication output and citations for six scientists elected to the membership of the Royal Society in 2006 and 199 professors working in different institutions in Poland. The main problem with the h Index of different authors calculated by using the above relation is that it underestimates the ranking of scientists publishing papers receiving very high citations and results in high values of A. It was found that the value of the Hirsch constant A for different scientists is associated with the discreteness of h and is related to the tapered Hirsch Index h(T) by A(1/2) approximate to 1.21h(T). To overcome the drawback of a wide range of A associated with the discreteness of h for different authors, a simple index, the radius R of circular citation area, defined as R = (L/pi)(1/2) approximate to h, is suggested. This circular citation area radius R is easy to calculate and improves the ranking of scientists publishing high-impact papers. Finally, after introducing the concept of citation acceleration a = L/t (2) = pi(R/t)(2) (t is publication duration of a scientist), some general features of citations of publication output of Polish professors are described in terms of their citability. Analysis of the data of Polish professors in terms of citation acceleration a shows that: (1) the citability of the papers of a majority of physics and chemistry professors is much higher than that of technical sciences professors, and (2) increasing fraction of conference papers as well as non-English papers and engagement in administrative functions of professors result in decreasing citability of their overall publication output.

Keywords: Authors, Chemistry, Circular Citation Area Radius R, Citation, Citation Acceleration A, Citations, Citations L, Data, Duration, Engagement, Ferrers Diagrams, Functions, General, h Index, h-Index, Hirsch, Hirsch Constant A = L, H(2), Hirsch Index, Hirsch Index h, Hirsch-Index, Index, Index h, Institutions, Papers, Publication, Publication Output, Publishing, R, Ranking, Sciences, T, Tapered h Index (H(T)), Value

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Full Text: [2012\Scientometrics93, 1005.pdf](2012/Scientometrics93,%201005.pdf)

Abstract: National research assessment exercises are conducted in different nations over varying periods. The choice of the publication period to be observed has to address often contrasting needs: it has to ensure the reliability of the results issuing from the evaluation, but also reach the achievement of frequent assessments. In this work we attempt to identify which is the most appropriate or optimal publication period to be observed. for this, we analyze the variation of individual researchers’ productivity rankings with the length of the publication period within the period 2003-2008, by the over 30,000 Italian university scientists in the hard sciences. First we analyze the variation in rankings referring to pairs of contiguous and overlapping publication periods, and show that the variations reduce markedly with periods above 3 years. Then we will show the strong randomness of performance rankings over publication periods under 3 years. We conclude that the choice of a 3 year publication period would seem reliable, particularly for physics, chemistry, biology and medicine.

Keywords: Achievement, Assessment, Assessments, Bibliometrics, Biology, Chemistry, Choice, Citation, Evaluation, Exercises, Length, Level, Medicine, Nations, Needs, Overlapping, Performance, Productivity, Publication, Publication Period, Randomness, Rankings, Reliability, Research, Research Assessment, Research Evaluation, Research Performance, Research Productivity, Science, Sciences, Sensitivity Analysis, Universities, University, Work

? Tian, D.Q., Yu, Y.Z., Wang, Y.M. and Zheng, T. (2012), Comparison of trends in the quantity and variety of Science Citation Index (SCI) literature on human pathogens between China and the United States. *Scientometrics*, **93** (3), 1019-1027.

Full Text: [2012\Scientometrics93, 1019.pdf](2012/Scientometrics93,%201019.pdf)

Abstract: the proportion of pathogenic microorganisms in the microbial world is relatively small, while their threat to human health, economic development and social stability is severe. The quantity and variation of Science Citation Index (SCI) literature related to pathogenic microorganisms may reflect the level of relevant research and the degree of attention. Here we compared trends in the quantity and variety of SCI literature relating to certain important pathogenic microorganisms published by scientists from United States and China from 1996 to 2010 by searching the Science Citation Index database. The pathogenic microorganisms in this study comprise two categories of pathogens: Bacillus anthracis, Yersinia pestis, Francisella tularensis, Ebola virus, Burkholderia pseudomallei, which belong to biodefense-associated pathogens (BDAPs) and the human immunodeficiency virus (HIV), SARS coronavirus, hepatitis B virus (HBV), Mycobacterium tuberculosis, influenza virus, which belong to the commonly encountered health-threatening pathogens. Our results showed that the United States (US) published much more SCI literature on these pathogens than China. Furthermore, literature on BDAPs published by scientists from the US has increased sharply since 2002. However, the numbers of literature relating to CEHTPs from China has demonstrated a gradual increase from 1996 to 2010. Research into pathogenic microorganisms requires three balance to be achieved: investment in BDAP and CEHTP studies; basic and applied research; a faster pace of research into pathogens and fulfilling biosafety and biosecurity requirements.

Keywords: Applied Research, Bacillus, Bacillus Anthracis, Biodefense, China, Citation, Comparison, Database, Development, Economic, Economic Development, HBV, Health, Hepatitis, Hepatitis B, Hepatitis B Virus, HIV, Human, Human Health, Human Immunodeficiency Virus, Influenza, Literature, Microbial, Microorganisms, Pathogenic Microorganism, Pathogens, Quantity, Reemerging Infectious-Diseases, Research, SAR, SCI, SCI Literature, Science, Science Citation Index, Small, Social, Stability, Trends, Tuberculosis, United States, US, Variety, World

? Gupta, B.M. and Bala, A. (2012), S&T publications output of Nepal: A quantitative analysis, 2001-10. *Scientometrics*, **93** (3), 1029-1046.

Full Text: [2012\Scientometrics93, 1029.pdf](2012/Scientometrics93,%201029.pdf)

Abstract: This study analyses the research output of Nepal in S&T during 2001-10 on several parameters including its growth and country publications share in the world’s research output, country publications share in various subjects in the national and global context, pattern of research communication in core domestic and international journals, geographical distribution of publications, share of international collaborative publications at the national level as well as across subjects and characteristics of high productivity institutions, authors and cited papers. The Scopus Citation Database has been used to retrieve the publication data for 10 years.

Keywords: Analyses, Analysis, Authors, Characteristics, Citation, Communication, Context, Country, Data, Distribution, Global, Growth, Institutions, International, Journals, Nepal, Papers, Pattern, Productivity, Publication, Publication Output, Publications, Quantitative Analysis, Research, Research Output, Scopus

? Ren, Q.E. and Gong, X.M. (2012), Evaluation index system for academic papers of humanities and social sciences. *Scientometrics*, **93** (3), 1047-1060.

Full Text: [2012\Scientometrics93, 1047.pdf](2012/Scientometrics93,%201047.pdf)

Abstract: An index system for evaluating academic papers is constructed and verified based on the empirical analysis of papers that has gained the 6th Chinese Academy of Social Sciences Award for Outstanding Achievements. Some new index, such as paper discipline impact factor, discipline average cited rate per paper and discipline average downloaded rate per paper have been put forward in this paper. The empirical research results show that the ranking of papers calculated by this evaluation index system is in conformity with the awards determined by peer review in general, but still needs to be verified and improved in practice.

Keywords: Academic Papers, Analysis, Chinese, Constructed, Delphi Method, Empirical Research, Evaluation, Evaluation Index System, General, Humanities, Humanities and Social Sciences, Impact, Impact Factor, Index, Needs, Papers, Peer Review, Peer-Review, Practice, Ranking, Research, Research Performance, Research Results, Review, Sciences, Social, Social Sciences

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Full Text: [2012\Scientometrics93, 1961.pdf](2012/Scientometrics93,%201961.pdf)

Abstract: Acupuncture, the most important nonpharmacological therapy in traditional Chinese medicine, has attracted significant attention since its introduction to the Western world. This study employs bibliometric analysis to examine the profile of publication activity related to it. The data are retrieved from the database of Science Citation Index Expanded during 1980-2009, and 7,592 papers are identified for analysis. This study finds that almost 20 % of papers are published in CAM journals, and the average cited times per acupuncture paper is 8.69. While the most cited article has been cited 2,109 times, however, 38.15 % of total publications have never been cited. Europe has the largest amount of authored papers with high h-Index values; the USA has the largest number of publications on and citations of acupuncture based on country distribution, and this has continued as a significant rising trend. The proportion of collaborative papers shows this upward trend on the worldwide scale while the percentage shares of national collaborations are the highest. The USA produces the most international collaborative documents, although South Korea occupies the highest percentage figure for international collaborative papers. International collaborative papers are the most frequently cited. The average number of authors per paper is 3.69 in the top eight countries/regions. Papers contributed by South Korea are authored by the most people. International collaboration papers are authored by more people, except in Taiwan. South Korea’s Kyung Hee University is ranked first in terms of number of papers while Harvard University in the USA accounts for the largest proportion of citations. The University of Exeter, Harvard University and Karolinska Institute have the highest h-Index values.

Keywords: Acupuncture, Analysis, Authors, Bibliometric, Bibliometric Analysis, Care, Chinese, Citation, Citation Impact, Citations, Collaboration, Collaborations, Complementary, Country, Data, Database, Distribution, Efficacy, Europe, First, h Index, h-Index, Harvard University, Health, Impact, International, International Collaboration, Journals, Korea, Medicine, Papers, Publication, Publication Activity, Publications, Randomized-Controlled-Trial, Scale, Science, Science Citation Index, Science Citation Index Expanded, Scientific Production, South Korea, Symptoms, Taiwan, Therapy, Trend, University, USA, World

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Full Text: [2012\Scientometrics93, 1081.pdf](2012/Scientometrics93,%201081.pdf)

Abstract: A university may be considered as having dimension-specific prestige in a scientific field (e.g., physics) when a particular bibliometric research performance indicator exceeds a threshold value. But a university has multidimensional prestige in a field of study only if it is influential with respect to a number of dimensions. The multidimensional prestige of influential fields at a given university takes into account that several prestige indicators should be used for a distinct analysis of the influence of a university in a particular field of study. After having identified the multidimensionally influential fields of study at a university their prestige scores can be aggregated to produce a summary measure of the multidimensional prestige of influential fields at this university, which satisfies numerous properties. Here we use this summary measure of multidimensional prestige to assess the comparative performance of Spanish Universities during the period 2006-2010.

Keywords: Analysis, Bibliometric, Bibliometric Research, Bibliometrics, Economics Departments, Field, Highly Cited Papers, Impact, Index, Indicator, Indicators, Influential Fields of Study, Measure, Multidimensional, Multidimensional Prestige, Performance, Poverty, Publication-Based Ranking, Ranking, Research, Research Output, Research Performance, Spanish Universities, Threshold, Universities, University, Value

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Full Text: [2012\Scientometrics93, 1101.pdf](2012/Scientometrics93,%201101.pdf)

Abstract: A bibliometric analysis was performed on solar power-related research between 1991 and 2010 in journals of all the subject categories of the Science Citation Index. “Solar cell”, “solar energy”, “solar power”, “solar radiation” and “solar thermal” were selected as keywords to search in a part of the title, abstract or keywords. The trends were analyzed with the retrieved results in the publication type and language, characters of scientific output, publication distribution by countries, subject categories and journals, and the frequency of title-words and keywords used. Articles on solar power showed a significant growth along with more participation of countries, while the percentage of international papers reduced. The USA was the country with the most related articles and the most-frequent partner among all the international collaborative articles. Articles of Mainland China and South Korea grew much faster than other countries in the latest 5 years. Chemistry and material fields gradually became the mainstream of the solar power research. Synthetically analyzing three kinds of keywords, it showed that thin film solar photovoltaic technology was a hot spot of the solar power research in the past 20 years. “Dye-sensitized solar cell” and “organic” had extremely high increasing rates, which indicated that more attention was paid to kinds of organic solar cells. It could be concluded that the materials of solar cells would be the emphasis of solar power research in the twenty-first century.

Keywords: Analysis, Articles, Bibliometric, Bibliometric Analysis, Cells, China, Citation, Country, Distribution, Growth, International, Journals, Korea, Language, Mainland China, Materials, Organic, Papers, Participation, Photovoltaic, Power, Publication, Rates, Research, SCI, Science, Science Citation Index, Science-Citation-Index, Scientific Output, Solar Cell, Solar Cells, Solar Power, South Korea, Technology, Thin Film, Trends, USA

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Full Text: [2012\Scientometrics93, 1119.pdf](2012/Scientometrics93,%201119.pdf)

Abstract: Due to the overall decrease in quality of Taiwanese universities in recent years and the resulting drastic loss of competitive advantage against foreign countries, improving the Taiwanese university system has become an urgent issue requiring immediate attention. Evidence suggests focusing on total quality management (TQM) and that innovation is the key way to effectively upgrade the operation performance and is thus highly advised. Although there are a number of measurement models for TQM and innovation, early models evaluate the performance of each element separately, making evaluation inefficient and inappropriate for practice. There is a new measurement system, the network hierarchical feedback system (NHFS), which integrates the concept and characteristics of both elements; however, the major concern is that the NHFS does not take external organization-oriented improvement into account, such as service quality in higher education, especially in innovation orientation. Additionally, due to the above dilemmas faced by Taiwanese universities, attracting more students has now been a major priority. Thus, we argue that in order to successfully attract potential students, improving TQM and innovation cannot just focus on internal organization-oriented improvement, and we further extend the effectiveness and suitability of the NHFS to a novel and more utilizable performance measurement system, the solid Inno-Qual performance system (IQPS). A hybrid model based on a decision-making trial and evaluation laboratory, a fuzzy analytic network process (FANP), an importance-performance analysis along with in-depth interviews; a fuzzy analytic hierarchical process, and a technique for order preference according to similarity to an ideal solution were adopted to complete the construction. The IQPS is the first measurement system with the most effective characteristics of TQM and innovation embedded for both new and traditional universities of different types. It is intended to enhance and evaluate performance on both external and internal organization-oriented levels, generating synergy and performance improvement.

Keywords: Analysis, Business Performance, Characteristics, Comparison Standard, Competitive, Construction, Decision Making, Decision-Making, Decision-Making Trial and Evaluation Laboratory (DEMATEL), Dilemmas, Education, Effectiveness, Evaluation, Expectations, First, Fuzzy Analytical Hierarchical Process (FAHP), Fuzzy Analytical Network Process (FANP), Higher Education, Hybrid, Importance-Performance Analysis (IPA), Improvement, Innovation, Interviews, Management, Market Value, Measurement, Measuring Service Quality, Model, Models, Network, Operation, Performance, Potential, Practice, Preference, Quality, Quality Management, Quality Of, Reassessment, Recent, Research-And-Development, Service, Similarity, Solid Inno-Qual Performance System (IQPS), Solution, Students, Technique for Order Preference By Similarity To An Ideal Solution (TOPSIS), TQM, Trial, Universities, University

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Full Text: [2012\Scientometrics93, 1151.pdf](2012/Scientometrics93,%201151.pdf)

Abstract: In this paper, we analyzed data relating to the language of papers written by winners of Nobel Prizes in physics before they won the prize and their journals of publication, and we identified the change in scientific language corresponding with shifts of the center of the scientific world. Using the science citation index as the main data source, we also collected information on the distribution of prize-winning scientists by country, by each scientist’s number of published papers, and by language. We then analyzed their papers in terms of the different journals based in different countries. The results are presented in three parts: (1) the main languages used in the papers are English and German. The proportion of papers in English is gradually increasing, while that of papers in German is decreasing. (2) the prize winning scientists’ papers have been published mainly in journals in their own nation and in the United States. (3) Journals based in their own countries are very helpful to these scientists early in their careers.

Keywords: Analysis, Careers, Citation, Country, Data, Distribution, English Journal, Index, Indicators, Information, Journal, Journal Language, Journals, Language, Languages, Mother-Tongue Journal, Papers, Publication, Science, Science Citation Index, Scientific Language, Source, United States, World

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Full Text: [2013\Scientometrics94, 1.pdf](2013/Scientometrics94,%201.pdf)

Abstract: In this paper, we carry out an empirical analysis to address some questions concerning the flow of knowledge stemming from military patented technologies. Patented military technology consists of a set of inventions which nature, uses or/and applications have defensive or offensive purposes. In this paper, we focus on the field of weapons and ammunition. Our objective is to identify, why the knowledge embedded in a military technology diffuses into other patented technologies. The methodology relies on a patent citations analysis and involves the specification of several multilevel logit models to identify the individual and country characteristics that determine the citation of military patents in subsequent patents. The data contain 1,756 citations to 582 patents of military origin with a simultaneous Europe-US protection and registered by companies/institutions from 1998 to 2003. The results reveal that military knowledge diffuses more intensively across civil patents, when the original military patent includes diverse technologies (civil and military) and is progressively less specific in terms of weapons and ammunition. Military patents filed by British, French, US, Japanese and German companies are, in this order, more likely to have a larger number of citations in subsequent civil patents. The ownership of the original military patent is not a determining factor for explaining the diffusion into civil patents, but it does influence the diffusion across mixed and military technologies. Finally, the technological capacity of the citing company also affects the type and intensity of the diffusion of the military knowledge.

Keywords: Analysis, Capacity, Characteristics, Citation, Citations, Countries, Country, Data, Defense Expenditures, Diffusion, Economic-Growth, Field, Flow, Forward Patent Citations, Innovation, Inventions, Knowledge, Methodology, Military, Military Patents, Military Technology, Models, Origin, Panel-Data, Patent, Patent Citations, Patents, Protection, Research-And-Development, Spillovers, Technologies, Technology, Technology Diffusion, Transfers, us, Weapons, Weapons and Ammunition

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Full Text: [2013\Scientometrics94, 23.pdf](2013/Scientometrics94,%2023.pdf)

Abstract: Thomson Reuter’s ISI Web of Knowledge (or ISI for short) is used in the majority of benchmarking analyses and bibliometric research projects. Therefore, it is important to be aware of the limitations of data provided by ISI. This article deals with a limitation that disproportionally affects the Social Sciences: ISI’s misclassification of journal articles containing original research into the “review” or “proceedings paper” category. I report on a comprehensive, 11 year analysis, of document categories for 27 journals in nine Social Science and Science disciplines. I show that although ISI’s “proceedings paper” and “review” classifications seem to work fairly well in the Sciences, they illustrate a profound misunderstanding of research and publication practices in the Social Sciences.

Keywords: Analyses, Analysis, Benchmarking, Bibliometric, Bibliometric Research, Citation, Data, Document Categories, ISI, Journal, Journal Articles, Journals, Limitation, Nonsense, Practices, Proceedings Papers, Publication, Research, Review Articles, Science, Sense, Social Sciences, Thomson Reuters, Web of Knowledge, Work

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Full Text: [2013\Scientometrics94, 35.pdf](2013/Scientometrics94,%2035.pdf)

Abstract: One is inclined to conceptualize impact in terms of citations per publication, and thus as an average. However, citation distributions are skewed, and the average has the disadvantage that the number of publications is used in the denominator. Using hundred percentiles, one can integrate the normalized citation curve and develop an indicator that can be compared across document sets because percentile ranks are defined at the article level. I apply this indicator to the set of 58 journals in the WoS Subject Category of “Nanoscience & nanotechnology,” and rank journals, countries, cities, and institutes using non-parametric statistics. The significance levels of results can thus be indicated. The results are first compared with the ISI-impact factors, but this Integrated Impact Indicator (I3) can be used with any set downloaded from the (Social) Science Citation Index. The software is made publicly available at the Internet. Visualization techniques are also specified for evaluation by positioning institutes on Google Map overlays.

Keywords: Analysis, Citation, Citation Analysis, Citations, Cities, Evaluation, First, Geography, Google, Humanities, Impact, Impacts, Index, Indicator, Internet, Journals, Nanotechnology, Nonparametric Statistics, Normalization, Percentile, Percentiles, Publication, Publications, Rank, Relative Indicators, Research Performance, Science, Science Citation Index, Significance, Software, Standards, Statistics, Techniques, Terms, Visualization

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Full Text: [2013\Scientometrics94, 57.pdf](2013/Scientometrics94,%2057.pdf)

Abstract: A small number of studies have sought to establish that research papers with more funding acknowledgements achieve higher impact and have claimed that such a link exists because research supported by more funding bodies undergoes more peer review. In this paper, a test of this link is made using recently available data from the Web of Science, a source of bibliographic data that now includes funding acknowledgements. The analysis uses 3,596 papers from a single year, 2009, and a single journal, the Journal of Biological Chemistry. Analysis of this data using OLS regression and two ranks tests reveals the link between count of funding acknowledgements and high impact papers to be statistically significant, but weak. It is concluded that count of funding acknowledgements should not be considered a reliable indicator of research impact at this level. Relatedly, indicators based on assumptions that may hold true at one level of analysis may not be appropriate at other levels.

Keywords: Analysis, Assumptions, Bibliographic, Bibliometric Methods, Bodies, Citations, Data, Funding, Funding Acknowledgements, Grant, Impact, Indicator, Indicators, Journal, Log Transformation, Model, OLS, Papers, Peer Review, Peer-Review, Policy, Publications, Regression, Research, Research Impact, Review, Science, Small, Source, Web of Science

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Full Text: [2013\Scientometrics94, 75.pdf](2013/Scientometrics94,%2075.pdf)

Abstract: Because some cited references are not relevant to the citing patent and not all the relevant references are cited, the study attempts to use the bibliographic coupling (BC) approach to filter the irrelevant patent citations and supplement the relevant uncited patent citations to construct a patent citation network (PCN). The study selected the field of electric vehicle technology to explore the phenomenon and examined the characteristics of PCNs in terms of the average BC strength and the average citation time lag. Four PCNs were constructed in this study. The aggregated PCN (APCN) excluded the irrelevant patent citations and added the relevant uncited patent citations, which has brought out significant improvement. The APCN became more concentrated and the information which reserved in the APCN was the most current. Additionally, some invisible technology clusters and relationships were also manifested in the APCN.

Keywords: Approach, BC, Bibliographic, Bibliographic Coupling, Characteristics, Citation, Citation Network, Citation Time Lag, Citations, Constructed, Electric Vehicle Technology, Field, Improvement, Indicators, Information, Map, Network, Networks, Patent, Patent Citation Analysis, Patent Citations, References, Strength, Technology, Vehicle

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Full Text: [2013\Scientometrics94, 95.pdf](2013/Scientometrics94,%2095.pdf)

Abstract: Knowledge management has attracted an increasing number of researchers since the concept was born. Its research scope is expanding constantly and its research depth is strengthening. Also, in our country, there are experts and scholars in different fields carrying out researches into knowledge management theory and practice from their own point of view. In order to understand the present situation and the trend of knowledge management, this paper collected degree theses about knowledge management from 2006 to 2010 from Chinese Selected Doctoral Dissertations and Master’s Theses Full-Text Databases (CDMD) to analyze. A total of 173 Ph.D. Theses and 1,243 Master theses were found by retrieving “knowledge management” with title or keywords. Statistical analysis data shows: the number of the knowledge management degree theses has decreased since 2008; disciplines of degree theses distribute widely and they mainly concentrate on management science, technology and education field; the number of the research institutions has increased, however, the main research institutions are still prominent relatively; knowledge management research hot spots based on the lexical frequency distribution are wide and deep; knowledge management research hot spots based on the analysis of the key words are clear.

Keywords: Analysis, China, Chinese, Concentrate, Country, Data, Databases, Distribution, Education, Experts, Field, Institutions, Knowledge, Knowledge Management, Literature Metrology, Management, Management Science, Practice, Research, Research Institutions, Science, Scope, Statistical Analysis, Technology, Theory, Theses, Trend

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Full Text: [2013\Scientometrics94, 113.pdf](2013/Scientometrics94,%20113.pdf)

Abstract: This paper borrows Strogatz’s dynamic model for love affair between Romeo and Juliet and extends this model to nonlinear simultaneous differential equations model in order that we can characterize the dynamic interaction mechanisms and styles between science and technology (S&T). Then we further apply the proposed new model to the field of nanoscience and nanotechnology (N&N) for the purpose of analyzing the reciprocal dependence between S&T. The empirical results provide an understanding of the relationship between S&T and their dynamic potential of interdependence in the selected 20 leading universities in the field of N&N. We find that at present nanotechnology depends mainly on the scientific-push rather than the technology-pull and nanotechnology is science-based field. In contrast, a parallel development of the technology is not visible. Policy implications are at last put forward based on the several interesting findings for the interaction mechanisms between S&T in the field.

Keywords: Basic Research, China, Commercialization, Development, Dynamic, Dynamic Interaction Between Science and Technology, Dynamic Model, Dynamics, Field, Indicators, Innovation, Interaction, Knowledge Flows, Love Dynamics, Mechanisms, Model, Nano-Science, Nanoscience, Nanoscience and Nanotechnology, Nanotechnology, Nonlinear, Nonlinear Simultaneous Differential Equations Model, Patents, Policy, Potential, Purpose, Research Collaboration, Science, Science and Technology, Technology, Understanding, Universities

? Gowanlock, M. and Gazan, R. (2013), Assessing researcher interdisciplinarity: A case study of the University of Hawaii NASA Astrobiology Institute. *Scientometrics*, **94** (1), 133-161.

Full Text: [2013\Scientometrics94, 133.pdf](2013/Scientometrics94,%20133.pdf)

Abstract: In this study, we combine bibliometric techniques with a machine learning algorithm, the sequential information bottleneck, to assess the interdisciplinarity of research produced by the University of Hawaii NASA Astrobiology Institute (UHNAI). In particular, we cluster abstract data to evaluate Thomson Reuters Web of Knowledge subject categories as descriptive labels for astrobiology documents, assess individual researcher interdisciplinarity, and determine where collaboration opportunities might occur. We find that the majority of the UHNAI team is engaged in interdisciplinary research, and suggest that our method could be applied to additional NASA Astrobiology Institute teams in particular, or other interdisciplinary research teams more broadly, to identify and facilitate collaboration opportunities.

Keywords: Algorithm, Astrobiology, Bibliometric, Bibliometric Techniques, Bibliometrics, Case Study, Citation, Cluster, Collaboration, Data, Hawaii, Indicators, Information, Information Bottleneck Method, Interdisciplinarity, Interdisciplinary, Interdisciplinary Research, Interdisciplinary Science, Learning, Machine, Machine Learning, Research, Science, Techniques, Text Mining, Thomson Reuters, Thomson-Reuters, University, Web of Knowledge

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Full Text: [2013\Scientometrics94, 163.pdf](2013/Scientometrics94,%20163.pdf)

Abstract: We introduce a new quantitative measure of international scholarly impact of countries by using bibliometric techniques based on publication and citation data. We present a case study to illustrate the use of our proposed measure in the subject area Energy during 1996-2009. We also present geographical maps to visualize knowledge flows among countries. Finally, using correlation analysis between publication output and international scholarly impact, we study the explanatory power of the applied measure.

Keywords: Analysis, Bibliometric, Bibliometric Techniques, Bibliometrics, Case Study, Citation, Correlation, Correlation Analysis, Data, Diffusion, Energy, Export, GINI Index, Impact, International, International Scholarly Impact, ISI, Journal-Citation-Reports, Knowledge, Knowledge Flows, Measure, Power, Publication, Research, Scholarly Impact, Science, Scientific Research, Subject Categories, Techniques

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Full Text: [2013\Scientometrics94, 181.pdf](2013/Scientometrics94,%20181.pdf)

Abstract: This paper proposes a citation rank based on spatial diversity (SDCR) in terms of cities and countries, focusing on the measurement of the “spatial” aspect in citation networks. Our main goal is to solve the citation bias caused by different geographical locations of citations. We empirically investigate spatial properties of citing distances, citation patterns and spatial diversity to understand geographical knowledge diffusion, based on the data from “Transportation Science and Technology” subject category in the Web of Science (1966-2009). We also compare the proposed ranking method with other bibliometric measures, and conduct a case study to figure out the recent ranks of the well-established authors in Transportation research. It is found that the SDCR of a focal author is highly correlated with the sum of spatial diversity weights (“strength”) of all his in-links, and it is better to set the damping factors smaller than 0.75 when ranking authors with various initial academic years by SDCR. The cases show that Hong Kong is becoming a cluster in Transportation research.

Keywords: Authors, Authorship, Bias, Bibliometric, Bibliometric Indicators, Case Study, Centrality, Citation, Citation Analysis, Citation Bias, Citation Patterns, Citation Rank, Citations, Cities, Cluster, Data, Diffusion, Diversity, h-Index, Hong Kong, Impact, Institutions, Knowledge, Knowledge Diffusion, Measurement, Networks, Pagerank, Patterns, Rank, Ranking, Recent, Research, Science, Spatial Scientometrics, Transportation, Web of Science

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Full Text: [2013\Scientometrics94, 203.pdf](2013/Scientometrics94,%20203.pdf)

Abstract: Most biomedical journals accept original research articles in the form of “brief reports”. We compared the citations to full papers versus brief reports in a sample of journals on Infectious Diseases, Clinical Microbiology, and Antimicrobial Agents. Brief reports were cited less often than full-size articles [regression coefficient: 10.94 (95 % CI: 5.19, 16.69)] even after adjustment for the journal’s impact factor. Our findings may influence decisions of editors and authors regarding brief reports.

Keywords: Antimicrobial, Antimicrobial Agents, Authors, Biomedical, Biomedical Journals, Brief Reports, Citations, Comparison, Impact, Impact Factor, Infectious Diseases, Journals, Original Articles, Papers, Research

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Full Text: [2013\Scientometrics94, 207.pdf](2013/Scientometrics94,%20207.pdf)

Abstract: A new semi-automatic method is presented to standardize or codify addresses, in order to produce bibliometric indicators from bibliographic databases. The hypothesis is that this new method is very trustworthy to normalize authors’ addresses, easy and quick to obtain. As a way to test the method, a set of already hand-coded data is chosen to verify its reliability: 136,821 Spanish documents (2006-2008) downloaded previously from the Web of Science database. Unique addresses from this set were selected to produce a list of keywords representing various institutional sectors. Once the list of terms is obtained, addresses are standardized with this information and the result is compared to the previous hand-coded data. Some tests are done to analyze possible association between both systems (automatic and hand-coding), calculating measures of recall and precision, and some statistical directional and symmetric measures. The outcome shows a good relation between both methods. Although these results are quite general, this overview of institutional sectors is a good way to develop a second approach for the selection of particular centers. This system has some new features because it provides a method based on the previous non-existence of master lists or tables and it has a certain impact on the automation of tasks. The validity of the hypothesis has been proved taking into account not only the statistical measures, but also considering that the obtaining of general and detailed scientific output is less time-consuming and will be even less due to the feedback of these master tables reused for the same kind of data. The same method could be used with any country and/or database creating a new master list taking into account their specific characteristics.

Keywords: Address Identification, Approach, Association, Authors, Automatic Standardization, Automation, Bibliographic, Bibliographic Databases, Bibliometric, Bibliometric Indicators, Characteristics, Country, Data, Data Mining, Database, Databases, General, Identification, Impact, Indicators, Information, Methods, Names, Outcome, Performance Evaluation, Precision, Recall, Reliability, Science, Scientific Output, Selection, Systems, Validity, Web of Science

? Lu, L.Y.Y. and Liu, J.S. (2013), An innovative approach to identify the knowledge diffusion path: the case of resource-based theory. *Scientometrics*, **94** (1), 225-246.

Full Text: [2013\Scientometrics94, 225.pdf](2013/Scientometrics94,%20225.pdf)

Abstract: This study presents an innovative approach for identifying the knowledge diffusion path of a target research field. We take the resource-based theory (RBT) as an example to demonstrate the usefulness of this methodology. Several survey studies have provided valuable summarization and commentaries to the RBT from different perspectives. These analyses are useful and pertinent for understanding the development of RBT. However, limited by the methodologies they used, previous scholars can only select part of the RBT literature to conduct the survey work. To eliminate the limitation, this study develops an innovative approach which can handle thoUSAnds of articles. This study analyzes a dataset including 2,105 theoretical developments, empirical studies, and review papers to explore the knowledge diffusion path of the RBT. Citation data are used to build the citation network. Main paths are then probed and visualized via social network analysis methodology. To figure out the total picture of the knowledge diffusion path, this study integrates various main path analyses to supplement the traditional approach. The traditional main path analysis investigates the knowledge diffusion from a local view. The global analysis provides a main path from a macro view. The key-route analysis helps explore and clarify a complete picture of the convergence-divergence phenomena. We believe that through this novel tool, new researchers can easily identify the papers that have made major contributions to RBT knowledge diffusion and uncover the interrelationships among them.

Keywords: Analyses, Analysis, Approach, Citation, Citation Analysis, Citation Network, Citation-Based Analysis, Data, Development, Diffusion, Dynamic Capabilities, Emerging Economies, Empirical Studies, Empirical-Research, Entrepreneurial Theory, Field, Firm Performance, Global, Institution-Based View, International-Business, Knowledge, Knowledge Diffusion, Limitation, Literature, Local, Main Path Analysis, Methodologies, Methodology, Network, Network Analysis, Papers, Path Analysis, Research, Resource-Based Theory, Resource-Based View, Review, Social, Social Network Analysis, Strategic Management, Survey, Sustainable Competitive Advantage, Theoretical, Theory, Understanding, Work

? Makkonen, T. and van der Have, R.P. (2013), Benchmarking regional innovative performance: Composite measures and direct innovation counts. *Scientometrics*, **94** (1), 247-262.

Full Text: [2013\Scientometrics94, 247.pdf](2013/Scientometrics94,%20247.pdf)

Abstract: There is a considerable amount of discussion, but still no consensus, about which indicator should be used to measure innovation. To participate in this debate, a unique innovation database, SFINNO, is introduced. Innovation counts from the database are used as the baseline, to which individual proxy indicators (patent- and research and development statistics) of innovation and innovation indexes, constructed here with principal component analysis, are compared. The local administrative units of Finland serve as the regional units benchmarked. The study results show that innovation is a complex phenomenon which cannot be entirely explained through the use of proxy statistics, as the linkages between innovation input- and output-indicators are fuzzy. We also show that the strength of these linkages varies by field of technology. Furthermore, different innovation measures produce highly divergent rankings when they are used as benchmarking tools of regional innovative performance. Although the produced innovation indexes perform slightly better, their superiority is marginal. Therefore, caution should be taken before drawing too drastic policy conclusions depending on a single measure of regional innovative performance.

Keywords: Academic Research, Analysis, Benchmarking, Capabilities, Composite, Composite Indicators, Consensus, Constructed, Database, Development, Empirical-Analysis, Field, Finland, Growth, Indicator, Indicators, Innovation, Knowledge, Local, Measure, Patent, Patents, Patents, Performance, Perspectives, Policy, Principal Component Analysis, R&D, Rankings, Regional, Regional Innovative Performance, Research, Research and Development, Science-And-Technology, Statistics, Strength, Systems, Technology

? Abatemarco, A. and Dell’Anno, R. (2013), Certainty equivalent citation: Generalized classes of citation indexes. *Scientometrics*, **94** (1), 263-271.

Full Text: [2013\Scientometrics94, 263.pdf](2013/Scientometrics94,%20263.pdf)

Abstract: Drawing from the existing literature on risk and inequality measurement, we implement the notion of “certainty equivalent citation” in order (i) to generalize most of the h-type citation indexes (h-, g-, t-, f-, w-index), and (ii) to highlight the centrality of the decision-maker’s preferences on distributive aspects (concentration aversion) for the ranking of citation profiles. In order to highlight the sensitivity of citation orderings with respect to concentration aversion, an application to both simulated and real citation profiles is presented.

Keywords: Application, Citation, Citation Index, Citation Indexes, Cited Papers, Concentration, h-Index, h-Index, Impact, Indicators, Inequality, Inequality Measurement, Literature, Measurement, Notion, Profiles, Ranking, Research Performance, Risk, Sensitivity, T, W-Index

? Jimenez-Saez, F., Zabala-Iturriagagoitia, J.M. and Zofio, J.L. (2013), Who leads research productivity growth? Guidelines for R&D policy-makers. *Scientometrics*, **94** (1), 273-303.

Full Text: [2013\Scientometrics94, 273.pdf](2013/Scientometrics94,%20273.pdf)

Abstract: This paper evaluates to what extent policy-makers have been able to promote the creation and consolidation of comprehensive research groups that contribute to the implementation of a successful innovation system. Malmquist productivity indices are applied in the case of the Spanish Food Technology Program, finding that a large size and a comprehensive multi-dimensional research output are the key features of the leading groups exhibiting high efficiency and productivity levels. While identifying these groups as benchmarks, we conclude that the financial grants allocated by the program, typically aimed at small-sized and partially oriented research groups, have not succeeded in reorienting them in time so as to overcome their limitations. We suggest that this methodology offers relevant conclusions to policy evaluation methods, helping policy-makers to readapt and reorient policies and their associated means, most notably resource allocation (financial schemes), to better respond to the actual needs of research groups in their search for excellence (micro-level perspective), and to adapt future policy design to the achievement of medium-long term policy objectives (meso and macro-level).

Keywords: Achievement, Allocation, Data Envelopment Analysis, Design, Efficiency, Efficiency Change, Evaluation, Evaluation Methods, Firms, Growth, Implementation, Index, Indices, Industrialized Countries, Innovation, Innovation System, Malmquist Productivity Index, Methodology, Methods, Multidimensional, National Innovation Systems, Needs, Policies, Policy, Policy Evaluation, Productivity, R&D, Research, Research Output, Research Productivity, Resource Allocation, Science, Science and Technology Policy, Size, Technical Progress, Technology, Term, Trends

? Guardiola-Wanden-Berghe, R., Sanz-Valero, J. and Wanden-Berghe, C. (2013), Medical subject headings versus American Psychological Association Index Terms: indexing eating disorders. *Scientometrics*, **94** (1), 305-311.

Full Text: [2013\Scientometrics94, 305.pdf](2013/Scientometrics94,%20305.pdf)

Abstract: To analyze the keywords used in articles published in eating disorder journals indexed in MEDLINE to determine their correspondence with the MeSH or the APA-Terms. Descriptive bibliometric study. We established three inclusion criteria: Articles had to be original, to contain keywords, and to have been in the MEDLINE database in the last 5 years. 918 original with 1,868 different keywords were studied. Eight original articles (0.87 %) presented complete correspondence between the keywords used and the indexing terms. of the keywords studied, 300 (16.06 %) coincided with MeSH and 366 (19.59 %) with APA-Terms. The comparison between keywords matching MeSH and those matching APA-Terms, we found significant differences indicating greater agreement with APA-Terms (p < 0.001). The weak agreement between keywords and indexing terms may hinder the cataloguing of eating disorder articles. The authors of these studies made greater use of keywords related to APA-Terms.

Keywords: Abbreviations, Access To Information, Authors, Bibliographic Databases, Bibliometric, Bibliometric Study, Comparison, Controlled Vocabulary, Criteria, Database, Indexing, Information Storage and Retrieval, Journals, Medical, Medical Subject Headings, MEDLINE, Psychological, Strategies, Subject Headings, Text-Word

? Yoon, J., Park, H. and Kim, K. (2013), Identifying technological competition trends for R&D planning using dynamic patent maps: SAO-based content analysis. *Scientometrics*, **94** (1), 313-331.

Full Text: [2013\Scientometrics94, 313.pdf](2013/Scientometrics94,%20313.pdf)

Abstract: Patent maps showing competition trends in technological development can provide valuable input for decision support on research and development (R&D) strategies. By introducing semantic patent analysis with advantages in representing technological objectives and structures, this paper constructs dynamic patent maps to show technological competition trends and describes the strategic functions of the dynamic maps. The proposed maps are based on subject-action-object (SAO) structures that are syntactically ordered sentences extracted using the natural language processing of the patent text; the structures of a patent encode the key findings of the invention and expertise of its inventors. Therefore, this paper introduces a method of constructing dynamic patent maps using SAO-based content analysis of patents and presents several types of dynamic patent maps by combining patent bibliographic information and patent mapping and clustering techniques. Building on the maps, this paper provides further analyses to identify technological areas in which patents have not been granted (“patent vacuums”), areas in which many patents have actively appeared (“technological hot spots”), R&D overlap of technological competitors, and characteristics of patent clusters. The proposed analyses of dynamic patent maps are illustrated using patents related to the synthesis of carbon nanotubes. We expect that the proposed method will aid experts in understanding technological competition trends in the process of formulating R&D strategies.

Keywords: Analyses, Analysis, Bibliographic, Carbon, Carbon Nanotubes, Characteristics, Clustering, Combining, Competition, Content Analysis, Decision, Decision Support, Development, Dynamic, Dynamic Patent Map, Experts, Functions, Information, Language, Mapping, Nanotubes, Natural, Natural Language Processing (NLP), Patent, Patent Analysis, Patents, Planning, R&D, Representations, Research, Research and Development, Research and Development (R&D) Strategy, Science Maps, Semantic Patent Similarity, Strategic, Subject-Action-Object (SAO) Structure, Support, Synthesis, Techniques, Trends, Understanding

Notes: CCountry

? Bajwa, R.S., Yaldram, K. and Rafique, S. (2013), A scientometric assessment of research output in nanoscience and nanotechnology: Pakistan perspective. *Scientometrics*, **94** (1), 333-342.

Full Text: [2013\Scientometrics94, 333.pdf](2013/Scientometrics94,%20333.pdf)

Abstract: In this study we present an analysis of the research trends in Pakistan in the field of nanoscience and nanotechnology. Starting with just seven publications in the year 2000, this number has steadily increased to 542 for the year 2011. Among the top 15 institutions with publications in nanotechnology 13 are universities and only two are R&D organizations. Almost 35 % of the research publications are in the field of material sciences followed by chemistry and physics in that order. The growth in the publications for period 2000-2011 is studied through relative growth rate and doubling time. The authorship pattern is measured by different collaboration parameters, like collaborative index, degree of collaboration, collaboration coefficient and modified collaboration coefficient. Finally the quality of papers is assessed by means of the h-Index, g-index, hg-index and p-index.

Keywords: Analysis, Assessment, Authorship, Authorship Pattern, Bibliometric, Chemistry, Collaboration, Degree of Collaboration, Doubling Time, Field, g Index, g-Index, Growth, Growth Rate, h Index, h-Index, hg-Index, Index, Institutions, Modified, Nanoscience, Nanoscience and Nanotechnology, Nanotechnology, P-Index, Pakistan, Papers, Pattern, Publications, Quality, Quality Of, R&D, Relative Growth Rate, Research, Research Output, Research Trends, Sciences, Scientometric, Trends, Universities

? Lander, B. (2013), Sectoral collaboration in biomedical research and development. *Scientometrics*, **94** (1), 343-357.

Full Text: [2013\Scientometrics94, 343.pdf](2013/Scientometrics94,%20343.pdf)

Abstract: This paper explores the role of sectors in scientific research and development networks by drawing on bibliometric analyses and innovation systems and triple helix literatures. I conducted a bibliometric study of Vancouver Canada’s worldwide infection and immunity network and examined network structure through sociograms, social network metrics, as well as relational contingency table and ANOVA network analyses. Universities are the key network sector followed by hospitals and government organisations. The private sector plays a weak role. Most sectors show a preference for collaborating within, as opposed to across, sectors. This trend is most pronounced in hospitals and least pronounced among firms. Hospitals and universities collaborate well above statistical expectations. I discuss the implications of these findings for future science policy and studies of research and development networks.

Keywords: Analyses, Anova, Bibliometric, Bibliometric Analyses, Bibliometric Study, Bibliometrics, Biomedical, Biomedical Research, Biomedicine, Collaboration, Development, Dynamics, Expectations, Hospitals, Immunity, Infection, Innovation Innovation Systems, Knowledge Flows, Metrics, Network, Networks, Networks, Policy, Preference, Private Sector, R&D, Research, Research and Development, Role, Science, Science Policy, Scientific Research, Sector, Sectors, Services, Social, Structure, Systems, Trend, Universities, University

? Wiles, L., Olds, T. and Williams, M. (2013), Twenty-five years of Australian nursing and allied health professional journals: bibliometric analysis from 1985 through 2010. *Scientometrics*, **94** (1), 359-378.

Full Text: [2013\Scientometrics94, 359.pdf](2013/Scientometrics94,%20359.pdf)

Abstract: the generation of research involves producers (study authors and funders), products (studies and arising publications) and consumption (measured through readership and citation). Bibliometric analyses of research producers, products and consumption over time can be used to describe the evolution of health professions as captured in professional journal publications. Numerous bibliometric studies have been conducted however few have sampled nursing and allied health professional journals. This is despite a growing health workforce and socioeconomic pressures. The aim of this study was to use bibliometric analyses to track change in the producers, products and consumption of seven Australian nursing and allied health professional journals from 1985 through 2010. An analysis of all original research articles published in these journals was performed using a reliable bibliometric audit tool. Articles were sampled every 3 months and at 5 year intervals over a 25 year period. Information relating to authorship, the research methods used and citation patterns was collected. Data were analysed descriptively. Over the study period, all journals shifted towards publishing research that used higher study designs, reported more quantitative data, and were authored by larger research teams. The rate at which this transition occurred (greater evidence base, quantitation and collaboration) differed among the journals sampled. The changes seen in the research published in these journals are likely to be a function of the strategic purpose of each publication (to its professional readership) as well as reflect wider socioeconomic phenomena. Therefore these trends are likely to continue in the future.

Keywords: Allied Health Occupations, Analyses, Analysis, Articles, Association, Audit, Australian, Authors, Authorship, Bibliometric, Bibliometric Analyses, Bibliometric Analysis, Bibliometric Studies, Bibliometrics, Changes, Citation, Citation Counts, Citation Patterns, Collaboration, Consumption, Data, Epidemiology, Evidence, Evolution, Fields, Function, Generation, Google Scholar, Health, Impact, Intervals, Journal, Journals, Methods, Nursing, Periodicals as Topic, Pressures, Professions, Publication, Publications, Publishing, Purpose, Research, Science, Scopus, Strategic, Trends, Web

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Full Text: [2013\Scientometrics94, 379.pdf](2013/Scientometrics94,%20379.pdf)

Abstract: Two kinds of bibliographic tools are used to retrieve scientific publications and make them available online. For one kind, access is free as they store information made publicly available online. For the other kind, access fees are required as they are compiled on information provided by the major publishers of scientific literature. The former can easily be interfered with, but it is generally assumed that the latter guarantee the integrity of the data they sell. Unfortunately, duplicate and fake publications are appearing in scientific conferences and, as a result, in the bibliographic services. We demonstrate a software method of detecting these duplicate and fake publications. Both the free services (such as Google Scholar and DBLP) and the charged-for services (such as IEEE Xplore) accept and index these publications.

Keywords: Access, Bibliographic, Bibliographic Tools, Conferences, Data, Fake Publications, Google, Google Scholar, Google-Scholar, Index, Information, Inter-Textual Distance, Literature, Papers, Publications, Science, Scientific Conferences, Scientific Literature, Scientific Publications, Scopus, Services, Software, Text-Mining, Wok

? Ho, M.H.C. and Liu, J.S. (2013), The motivations for knowledge transfer across borders: the diffusion of data envelopment analysis (DEA) methodology. *Scientometrics*, **94** (1), 397-421.

Full Text: [2013\Scientometrics94, 397.pdf](2013/Scientometrics94,%20397.pdf)

Abstract: To facilitate technology development, people rely on quick and intensive knowledge interactions without barriers. However, when people need to transfer knowledge from one place to another, geographical distance is a critical barrier to overcome because tacit and invisible characteristics are embedded in certain knowledge and locations. This study explores how social and scientific resources embedded within persons can motivate personal knowledge-diffusion behaviors; that is, bridging resources between locations. To explain cross-border diffusion, this work analyzes knowledge dissemination of the data envelopment analysis (DEA) method. By collecting theoretical and application papers in DEA methodology from the Web of Science data set, this study analyzes the academic network consisting of 610 researchers and identifies author locations, research disciplines, and their mutual linkages to explain the importance of personal specific characteristics in cross-border diffusion. Regression models and network analysis show the advantages of personal research seniority and cross-disciplinary coordinating capabilities for researchers to diffuse knowledge from one region to another. The corresponding brokering capabilities accumulated within domestic area or adjacent nations are also helpful for specifically brokering resources of other farther places.

Keywords: Analysis, Application, Barrier, Barriers, Brokerages, Characteristics, Data, Data Envelopment, Data Envelopment Analysis, DEA, DEA Method, Development, Diffusion, Diversification, Europe, Index, Innovation, Knowledge, Knowledge Diffusion, Knowledge Transfer, Location, Methodology, Models, Nations, Network, Network Analysis, Network Position, Papers, Patent Citations, Region, Research, Resources, Science, Social, Spillovers, Technology, Theoretical, Web of Science, Work

? Huang, M.H., Dong, H.R. and Chen, D.Z. (2013), The unbalanced performance and regional differences in scientific and technological collaboration in the field of solar cells. *Scientometrics*, **94** (1), 423-438.

Full Text: [2013\Scientometrics94, 423.pdf](2013/Scientometrics94,%20423.pdf)

Abstract: This study attempts to explore collaborations in the field of solar cell science and technology, focusing on the productivity and citations of papers and patents at the global and country levels. This study finds that most papers and patents are collaborative efforts, however, the rate of collaboration is higher for papers. In particular, international collaboration is not common in patents. In terms of performance, international collaborations have shown the best performance overall if looking at trends that cover the 30 years from 1980 to 2009, but the performance of single-authored papers has been better in the more recent ten-year period, 2000-2009. At the country level, we found that most countries have higher rates of international collaboration with greater numbers in papers and patents. Asian countries such as Japan, Taiwan and India have significant citation performance with high ratios for domestic collaboration; the rates are even greater than the average ratio for international collaboration.

Keywords: Asian, Authorship, Citation, Citations, Collaboration, Collaborations, Country, Domestic Collaboration, Field, Global, India, International, International Collaboration, Japan, Paper, Papers, Patent, Patents, Performance, Productivity, PV System, Quality, Rates, Recent, Regional, Science, Science and Technology, Solar Cell, Solar Cells, Taiwan, Technology, Trends

? Roessner, D., Porter, A.L., Nersessian, N.J. and Carley, S. (2013), Validating indicators of interdisciplinarity: Linking bibliometric measures to studies of engineering research labs. *Scientometrics*, **94** (2), 439-468.

Full Text: [2013\Scientometrics94, 439.pdf](2013/Scientometrics94,%20439.pdf)

Abstract: This article examines the extent to which specific features of interdisciplinary research are accurately reflected in selected bibliometric measures of scholarly publications over time. To test the validity of these measures, we compare knowledge of research processes and impact based on ethnographic studies of a well-established researcher’s laboratory, together with personal interview data, against bibliometric indicators of cognitive integration, diffusion, and impact represented in the entire portfolio of papers produced by this researcher over time.

Keywords: Bibliometric, Bibliometric Indicators, Bibliometrics, Bionanotechnology, Data, Diffusion, Engineering, Impact, Indicators, Integration, Interdisciplinarity, Interdisciplinary, Interdisciplinary Research, Knowledge, Lab Studies, Nitric-Oxide Synthase, Papers, Publications, Research, Science, Shear-Stress, Validation, Validity

? Parker, J.N., Allesina, S. and Lortie, C.J. (2013), Characterizing a scientific elite (B): Publication and citation patterns of the most highly cited scientists in environmental science and ecology. *Scientometrics*, **94** (2), 469-480.

Full Text: [2013\Scientometrics94, 469.pdf](2013/Scientometrics94,%20469.pdf)

Abstract: Science is principally driven by the efforts of a vanishingly small fraction of researchers publishing the majority of scientific research and garnering the majority of citations. Despite this well-established trend, knowledge of exactly how many articles these researchers publish, how highly they are cited, and how they achieved their distinctive accomplishments is meager. This article examines the publication and citation patterns of the world’s most highly cited environmental scientists and ecologists, inquiring into their levels of scientific productivity and visibility, examining relationships between scientific productivity and quality within their research programs, and considering how different publication strategies contribute to these distinctive successes. Generally speaking, highly cited researchers are also highly productive, publishing on average well over 100 articles each. Furthermore, articles published by this group are more highly cited on average than articles published in premier generalist journal like Nature and Science, and their citation to publication ratios are more equitably distributed than is typical. Research specialization and primacy of authorship are important determinants of citation frequency, while geographic differences and collaborative propensity matter less. The article closes with a set of suggestions for those wishing to increase the use of their research by the scientific community.

Keywords: Articles, Authors, Authorship, Citation, Citation Frequency, Citation Patterns, Citations, Collaboration, Community, Distributed, Ecology, Environmental, Environmental Science, Highly Cited, Highly-Cited, Journal, Journal Impact, Knowledge, Level, Productivity, Publication, Publishing, Quality, Research, Science, Scientific Elite, Scientific Productivity, Scientific Research, Scientists, Small, Specialization, Specialization, Trend, Visibility

? Chen, J.H., Jang, S.L. and Chang, C.H. (2013), The patterns and propensity for international co-invention: the case of China. *Scientometrics*, **94** (2), 481-495.

Full Text: [2013\Scientometrics94, 481.pdf](2013/Scientometrics94,%20481.pdf)

Abstract: We set out in the present study to examine 1997-2007 data on inventors, based upon country of residence, and on the process of co-invention, with the ultimate aim of undertaking analysis of the main partner countries currently collaborating with China in global technological production. Through our focus on China, we are able to demonstrate the evolving trend towards the establishment of collaborative patenting networks within an emerging market. In addition to exploring the pattern of joint international inventions, we link the patent data to other macro-economic factors for empirical analysis. Our results indicate that the relative manufacturing strength, the international trade exposure, and the respective economy standing have positive effect on the propensity for engaging in such international co-invention activities.

Keywords: Analysis, China, Co-Invention, Country, Cross-Border Patenting, Data, Economy, Exposure, Global, Intellectual Property-Rights, International, International Patenting, Inventions, Manufacturing, Market, National Innovative Capacity, Networks, Partner, Patent, Pattern, Strength, Technology, Trend

? Piergiovanni, R. and Santarelli, E. (2013), The more you spend, the more you get? the effects of R&D and capital expenditures on the patenting activities of biotechnology firms. *Scientometrics*, **94** (2), 497-521.

Full Text: [2013\Scientometrics94, 497.pdf](2013/Scientometrics94,%20497.pdf)

Abstract: This paper provides evidence on the mechanisms influencing the patent output of a sample of small and large, entrepreneurial and established biotechnology firms from the input of indirect knowledge acquired from capital expenditures and direct knowledge from in-house R&D. Statistical models of counts are used to analyse the relationship between patent applications and R&D investment and capital expenditures. It focuses on biotechnology in the period 2002-2007 and is based on a unique data set drawn from various sources including the EU Industrial R&D Investment Scoreboard, the European Patent Office (EPO), The US Patent and Trademark Office, and the World Intellectual Property Organisation. The statistical models employed in the paper are Poisson distribution generalisations with the actual distribution of patent counts fitting the negative binomial distribution and gamma distribution very well. Findings support the idea that capital expenditures-taken as equivalent to technical change embodied in new machinery and capital equipment-may also play a crucial role in the development of new patentable items from scientific companies. For EPO patents, this role appears even more important than that played by R&D investment. The overall picture emerging from our analysis of the determinants of patenting in biotechnology is that the innovation process involves a well balanced combination of inputs from both R&D and new machinery and capital equipment.

Keywords: Analysis, Biotechnology, Capital Expenditure, Data, Demand, Determinants, Development, Distribution, Effects, Equipment, Eu, Evidence, Expenditures, Gamma, Gamma Distribution, Indicators, Innovation, Knowledge, Level, Mechanisms, Models, Panel-Data, Patent, Patents, Patterns, Poisson Models, Productivity Growth, Property, R&D, Role, Small, Sources, Statistical Models, Support, Technical Change, Us

? Bauer, H.P.W., Schui, G., von Eye, A. and Krampen, G. (2013), How does scientific success relate to individual and organizational characteristics? A scientometric study of psychology researchers in the German-speaking countries. *Scientometrics*, **94** (2), 523-539.

Full Text: [2013\Scientometrics94, 523.pdf](2013/Scientometrics94,%20523.pdf)

Abstract: Purpose: To provide up-to-date bibliometric reference data describing the output and success of psychology researchers in the German-speaking countries, including lifetime publication and citation numbers, and to investigate associations of bibliometric measures with academic status and gender as well as the department characteristics of size and quota of senior researchers. Method Queried literature databases using an extensive online register of academic psychologists in the German-speaking countries, obtaining valid data for 85 % (N = 1742) of the population of interest. Findings Skewed distributions for publications and citations; maximum number of German-language (=native) publications much higher than maximum number of English-language publications; relatively large part of population publishing almost exclusively in German; publication count predictable by academic status, gender, department size, and quota of senior researchers; citation count predictable by publication count, status, department size, and quota of senior researchers; department characteristics interact with individual characteristics to produce specific conditions under which publication count and citation count are higher or lower than expected: combination of female gender, small department size and large quota of senior researchers is associated with particularly increased publication count; female gender and large department size are associated with decreased publication count; high publication count, large department size and low quota of senior researchers are associated with increased citation count; low publication count and large quota of senior researchers are associated with decreased citation count. Conclusions Reference values for scientific output provided in this study provide an anchor for monitoring and international comparison; despite considerable noise in data, we show that interactions of individual and organizational characteristics are relevant for scientific success and should be investigated further, e.g. by adopting various measures of organizational diversity and tracing a population longitudinally.

Keywords: Academic Status, Bibliometric, Characteristics, Citation, Citations, Comparison, Configural Frequency-Analysis, Data, Databases, Department Characteristics, Diversity, Female, Field, Gender, German-Speaking Countries, International, International Comparison, Internationality, Literature, Monitoring, N, Noise, Normalization, Organizational, Population, Productivity, Psychologists, Psychology, Publication, Publications, Publishing, Reference, Research Output, Scientific Output, Scientometric, Size, Small, Tool, Universities

? Brandt, T. and Schubert, T. (2013), Is the university model an organizational necessity? Scale and agglomeration effects in science. *Scientometrics*, **94** (2), 541-565.

Full Text: [2013\Scientometrics94, 541.pdf](2013/Scientometrics94,%20541.pdf)

Abstract: In this paper we argue that the emergence of the dominant model of university organization, which is characterized by a large agglomeration of many (often loosely affiliated) small research groups, might have an economic explanation that relates to the features of the scientific production process. In particular, we argue that there are decreasing returns to scale on the level of the individual research groups, which prevent them from becoming to large, while we argue for positive agglomeration effects on the supra-research-group-level inside the university. As a consequence an efficient university organization would precisely consist of tying together many small individual research groups without merging them. Basing our empirical analysis on a multilevel dataset for German research institutes from four disciplines we are able to find strong support for the presence of these effects. This suggests that the emergence of the dominant model of university organization may also be the result of these particular features of the production process, where the least we can say is that this model is under the given circumstances highly efficient.

Keywords: Agglomeration Effects, Analysis, Economic, Economies, Effects, Efficiency, Efficiency, Explanation, Framework, Higher-Education, Institutions, Merging, Model, Organization, Organizational, Public Management, Research, Research Performance, Returns to Scale, Scale, Science, Scientific Production, Scientific Productivity, Scope, Size, Small, Support, University, University Organization

? Docampo, D. (2013), Reproducibility of the Shanghai academic ranking of world universities results. *Scientometrics*, **94** (2), 567-587.

Full Text: [2013\Scientometrics94, 567.pdf](2013/Scientometrics94,%20567.pdf)

Abstract: This paper discusses and copes with the difficulties that arise when trying to reproduce the results of the Shanghai academic ranking of world universities. In spite of the ambiguity of the methodology of the ranking with regard to the computation of the scores on its six indicators, the paper presents a set of straightforward procedures to estimate raw results and final relative scores. Discrepancies between estimated scores and the results of the ranking are mostly associated with the difficulties encountered in the identification of institutional affiliations, and are not significant. We can safely state that the results of the Shanghai academic ranking of world universities are in fact reproducible.

Keywords: Arwu, Computation, Fatal Attraction, Identification, Indicators, Methodology, Procedures, Ranking, Reproducibility, Results, Shanghai, State, Systems, Universities, World

? Leydesdorff, L., Carley, S. and Rafols, I. (2013), Global maps of science based on the new Web-of-Science categories. *Scientometrics*, **94** (2), 589-593.

Full Text: [2013\Scientometrics94, 589.pdf](2013/Scientometrics94,%20589.pdf)

Abstract: In August 2011, Thomson Reuters launched version 5 of the Science and Social Science Citation Index in the Web of Science (WoS). Among other things, the 222 ISI Subject Categories (SCs) for these two databases in version 4 of WoS were renamed and extended to 225 WoS Categories (WCs). A new set of 151 Subject Areas was added, but at a higher level of aggregation. Perhaps confusingly, these Subject Areas are now abbreviated “SC’’ in the download, whereas “WC’’ is used for WoS Categories. Since we previously used the ISI SCs as the baseline for a global map in Pajek (Pajek is freely available at http://vlado.fmf.uni-lj.si/pub/networks/pajek/) (Rafols et al., Journal of the American Society for Information Science and Technology 61:1871-1887, 2010) and brought this facility online (at http://www.leydesdorff.net/overlaytoolkit), we recalibrated this map for the new WC categories using the Journal Citation Reports 2010. In the new installation, the base maps can also be made using VOSviewer (VOSviewer is freely available at http://www.VOSviewer.com/) (Van Eck and Waltman, Scientometrics 84:523-538, 2010).

Keywords: Aggregation, Citation, Databases, Global, Interdisciplinarity, Interdisciplinary, ISI, Journal, Journal Citation Reports, Journals, Map, Overlay, Science, Science Citation Index, Scientometrics, Social Science Citation Index, Subject Categories, Technology, Thomson Reuters, Thomson-Reuters, Version, Web of Science, WOS

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Full Text: [2013\Scientometrics94, 595.pdf](2013/Scientometrics94,%20595.pdf)

Abstract: How scientific progress functions in detail and what the specific prerequisites for scientific breakthroughs in a given research area are, is still unclear today. According to philosopher of science Thomas S. Kuhn, scientific advancement takes place via paradigm shift. As a principle supplementing Kuhn’s theory, we proposed the Anna Karenina principle: a new paradigm can be successful only when several key prerequisites are fulfilled (e.g., verified by means of independent data and methods). If any one of these prerequisites is not fulfilled, the paradigm will not be successful. Aiming at investigating the schema of paradigm shift supplemented by the Anna Karenina principle with the aid of concrete examples from science, in this study we analyze one of the most important scientific revolutions: the shift from a fixed to a mobile worldview in geoscientific thinking. This paradigm shift will be explained based on key papers that played a decisive role, selected carefully from reviews in the literature. The account of the development will be complemented by empirical findings that were produced based on publication and citation data using the software Histcite.

Keywords: Anna Karenina Principle, Bibliometric, Bibliometrics, Case Study, Citation, Concrete, Continental-Drift, Convection Currents, Data, Development, Earths Surface Crust, Functions, Hypothesis, Literature, Magnetic-Anomalies, Methods, Mobile, Model, Movements, Ocean Floor, Papers, Paradigm, Paradigms, Plate Tectonics, Progress, Publication, Research, Reviews, Role, Schema, Science, Scientific Progress, Scientific Revolutions, Sea-Floor, Software, Theory, United-States, West Coast

? Yi, Y., Qi, W. and Wu, D.D. (2013), Are CIVETS the next BRICs? A comparative analysis from scientometrics perspective. *Scientometrics*, **94** (2), 615-628.

Full Text: [2013\Scientometrics94, 615.pdf](2013/Scientometrics94,%20615.pdf)

Abstract: Based on the concept that scientific research is an important component of a country’s knowledge-based economy, this study aims to answer the question “Are CIVETS the next BRICs” by comparing a series of scientometrics indicators using data from the Essential Science Indicators database and the World Bank Report 2009. The main findings are that at the country group level, there is no significant difference between CIVETS and BRICs in knowledge-based economy performance, scientific research quality and scientific research structure and that the number of scientific research papers is the clear gap between them. The results may be of use to find the answer to the question “Are CIVETS the next BRICs” at least from the perspective of scientometrics.

Keywords: Analysis, Brics, Civets, Comparative Analysis, Country, Data, Database, Economy, Google Scholar, Impact, Index, Indicators, Knowledge Economy, Knowledge-Based, Papers, Performance, Quality, Rankings, Research, Research Quality, Science, Scientific Research, Scientometrics, Scopus, Structure, World Bank

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Full Text: [2013\Scientometrics94, 629.pdf](2013/Scientometrics94,%20629.pdf)

Abstract: the recent trend of rapid growth in the scientific and engineering activities in East Asian Newly Industrializing Economies (NIEs) resulted in a change in the structure of world knowledge production. In South Korea, particularly, not only the numbers of publications have increased, but there is a noticeable change in the composition of scientific and engineering activities. This paper notes the most of the research on the knowledge production of advanced countries, along with a handful of studies about the knowledge production of latecomers. Recent changes in the patterns of knowledge production in latecomer countries provoke the deeper understanding about the underlying mechanisms of ongoing change. Therefore, this paper explores the patterns of knowledge production activities in latecomers by analyzing scientific and engineering capabilities using empirical evidence from Korea. The results suggest that the patterns of accumulation of knowledge production in Korea gradually evolved from engineering to scientific activities. Important policy implications can be drawn from the findings for supporting scientific and engineering research activity in the latecomers in general and NIEs in particular.

Keywords: Accumulation, Asian, Basic Research, Capabilities, Changes, Composition, Developing-Countries, Engineering, Evidence, General, Growth, Innovation, Knowledge, Knowledge Production, Korea, Mechanisms, Model, Policy, Publications, Recent, Research, Science, Science and Technology Policy, Scientific Activities, South Korea, Structure, Taiwan, Technology, Trend, Understanding, World

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Full Text: [2013\Scientometrics94, 651.pdf](2013/Scientometrics94,%20651.pdf)

Abstract: Since machine-readable documents have become widespread, some recent studies have proposed retrieval methods using a combination of citation linkage and its context. In the case of co-citation linkage, there have been attempts to discern ‘strong’ co-citations from ‘weak’ ones by examining the positions of citations in a document. However, this promising concept has not yet been sufficiently evaluated, and it remains unclear whether search performance is significantly improved. Therefore, this paper explores the effects of using co-citation context more deeply and more widely by comparing the search performance of six retrieval methods, which differ as to whether co-citation context and normalization using cited frequency are used. For empirically evaluating the effects, a special test collection was created from CiteSeer Metadata, and the search performances of the six retrieval methods were compared by two IR metrics (AP and nDCG). The main conclusions of this paper are: (1) co-citation context has a positive effect on co-citation searching; (2) the normalization technique using cited frequency is useful for context-based co-citation searching; (3) approaches of using co-citation context tend to affect the characteristics of search performance.

Keywords: Characteristics, Citation, Citation Analysis, Citation Searching, Citations, Citeseer, Citing Statements, Co-Citation, Co-Citation Context, Cocitation, Collection, Computer Recognition, Context, Document-Retrieval, Effects, Indexes, Indicators, Information-Retrieval, IR, Linkage, Methods, Metrics, Normalization, Paper, Performance, Recent, Science Literature, Scientific Papers, Similar Document Search

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Full Text: [2013\Scientometrics94, 675.pdf](2013/Scientometrics94,%20675.pdf)

Abstract: Metrics of success or impact in academia may do more harm than good. To explore the value of citations, the reported efficacy of treatments in ecology and evolution from close to 1,500 publications was examined. If citation behavior is rationale, i.e. studies that successfully applied a treatment and detected greater biological effects are cited more frequently, then we predict that larger effect sizes increases study relative citation rates. This prediction was not supported. Citations are likely thus a poor proxy for the quantitative merit of a given treatment in ecology and evolutionary biology-unlike evidence-based medicine wherein the success of a drug or treatment on human health is one of the critical attributes. Impact factor of the journal is a broader metric, as one would expect, but it also unrelated to the mean effect sizes for the respective populations of publications. The interpretation by the authors of the treatment effects within each study differed depending on whether the hypothesis was supported or rejected. Significantly larger effect sizes were associated with rejection of a hypothesis. This suggests that only the most rigorous studies reporting negative results are published or that authors set a higher burden of proof in rejecting a hypothesis. The former is likely true to a major extent since only 29 % of the studies rejected the hypotheses tested. These findings indicate that the use of citations to identify important papers in this specific discipline-at least in terms of designing a new experiment or contrasting treatments-is of limited value.

Keywords: Authors, Behavior, Biological, Biology, Burden, Case Study, Citation, Citation Rates, Citations, Drug, Ecology, Effect Size, Effects, Efficacy, Evidence Based, Evidence Based Medicine, Evidence-Based, Evidence-Based Medicine, Evolution, Evolutionary Biology, Experiment, Health, Human, Human Health, Hypothesis Testing, Impact, Impact Factor, Impact Factors, Journal, Medicine, Metrics, Papers, Populations, Prediction, Publications, Rates, Rejection, Reporting, Treatment, Treatments, Value

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Full Text: [2013\Scientometrics94, 683.pdf](2013/Scientometrics94,%20683.pdf)

Abstract: the article introduces a relational input-output model for the productivity analysis of university research. The comparative analyses focus on top university research in hard sciences from 4 East Asian countries (Hong Kong, Singapore, South Korea, Taiwan) and 4 North European countries (Denmark, Finland, Norway, Sweden), universities of which get altogether 95 recognitions in the HEEACT Top 300 rankings in the Natural Sciences (Sci), Technology (Tec) or Clinical Medicine (Med). According to productivity ratings (A(0), A, A(+), A(++)), Taiwan receives 10 A(++) ratings (Sci 5, Tec 5), Sweden 9 (Sci 4, Med 4, Tec 1) and Hong Kong 9 (Tec 4, Med 2, Sci 1). The smallest numbers of A(++) ratings are found in Norway, 1 (Med) and Finland 3 (all in Med). The only university with an A(++) rating in the top of all three fields is the National University of Singapore. The Pohang University of Science and Technology (South Korea) and the National Tsing Hua University (Taiwan) are exceptionally productive in Sci and Tec; Karolinska Institutet (Sweden) and the University of Helsinki (Finland) belong to the top in Med. Even though Northern European countries are ranked higher in the ‘knowledge economy indicators’, East Asians fare better by indicators of learning outcomes and by productivity of university research in Natural Sciences and Technology; North European countries are stronger in Clinical Medicine.

Keywords: Analyses, Analysis, Asian, Comparison, Denmark, Eastern Asia, Economy, Finland, Hard Sciences, Hong Kong, Indicators, Input-Output, Input-Output Analysis, Institutions, Knowledge, Korea, Learning, Medicine, Model, North, Northern Europe, Norway, Outcomes, Productivity, Productivity of University Research, Ranking, Rankings, Research, Research Performance By Field, Science, Sciences, Singapore, South Korea, Sweden, Taiwan, Technology, Top 300 Universities, Universities, University, University Rankings

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Full Text: [2013\Scientometrics94, 701.pdf](2013/Scientometrics94,%20701.pdf)

Abstract: Negative results are commonly assumed to attract fewer readers and citations, which would explain why journals in most disciplines tend to publish too many positive and statistically significant findings. This study verified this assumption by counting the citation frequencies of papers that, having declared to “test” a hypothesis, reported a “positive” (full or partial) or a “negative” (null or negative) support. Controlling for various confounders, positive results were cited on average 32 % more often. The citation advantage, however, was unequally distributed across disciplines (classified as in the Essential Science Indicators database). Using Space Science as the reference category, the citation differential was positive and formally statistically significant only in Neuroscience & Behaviour, Molecular Biology & Genetics, Clinical Medicine, and Plant and Animal Science. Overall, the effect was significantly higher amongst applied disciplines, and in the biological compared to the physical and the social sciences. The citation differential was not a significant predictor of the actual frequency of positive results amongst the 20 broad disciplines considered. Although future studies should attempt more fine-grained assessments, these results suggest that publication bias may have different causes and require different solutions depending on the field considered.

Keywords: Assessments, Bias, Biological, Biology, Citation, Citations, Competition, Database, Distributed, Ecology, Field, File-Drawer, Impact, Indicators, Journals, Medicine, Papers, Physical, Publication, Publication Bias, Reference, Research Evaluation, Science, Sciences, Scientists, Social, Social Sciences, Solutions, Support

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Full Text: [2013\Scientometrics94, 711.pdf](2013/Scientometrics94,%20711.pdf)

Abstract: Analyses the growth and development of pheromone biology research productivity in India in terms of publication output as reflected in Science Citation Index (SCI) for the period 1978-2008. It includes 330 publications from India, including 285 articles, 22 notes, 18 reviews, 4 letters and 1 conference paper, from 200 institutions. About 9.4 % of publications is contributed by Indian Institute of Technology, Kanpur followed by Bhabha Atomic Research Centre, Bombay (7.27 %). All the papers published by Indian researchers have appeared in journals with impact factors between 0.20 and 4.14. About 24.24 % of authors contributed single articles. The growth rate of publications varied from 0.30 to 9.09 % per year. The annual growth rate was highest in the year 2006 at 9.09 %. The study reveals that the output of pheromone biology research in India has gradually increased over the years.

Keywords: Authors, Biology, Case Study, Citation, Citation Patterns, Development, Estrus, Global Citation Core, Growth, Growth Rate, Histcite, Impact, Impact Factors, India, Institutions, Journal Citation Reports, Journals, Papers, Pheromone Biology, Productivity, Publication, Publications, Research, Research Output, Research Productivity, Reviews, SCI, Science, Science Citation Index, Technology

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Full Text: [2013\Scientometrics94, 721.pdf](2013/Scientometrics94,%20721.pdf)

Abstract: the study compares the coverage, ranking, impact and subject categorization of Library and Information Science journals, specifically, 79 titles based on data from Web of Science (WoS) and 128 titles from Scopus. Comparisons were made based on prestige factor scores reported in 2010 Journal Citation Reports and SCImago Journal Rank 2010 and noting the change in ranking when the differences are calculated. The rank normalized impact factor and the Library of Congress Classification System were used to compare impact rankings and subject categorization. There was high degree of similarity in rank normalized impact factor of titles in both WoS and Scopus databases. The searches found 162 journals, with 45 journals appearing in both databases. The rankings obtained for normalized impact scores confirm higher impact scores for titles covered in Scopus because of its larger coverage of titles. There was mismatch of subject categorization among 34 journal titles in both databases and 22 of the titles were not classified under Z subject headings in the Library of Congress catalogue. The results revealed the changes in journal title rankings when normalized, and the categorization of some journal titles in these databases might be incorrect.

Keywords: Bibliometrics, Changes, Citation, Classification, Comparison, Coverage, Data, Databases, Diffusion Factors, Factor Scores, Impact, Impact Factor, Index, Information, ISI, Journal, Journal Citation Reports, Journal Impact, Journal Ranking, Journal Studies, Journals, Li, Library, Library and Information Science, Library and Information Science Journals, Lis, Lis Journals, Of-Science, Rank, Rank Normalized Impact Factor, Ranking, Rankings, Science, Scientific Impact, Scimago, Scopus, Similarity, Web of Science, WOS

Notes: CCountry

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Full Text: [2013\Scientometrics94, 741.pdf](2013/Scientometrics94,%20741.pdf)

Abstract: the study examines India’s performance on antioxidants using several quantitative measures such as India’s global publication share, rank, growth rate and citation quality, its publication share in various sub-fields in terms of national share utilising last 10 year’s (2001-10) publications data obtained from the Scopus database. We have also determined Indian share with international collaborative papers at the national level as well as is major international collaborative partners, besides analysing the characteristics of its high productivity institutions, authors and high-cited papers, etc.

Keywords: Analysis, Antioxidants, Authors, Bibliometric, Bibliometric Analysis, Characteristics, Citation, Data, Database, Extracts, Free-Radicals, Global, Growth, Growth Rate, Human-Disease, Indian Contribution, Institutions, International, L., Mapping, Papers, Performance, Productivity, Publication, Publications, Quality, Rank, Scopus, Tissue-Injury

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Full Text: [2013\Scientometrics94, 755.pdf](2013/Scientometrics94,%20755.pdf)

Abstract: This research examines the association of co-authorship network centrality (degree, closeness and betweeness) and the academic research performance of chemistry researchers in Pakistan. Higher centrality in the co-authorship network is hypothesized to be positively related to performance, in terms of academic publication, with gender having a positive moderating effect for female researchers. Using social network analysis, this study examines the bibliometric data (2002-2009) from ISI Web of Science for the co-authorship network of 2,027 Pakistani authors publishing in the field of Chemistry. A non-temporal analysis using node-level regression reports positive impact of degree and closeness and negative impact of betweeness centrality on research performance. Temporal analysis using node-level regression (time 1: 2002-2005; time 2: 2006-2009) confirms the direction of caUSAlity and demonstrates the positive association of degree and closeness centrality on research performance. Findings indicate a moderating role of gender on the relationship of both degree and closeness centrality with research performance for Pakistani female authors.

Keywords: Analysis, Association, Authors, Betweenness, Bibliometric, CaUSAlity, Chemistry, Co-Authorship, Co-Authorship Network, Coauthorship, Coauthorship Network, Collaboration Networks, Data, Embeddedness, Female, Field, Gender, Impact, Innovation, ISI, ISI Web of Science, Network, Network Analysis, Network Centrality, Node-Level Regression, Non-Temporal and Temporal Analysis, Organization, Pakistan, Patterns, Performance, Perspective, Publication, Publishing, Regression, Research, Research Performance, Role, Science, Scientific Collaboration, Social, Social Network Analysis, Social Networks, Web of Science

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Full Text: [2013\Scientometrics94, 777.pdf](2013/Scientometrics94,%20777.pdf)

Abstract: the definition assigned to self-citations is nontrivial. This decision can affect research outputs in a number of ways. The current paper considers the self-citation definition used by the Web of Science, and compares this with an alternative definition, advanced in the present study, within the context of the work of an individual researcher. A discussion follows.

Keywords: Alternative, Bibliometrics, Citation Indicators, Context, Decision, Research, Research Outputs, Science, Self-Citation, Self-Citations, Web of Science, Work

? Zong, Q.J., Shen, H.Z., Yuan, Q.J., Hu, X.W., Hou, Z.P. and Deng, S.G. (2013), Doctoral dissertations of Library and Information Science in China: A co-word analysis. *Scientometrics*, **94** (2), 781-799.

Full Text: [2013\Scientometrics94, 781.pdf](2013/Scientometrics94,%20781.pdf)

Abstract: the aim of this paper is to map the intellectual structure of research in doctoral dissertations of Library and Information Science in China. By use of Co-word analysis, including cluster analysis, strategic diagram and social network analysis, we studied the internal and external structure and relationship of research fields in doctoral dissertations of Library and Information Science in China. Data was collected, during the period of 1994-2011, from six public dissertation databases and ten degree databases provided by the universities/institutes which have been authorized to grant doctoral degrees of Library and Information Science in China. The results show that Wuhan University is the most important institution of doctoral education in LIS in China. The focuses of researches, including information resource, ontology, semantic web, semantic search, electronic government, information resource management, knowledge management, knowledge innovation, knowledge sharing, knowledge organization, network, information service, information need and digital library. The research fields of LIS doctoral dissertations in China are varied. Many of these research fields are still immature; accordingly, the well-developed and core research fields are fewer.

Keywords: Analysis, China, Cluster, Cluster Analysis, Co-Word Analysis, Databases, Discovery, Education, Information, Information Service, Innovation, Intellectual Structure, Knowledge, Knowledge Management, Latent Dirichlet Allocation, Li, Library and Information Science, LIS, LIS Doctoral Dissertations in China, Management, Maps, Network, Network Analysis, Ontology, Organization, Perspective, PhD Theses, Public, Research, Resource Management, Retrieval, Science, Scientometrics, Service, Social, Social Network Analysis, Strategic, Strategic Diagram, Structure, Topic Model, Trends, University, Web

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Full Text: [2013\Scientometrics94, 801.pdf](2013/Scientometrics94,%20801.pdf)

Abstract: Do the best Italian academics move abroad? What is the academic productivity of an Italian researcher working in Italy compared with one working abroad? Does academic productivity depend on their well-being at work? the aim of this study is to find explanations for these questions and to demonstrate the relationship that exists between academic productivity and organizational well-being and work, both for researchers who are Italian emigrants abroad (project IRA) and for those who remain in Italy (IRI project).This goal was achieved through two surveys. Where there is an atmosphere of a wellness organization, it creates a productive work environment (vision abroad); conversely, a poor working environment that is associated with an organizational system that is below the average level negatively affects the overall academic productivity (in Italy). We can confirm that working environments with better organizational climate produce more productive academics.

Keywords: Academic Productivity, Academics, Atmosphere, Climate, Effects of Work Wellbeing, Environment, Gender, Italy, Organization, Organizational, Productivity, Scientists, Surveys, Well-Being, Work, Work Environment, Working Environment

? Lancho-Barrantes, B.S., Guerrero-Bote, V.P. and de Moya-Anegon, F. (2013), Citation increments between collaborating countries. *Scientometrics*, **94** (3), 817-831.

Full Text: [2013\Scientometrics94, 817.pdf](2013/Scientometrics94,%20817.pdf)

Abstract: International collaboration enhances citation impact. Collaborating with a country increments the citations received from it. But some collaborating countries provide greater increments in this sense than others, and likewise some countries receive greater increments from their partner countries than others. We observed a certain tendency for these increments to be lower in countries with greater impacts. Also, all the countries studied had higher Domestic Impacts as a result of collaborating, although this increment was less than that obtained from other countries. Finally, there were differences in the behaviour of the countries between the various scientific disciplines, with the effects being greatest in Social Sciences, followed by Engineering.

Keywords: Articles, Behaviour, Citation, Citation Analysis, Citation Impact, Citation Increment, Citations, Co-Authorship, Collaboration, Cooperation, Country, Effects, Impact, Impacts, International Collaboration, International Scientific Collaboration, Knowledge, MAR, Networks, Partner, Patterns, Sciences, Scientific Collaboration in Subject Areas, Scientometrics, Social Sciences

? Chen, C.P., Hu, J.L. and Yang, C.H. (2013), Produce patents or journal articles? A cross-country comparison of R&D productivity change. *Scientometrics*, **94** (3), 833-849.

Full Text: [2013\Scientometrics94, 833.pdf](2013/Scientometrics94,%20833.pdf)

Abstract: This paper compares R&D productivity change across countries considering the fact that national R&D expenditure may produce multiple outputs, including patents and journal articles. Based on the concept of directional distance function and Luenberger productivity index, this paper develops a Luenberger R&D productivity change (LRC) index and then decomposes it into R&D efficiency change (catch-up effect) and R&D technical change (innovation effect). Utilizing a panel dataset of 29 countries over the 1998-2005 period to implement the empirical estimation, the results show that the R&D productivity growth is mainly attributed to the innovation effect; meanwhile, non-OECD countries have better performance on both efficiency change and technical change than their OECD counterparts. Moreover, patent-oriented R&D productivity growth serves as the main source of national R&D productivity growth than the journal article-oriented one.

Keywords: Comparison, DEA, Distance, Efficiency, Frontier, Function, Growth, Index, Innovation, Journal, Journal Articles, Mar, Patents, Performance, Productivity, R&D, R&D Productivity Change, Source

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Full Text: [2013\Scientometrics94, 851.pdf](2013/Scientometrics94,%20851.pdf)

Abstract: This paper aims to inform choice of citation time window for research evaluation, by answering three questions: (1) How accurate is it to use citation counts in short time windows to approximate total citations? (2) How does citation ageing vary by research fields, document types, publication months, and total citations? (3) Can field normalization improve the accuracy of using short citation time windows? We investigate the 31-year life time non-self-citation processes of all Thomson Reuters Web of Science journal papers published in 1980. The correlation between non-self-citation counts in each time window and total non-self-citations in all 31 years is calculated, and it is lower for more highly cited papers than less highly cited ones. There are significant differences in citation ageing between different research fields, document types, total citation counts, and publication months. However, the within group differences are more striking; many papers in the slowest ageing field may still age faster than many papers in the fastest ageing field. Furthermore, field normalization cannot improve the accuracy of using short citation time windows. Implications and recommendations for choosing adequate citation time windows are discussed.

Keywords: Accuracy, Age, Ageing, Articles, Caveats, Choice, Citation, Citation Ageing, Citation Counts, Citation Time Window, Citations, Correlation, Evaluation, Field, Field Normalization, Highly Cited, Highly Cited Papers, Highly-Cited, Impact, Indicators, Journal, Journals, Life, Mar, Normalization, Papers, Patterns, Productivity Rankings, Publication, Recommendations, Research, Research Evaluation, Research Impact, Science, Scientific Literature, Sensitivity-Analysis, Thomson Reuters, Thomson-Reuters, Web of Science

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Full Text: [2013\Scientometrics94, 873.pdf](2013/Scientometrics94,%20873.pdf)

Abstract: the citer h-Index of a researcher (introduced by Ajiferuke and Wolfram) was found to have a strong linear relationship with the h-Index of this researcher. This finding of Franceschini, Maisano, Perotti and Proto also revealed, experimentally, that the slope of this straight line (passing through the origin) is strictly larger than one. In this paper we present a rationale for this empirical result of this author on the relation between the h-Index before and after a transformation of the citation data.

Keywords: Citation, Citer h-Index, Data, h Index, h-Index, Hirsch Index, Impact, Mar, Origin, Transformation

? Wang, L.L., Notten, A. and Surpatean, A. (2013), Interdisciplinarity of nano research fields: A keyword mining approach. *Scientometrics*, **94** (3), 877-892.

Full Text: [2013\Scientometrics94, 877.pdf](2013/Scientometrics94,%20877.pdf)

Abstract: Using a keyword mining approach, this paper explores the interdisciplinary and integrative dynamics in five nano research fields. We argue that the general trend of integration in nano research fields is converging in the long run, although the degree of this convergence depends greatly on the indicators one chooses. Our results show that nano technologies applied in the five studied nano fields become more diverse over time. One field learns more and more related technologies from others. The publication and citation analysis also proves that nano technology has developed to a relatively mature stage and has become a standardized and codified technology.

Keywords: Analysis, Approach, Citation, Citation Analysis, Citation Flows, Collaboration, Converging Technologies, Cross-Disciplinary, Dynamics, Field, General, Indicators, Institutional Cooperation, Integration, Integrative, Interdisciplinarity, Interdisciplinary, Mar, Mining, Modern Science, Nanoscale, Nanoscience, Nanoscience and Nanotechnology, Nanotechnology, Patterns, Publication, Publication Analysis, Research, Research Fields, Rough Set Theory, Rough Sets, Technologies, Technology, Trend, Vocabulary Mining

? Manana-Rodriguez, J. and Gimenez-Toledo, E. (2013), Scholarly publishing in social sciences and humanities, associated probabilities of belonging and its spectrum: A quantitative approach for the Spanish case. *Scientometrics*, **94** (3), 893-910.

Full Text: [2013\Scientometrics94, 893.pdf](2013/Scientometrics94,%20893.pdf)

Abstract: In this study, differences between Spanish social sciences and humanities journals are examined using a quantitative approach. Firstly, using a set of 144 psychology journals and 69 philosophy journals, statistically significant differences have been identified in 11 characteristics/indicators. Secondly, a logistic regression was carried out on the dichotomous response variable “belonging to the social sciences” or “belonging to the humanities”, on 777 Spanish social sciences journals, 563 humanities journals that have been previously classified and 17 existing predictor variables. The regression model reached an overall correct classification of 78.8 %. The explanatory variables considered in the model are analyzed and interpreted taking into account the change in the odds ratio and the indication of their contribution to the correct classification rate in the two response values. Finally the average associated probability of belonging to the social sciences group is calculated for each discipline and reflected in a spectrum of the probability of belonging to the social sciences or the humanities.

Keywords: Approach, Authorship, Classification, Classification of Knowledge, Humanities, Indication, Journals, Logistic Regression, Mar, Model, Odds Ratio, Output, Patterns, Philosophy, Psychology, Psychology Journals, Publishing, Quality Indicators, Regression, Regression Model, Research Performance, Sciences, Social, Social Sciences

? Megnigbeto, E. (2013), Scientific publishing in Benin as seen from Scopus. *Scientometrics*, **94** (3), 911-928.

Full Text: [2013\Scientometrics94, 911.pdf](2013/Scientometrics94,%20911.pdf)

Abstract: 2,215 publications covering the period going from 1959 to 2011, with at least one author affiliated to Benin, were searched from Scopus and analyzed. These publications were co-authored by 10,225 scientists that correspond to 5,122 single authors in several disciplines of which the most prolific are Agricultural and biological science, and Medicine. None of the Benin-based journals were indexed in Scopus; approximately 5 % of the publications appeared in African reviews covered by Scopus. Researchers’ home institutions are mainly the University of Abomey-Calavi, its laboratories and some international organizations or cooperation agencies. The private universities were not mentioned in the affiliations list. The yearly percentage of international collaboration is over 80 %; France, the former colonial power is the main research partner whereas the West African region is the main partner at the African continent level; others partners are from Europe and America continents. This study suggests the setting up of a national database to index the domestic scientific literature; it should contribute to the improvement of the national research output.

Keywords: Authors, Benin, Biological, Collaboration, Continent, Cooperation, Database, Europe, France, Improvement, Index, Informetrics, Institutions, International, International Collaboration, Journals, Literature, Mar, Medicine, Partner, Power, Publications, Publishing, Region, Research, Research Assessment, Research Output, Research Policy, Researchers, Reviews, Science, Scientific Literature, Scientific Research, Scientists, Scopus, Social-Sciences, Universities, University

? Moed, H.F., Aisati, M. and Plume, A. (2013), Studying scientific migration in Scopus. *Scientometrics*, **94** (3), 929-942.

Full Text: [2013\Scientometrics94, 929.pdf](2013/Scientometrics94,%20929.pdf)

Abstract: An exploration is presented of Scopus as a data source for the study of international scientific migration or mobility for five study countries: Germany, Italy, the Netherlands, UK and USA. It is argued that Scopus author-affiliation linking and author profiling are valuable, crucial tools in the study of this phenomenon. It was found that the UK has the largest degree of outward international migration, followed by the Netherlands, and the USA the lowest. Language similarity between countries is a more important factor in international migration than it is in international co-authorship. During 1999-2010 the Netherlands showed a positive “migration balance” with the UK and a negative one with Germany, suggesting that in the Netherlands there were more Ph.D. students from Germany than there were from the UK, or that for Dutch post docs stage periods in the UK were more attractive than those in Germany. Comparison of bibliometric indicators with OECD statistics provided evidence that differences exist in the way the various study countries measured their number of researchers. The authors conclude that a bibliometric study of scientific migration using Scopus is feasible and provides significant outcomes. They make suggestions for further research.

Keywords: Author Profiling, Author-Affiliation Links, Authors, Bibliometric, Bibliometric Indicators, Bibliometric Study, Brain Circulation, Co-Authorship, Coauthorship, Comparison, Data, Dutch, Evidence, Germany, Indicators, International, Italy, Knowledge, Language, Mar, Migration, Mobility, OECD Input Statistics, Outcomes, Profiling, Research, Scientific Migration, Scopus, Similarity, Source, Statistics, Students, the Netherlands, UK, USA

? Guilera, G., Barrios, M. and Gomez-Benito, J. (2013), Meta-analysis in psychology: A bibliometric study. *Scientometrics*, **94** (3), 943-954.

Full Text: [2013\Scientometrics94, 943.pdf](2013/Scientometrics94,%20943.pdf)

Abstract: Meta-analysis refers to the statistical methods used in research synthesis for combining and integrating results from individual studies. The present study draws on the strengths of bibliometric methods in order to offer an overview of meta-analytic research activity in psychology, as well as to characterize its most important aspects and their evolution over time. A total of 2,874 articles published in scientific journals were identified and standard bibliometric indicators (e.g., number of articles, productivity by country, and national and international collaborations) and laws (e.g., Price’s and Lotka’s law) were applied to these data. The results suggest a clear upward trend not only in the number of articles published since the 1970s (with a peak of productivity in 2010), but also in both the number of authors by article (, SD = 1.53) and internationalization, especially since the 1990s. The interest in meta-analysis extends to many authors (n = 5,445), countries (n = 44) and scientific journals (n = 394), as well as to several areas of psychology that mostly fit a growing exponential model. In future studies it would be interesting to explore the citing behaviour and patterns in the meta-analysis literature.

Keywords: Authors, Behaviour, Bibliometric, Bibliometric Indicators, Bibliometric Methods, Bibliometric Study, Bibliometrics, Bradford Law, Collaborations, Combining, Country, Data, Evolution, Impact, Indicators, International, Internationalization, Journals, Law, Laws, Literature, Lotka’s Law, Mar, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Model, Productivity, Psychology, Research, Scientific Journals, Standard, Synthesis, Trend, Validity

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Full Text: [2013\Scientometrics94, 955.pdf](2013/Scientometrics94,%20955.pdf)

Abstract: Number of published medical/dental articles is growing at an exponential rate; this makes it difficult to collect all these resources and provide an organized and valuable/useful document. Systematic reviews and meta-analyses as high-level evidences are considered remedies for this concern. Continuous alterations in all fields of dental sciences necessitate the more of such high-level evidences. This study aimed on the quantity of endodontic systematic reviews and meta-analyses so far. This study began with targeted electronic searches of PubMed, and Cochrane library databases about the present systematic review and meta-analysis articles in endodontics within 2001-Jan 2012. Overall, 49 studies were systematic review and meta-analysis, the first comprised 34 articles and the latter contained seven articles; the remained eight studies had utilized both of them. Performing a topic sorting, 22 articles were about materials and techniques, 12 about pre- and post-treatment considerations, four about single/multiple visits, six with perio-prostho themes, and the five remained were of other topics. Limited number of 49 high-level evidences does not meet the expectation from endodontics as a boundless and progressive field of science. Therefore, more comprehensive and all-inclusive studies of systematic reviews and meta-analyses are compulsory in endodontics. The more the scientific-based endodontic practice, the more the high-level evidence based publications with good systematic reviews and favorable meta-analysis.

Keywords: Databases, Endodontic, Evidence, Evidence Based, Evidence Based Endodontics, Evidence-Based, Field, First, Mar, Meta Analysis, Meta-Analysis, Metaanalysis, Practice, Publications, Pubmed, Resources, Review, Reviews, Science, Sciences, Systematic Review, Systematic Reviews, Techniques, Topic

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Full Text: [2013\Scientometrics94, 963.pdf](2013/Scientometrics94,%20963.pdf)

Abstract: the study of international technology spillover focuses on bilateral relationship between host country and home country, and the study of transnational technology network focuses on the position and power of individual country in a network. Introducing the network model and information theory into the research framework, we propose a new measure of international technology spillover in this present article, in which the bilateral relationship was transformed to multilateral relationship between countries, and network features at the whole network level were investigated instead of at the individual level. By using data from CHELEM-International Trade Database, we measure three transnational spillover networks in the high-tech field from 1979 to 2009, and analyze the results of various technology networks at different time points.

Keywords: Analysis, Approach, Composite, Country, Data, Diffusion, Field, Flow, Framework, Host, Information, Information Theory, International, Knowledge Spillovers, Mar, Measure, Model, Network, Network Analysis, Networks, Patent Citations, Power, Productivity, Research, Research Framework, Research-And-Development, Technology, Technology Spillover, Theory, Trade

? Ke, W.M. (2013), A fitness model for scholarly impact analysis. *Scientometrics*, **94** (3), 981-998.

Full Text: [2013\Scientometrics94, 981.pdf](2013/Scientometrics94,%20981.pdf)

Abstract: We propose a model to analyze citation growth and influences of fitness (competitiveness) factors in an evolving citation network. Applying the proposed method to modeling citations to papers and scholars in the InfoVis 2004 data, a benchmark collection about a 31-year history of information visualization, leads to findings consistent with citation distributions in general and observations of the domain in particular. Fitness variables based on prior impacts and the time factor have significant influences on citation outcomes. We find considerably large effect sizes from the fitness modeling, which suggest inevitable bias in citation analysis due to these factors. While raw citation scores offer little insight into the growth of InfoVis, normalization of the scores by influences of time and prior fitness offers a reasonable depiction of the field’s development. The analysis demonstrates the proposed model’s ability to produce results consistent with observed data and to support meaningful comparison of citation scores over time.

Keywords: Age, Analysis, Bias, Citation, Citation Analysis, Citation Network, Citations, Collection, Comparison, Data, Development, Fitness, General, Growth, History, Impact, Impact Analysis, Impacts, Information, Information Visualization, Mar, Model, Modeling, Network, Networks, Normalization, Normalized Citation Scores, Outcomes, Papers, Preferential Attachment, Scholarly Impact, Science, Support, Visualization

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Full Text: [2013\Scientometrics94, 999.pdf](2013/Scientometrics94,%20999.pdf)

Abstract: There are fewer female than male professors in the world (21-79 distribution in the country of examination). The unequal distribution of male and female professors has usually been taken to indicate that men and women have not had equal opportunities to achieve professorship. At the same time, the increase in the proportion of female professors has been taken as evidence that academia is becoming more gender equal. It is possible that both of these assumptions are flawed, and that the gender distribution among professors is the result of demographic inertia, i.e., affected by the previous distribution of men and women within the system, and how fast the distribution has changed.This study examines whether the chances, for men and women, of becoming a full professor changes over time, and whether gender differences may possibly depend on early career events. It concludes that women are significantly less likely than men to become professors and that this situation is not improving over time. In spite of policies that have tried to increase the proportion of female professors, the chances of a woman becoming a professor do not change over time. We also show that these gender differences in promotion rate can be attributed to early career events.

Keywords: Academic Career, Assumptions, Changes, Country, Distribution, Events, Evidence, Examination, Faculty, Female, Female Researchers, Gender, Gender Differences, Gender-Differences, Male, Mar, Men, Policies, Professor, Promotion, Promotion Rate, Sweden, Universities, University, Women, World

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Full Text: [2013\Scientometrics94, 1007.pdf](2013/Scientometrics94,%201007.pdf)

Abstract: the diaspora of a less developed country, who reside outside their country of origin, can contribute to the parent country through financial or knowledge transfers, connections, or on return of talented persons. The knowledgebase of the diasporas is therefore of interest to the parent country. Scientific publications of the Indian diaspora are an indicator of the existing knowledge base of Indians overseas. Samples drawn from Web of Science (1986-2010), using a selected list of unique Indian names, are analyzed with the objective of comparing and identifying distinguishing features of the diaspora. While both Indian and diaspora samples have increased over time, publication output from Indians overseas has increased more rapidly. English was by far the most frequently used language. A major difference was found in the type of publication with many more proceedings papers and meeting abstracts by the diaspora, showing increasing importance of rapid publication of novel results. Number of articles was about the same in both samples, but a more detailed look at the top 100 journals qualifies the nature of the journal space used, which again shows major differences. Articles in Nature and Science confirm the differences in the high impact range. We end with a discussion of limitations which includes effects of changing database coverage with time.

Keywords: Articles, Country, Country of Origin, Coverage, Database, Diaspora, Effects, Impact, India, Indicator, Journal, Journals, Knowledge, Knowledge Base, Language, Mar, Origin, Papers, Publication, Publications, Research, Science, Science and Technology, Scientific Publications, Scientists, Web of Science

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Full Text: [2013\Scientometrics94, 2021.pdf](2013/Scientometrics94,%202021.pdf)

Abstract: the global development of solar photovoltaic power is seen as a potentially major technology in the pursuit of alternative energy sources. Given its evolutionary nature, in terms of both technology and the market, there is some discernible divergence between the innovative capability and production capacity of certain countries. We set out in the present study to explore this issue by examining the productive and innovative performance of six countries covering the period from 1996 to 2006. Our empirical analyses, at both country level and firm level, provide a strong indication that such tendency of incongruence possibly comes as a result of differences in the business strategies adopted by the various countries, as well as the extent of their technological advantage.

Keywords: Alternative, Alternative Energy, Analyses, Asia, Business, Capacity, Country, Development, Energy, Firms, Global, Indication, Indicators, Innovation, Mar, Market, Patent, Patents, Performance, Photovoltaic, Power, Production, Solar Photovoltaic (PV) Market, Sources, Sustainable Competitive Advantage, Technology

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Full Text: [2013\Scientometrics94, 1037.pdf](2013/Scientometrics94,%201037.pdf)

Abstract: Terahertz technology is one of the most promising research areas in the 21st century. In this work, we intend to compare the research status quo on terahertz technology between 1990 and 2010 using knowledge domain visualization techniques. Our data consists of 633 patents retrieved from Aureka management platform and 10,344 journal articles indexed in the ISI web of knowledge. Our analysis is a combination of two information visualization tools for analysis, Aureka and CiteSpace. Aureka is allowed for the analysis of patents filed/granted each year, priority country, inventors, assignees, citation counting, and cluster analysis, while networks of co-authors, countries, institutions, document co-citation networks and document co-citation clusters, are performed by CiteSpace. This research provides a comprehensive domain visualization map of innovation and knowledge in the area of terahertz technology. Our result shows that Aureka and CiteSpace are two promising visualization approaches to analyze patents and papers in any given field.

Keywords: Analysis, Aureka, Citation, Citespace, Cluster, Cluster Analysis, Co-Authors, Co-Citation, Cocitation, Comparative Study, Country, Data, Domain Visualization, Field, Generation, Information, Information Visualization, Innovation, Institutions, ISI, Journal, Journal Articles, Knowledge, Management, Mar, Networks, Optical Rectification, Papers, Patent, Patents, Quantum Cascade Laser, Radiation, Research, Science, Scientific Literature, Scientometrics, Spectroscopy, Techniques, Technology, Terahertz, Thomson Innovation, Visualization, Web, Work

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Full Text: [2013\Scientometrics94, 1057.pdf](2013/Scientometrics94,%201057.pdf)

Abstract: Most governmental research assessment exercises do not use citation data for the Social Sciences and Humanities as Web of Science or Scopus coverage in these disciplines is considered to be insufficient. We therefore assess to what extent Google Scholar can be used as an alternative source of citation data. In order to provide a credible alternative, Google Scholar needs to be stable over time, display comprehensive coverage, and provide non-biased comparisons across disciplines. This article assesses these conditions through a longitudinal study of 20 Nobel Prize winners in Chemistry, Economics, Medicine and Physics. Our results indicate that Google Scholar displays considerable stability over time. However, coverage for disciplines that have traditionally been poorly represented in Google Scholar (Chemistry and Physics) is increasing rapidly. Google Scholar’s coverage is also comprehensive; all of the 800 most cited publications by our Nobelists can be located in Google Scholar, although in four cases there are some problems with the results. Finally, we argue that Google Scholar might provide a less biased comparison across disciplines than the Web of Science. The use of Google Scholar might therefore redress the traditionally disadvantaged position of the Social Sciences in citation analysis.

Keywords: Alternative, Analysis, Assessment, Citation, Citation Analysis, Comparison, Coverage, Data, Economics, Exercises, Google, Google Scholar, h-Index, Humanities, Longitudinal, Mar, Medicine, Needs, Physics, Publications, Research, Research Assessment, Science, Scientists, Scopus, Social Sciences, Social-Sciences, Source, Stability, Web, Web of Science

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Full Text: [2013\Scientometrics94, 1077.pdf](2013/Scientometrics94,%201077.pdf)

Abstract: This study focuses on analyzing the driving factors of government and industry funding and the effects of such funding on academic innovation performance in the Taiwan’s university-industry-government (UIG) collaboration system. This research defines the relationships of the triple helix in the UIG collaboration system as a complex intertwined combination that covers demography, financial support, and innovation performance. These relationships are simultaneously modeled by a multivariate technique, structural equation modeling, to investigate the caUSAl-effect relationship among the antecedent factors on the subsequent ones. This model will enable us to investigate three questions: (1) Is government funding or industry funding tied to university demography, to university innovation performance, or to both? (2) Does government funding lead industry funding? (3) Is government funding or industry funding conducive to more university innovation performance? In addition to verifying the model against all participating universities in the UIG collaboration, we also categorize them into two tiers in terms of whether or not universities have been selected for the incentive programs of UIG collaboration so as to explore groups’ differences.

Keywords: Collaboration, Demography, Driving, Dynamics, Effects, Faculty, Financial Support, Funding, Government Funding, Groups, Innovation, Knowledge-Based Innovation, Lead, Management, Mar, Measurement Error, Model, Modeling, Multivariate, Partial Least Squares Estimation, Participation, Patents, Performance, PLS, Research, Structural Equation Modeling, Structural Equation Models, Support, Triple Helix, Triple-Helix Indicators, Universities, University, University-Industry-Government Collaboration

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Full Text: [2013\Scientometrics94, 1099.pdf](2013/Scientometrics94,%201099.pdf)

Abstract: It is shown that the generalized Pareto distribution gives a good fit to citable documents, citations above a threshold and also for the h-Index of countries. The h-Index has a finite second moment, while the citable documents and citations are extremely heavy tailed with the estimated index of citations less than one. The relationship derived between the h-Index, citation and number of publications is also investigated and the model proposed by Glänzel confirmed empirically.

Keywords: Citation, Citations, Distribution, Generalized Pareto Distribution, h Index, h-Index, Hirsch-Index, Index, MAR, Model, Pareto, Pareto Distribution, Publications, Research, Research Outputs, Threshold

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Full Text: [2013\Scientometrics94, 1111.pdf](2013/Scientometrics94,%201111.pdf)

Abstract: Discovering and assessing fields of expertise in emerging technologies from patent data is not straightforward. First, patent classification in an emerging technology being far from complete, the definitions of the various applications of its inventions are embedded within communities of practice. Because patents must contain full record of prior art, co-citation networks can, in theory, be used to identify and delineate the inventive effort of these communities of practice. However, the use patent citations for the purpose of measuring technological relatedness is not obvious because they can be added by examiners. Second, the assessment of the development stage of emerging industries has been mostly done through simple patent counts. Because patents are not all valuable, a better way of evaluating an industry’s stage of development would be to use multiple patent quality metrics as well as economic activity agglomeration indicators. The purpose of this article is to validate the use of (1) patent citations as indicators of technological relatedness, and (2) multiple indicators for assessing an industry’s development stage. Greedy modularity optimization of the ‘Canadian-made’ nanotechnology patent co-citation network shows that patent citations can effectively be used as indicators of technological relatedness. Furthermore, the use of multiple patent quality and economic agglomeration indicators offers better assessment and forecasting potential than simple patent counts.

Keywords: Art, Assessing, Assessment, Citation Network Analysis, Citations, Classification, Co-Citation, Cocitation, Commercialization, Community Structure, Complete, Data, Development, Economic, Emerging Technologies, Forecasting, Indicators, Innovation, Inventions, Knowledge Discovery, Mar, Metrics, Nanomedicine, Nanotechnology, Network, Networks, Optimization, Patent, Patent Citations, Patents, Potential, Practice, Purpose, Quality, Record, S-Curve, Science, Self-Organization, Spillovers, Technologies, Technology, Theory, Trend Analysis, Us Semiconductor Industry

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Full Text: [2013\Scientometrics94, 1137.pdf](2013/Scientometrics94,%201137.pdf)

Abstract: Understanding how individual scientists build a personal portfolio of research is key to understanding outcomes on the level of scientific fields, institutions, and systems. We lack the scientometric and statistical instruments to examine the development over time of the involvement of researchers in different problem areas. In this paper we present a scientometric method to map, measure, and compare the entire corpus of individual scientists. We use this method to analyse the search strategies of 43 condensed matter physicists along their academic lifecycle. We formulate six propositions that summarise our theoretical expectations and are empirically testable: (1) a scientist’s work consists of multiple finite research trails; (2) a scientist will work in several parallel research trails; (3) a scientist’s role in research trail selection changes along the lifecycle; (4) a scientist’s portfolio will converge before it diverges; (5) the rise and fall of research trails is associated with career changes; and (6) the rise and fall of research trails is associated with the potential for reputational gain. Four propositions are confirmed, the fifth is rejected, and the sixth could not be confirmed or rejected. In combination, the results of the four confirmed propositions reveal specific search strategies along the academic lifecycle. In the PhD phase scientists work in one problem area that is often unconnected to the later portfolio. The postdoctoral phase is where scientists diversify their portfolio and their social network, entering various problem areas and abandoning low-yielding ones. A professor has a much more stable portfolio, leading the work of PhDs and postdoctoral researchers. We present an agenda for future research and discuss theoretical and policy implications.

Keywords: Academic Careers, Agenda Setting, Changes, Citation, Collaboration, Complex Adaptive System, Development, Expectations, Institutions, Lifecycle, Mapping Science, Mar, Measure, Network, Outcomes, Patterns, PhD, Policy, Potential, Problem Choice, Productivity, Professor, Research, Research-Front, Researchers, Reward System, Role, Science, Scientists, Scientometric, Search, Search Strategies, Selection, Self-Organization, Social, Star Scientists, Systems, Theoretical, Understanding, Work

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Full Text: [2013\Scientometrics94, 1161.pdf](2013/Scientometrics94,%201161.pdf)

Abstract: This paper extends Borgman’s (Communication Research 16: 583, 1989) three-facet framework (artifacts, producers, concepts) for bibliometric analyses of scholarly communication by adding a fourth gatekeepers. The four-facet framework was applied to the field of Library and Information Science to test for variations in the networks produced using operationalizations of each of these four facets independently. Fifty-eight journals from the Information Science and Library Science category in the 2008 Journal Citation Report were studied and the network proximity of these journals based on Venue-Author-Coupling (producer), journal co-citation analysis (artifact), topic analysis (concept) and interlocking editorial board membership (gatekeeper) was measured. The resulting networks were examined for potential correlation using the Quadratic Assignment Procedure. The results indicate some consensus regarding core journals, but significant differences among some networks. Holistic measures of scholarly communication that take multiple facets into account are proposed. This work is relevant in an assessment-conscious and metrics-driven age.

Keywords: Age, Analyses, Analysis, Artifacts, Bibliometric, Bibliometric Analyses, Bibliometrics, Bibliometrics, Citation, Co-Citation, Co-Citation Analysis, Cocitation, Cocitation Analysis, Collaboration, Communication, Concepts, Consensus, Correlation, Field, Framework, Gatekeepers, Journal, Journal Citation Report, Journal Co-Citation Analysis, Journal Literature, Journals, Library, Library and Information Science, Mar, Network, Networks, Patterns, Potential, Producers, Research, Scholarly Communication, Science, Scientific Co-Authorship, Scientometrics, Topic, Work

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Full Text: [2013\Scientometrics94, 1175.pdf](2013/Scientometrics94,%201175.pdf)

Abstract: the general aim of this paper is to come to terms with the organization and organization level research in scientometrics. Most of the debate on the issues that revolve organization level research in scientometrics is technical. As such, most contributions presume a clear understanding of what constitutes the organization in the first place. To our opinion however, such “a-priorism” is at least awkward, given that even in specialist fields there is no clear understanding of what constitutes the organization. The main argument of this paper holds that performing organization level research in scientometrics can only proceed by taking a pragmatic stance on the constitution of the organization. As such, we argue that performing organization level research in scientometrics (i) requires both authoritative “objective” and non-authoritative “subjective” background knowledge, (ii) involves non-logic practices that can be more or less theoretically informed, and (iii) depends crucially upon the general aim of the research endeavor in which the organization is taken as a basic unit of analysis. To our opinion a pragmatic stance on organization level research in scientometrics is a viable alternative to both overly positivist and overly relativist approaches as well as that it might render the relation between scientometrics and science policy more productive.

Keywords: Alternative, Analysis, Approach, Bibliometrics, Classification, Classification, Database, Dynamics, Epistemology, Firm, First, General, Innovation, Knowledge, Mar, Organization, Policy, Practices, Pragmatism, Proximity, Research, Science, Science Policy, Scientometrics, Sociological Approach, Suggestions, Theory of the Firm, Understanding, Unit of Analysis

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Full Text: [2013\Scientometrics94, 1195.pdf](2013/Scientometrics94,%201195.pdf)

Abstract: In the paper, we apply small world complex network theory to analyze scientific research in the field of service innovation, and discover its research focuses. Our study considers the key words and subject categories of the publications as actors to map keyword co-occurrence network and subject category co-occurrence network, and compare them with their corresponding random binary networks to judge whether these complex networks have the characteristics of small world network, in order to find the hot issues in the field by the small world network analysis. We discuss the knowledge structure in the field through analyzing 437 papers that were searched from Web of Science database over the period 1992-2011. We find that case study, service industry, service quality, market orientation, new product development, and knowledge management were the most popular keywords of the field, and also show the dynamic development of the research focuses in recent 10 years. The researchers who made most contribution in a certain field are also found out. It is concluded that there were more researchers who did investigation about service innovation in the category of Business and Economics, Engineering, Public Administration, Operations Research and Management Science, and Computer Science than those in other categories. The study suggests a quantitative method to analyze trends of scientific research in a certain field, and presents some directions of research mainstream to the researchers who may be interested in the service innovation.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometric Study, Business, Case Study, Characteristics, Citation Analysis, Complex Networks, Database, Development, Dynamic, Dynamics, Economics, Field, Impact, Information, Innovation, Investigation, K-Core, Knowledge, Knowledge Management, Management, Mar, Market, Network, Network Analysis, Networks, Pagerank, Papers, Publications, Quality, Recent, Research, Science, Scientific Research, Service, Service Innovation, Small, Small World Networks, Structure, Theory, Trends, Web of Science, World

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Full Text: [2013\Scientometrics94, 1217.pdf](2013/Scientometrics94,%201217.pdf)

Abstract: Patenting is often done in collaboration with other inventors to integrate complementary and additional knowledge. The paper takes a spatial view of this issue and analyses the distances between inventors of German patents. We compare the distances between invention teams of German patent applications from 1993-2006 and distinguish between academic and corporate teams and those consisting of researchers from both domains (‘mixed teams’). Due to their different institutional backgrounds different types of proximity guide their spatial search for partners. The basic finding is that regional collaboration clearly prevails. However, the distance between collaborating inventors of corporate patents exceeds that of inventors of academic patents, but the largest distances can be found in science-industry collaborative patents. When excluding directly neighboured collaboration, which is likely to be in-house collaboration, the differences between academic and corporate teams vanish, but mixed teams still overcome longer distances.

Keywords: Academic Patents, Analyses, Citations, Collaboration, Comparison, Complementary, Economics, Germany, Innovation, Knowledge, Knowledge Flows, Mar, Networks, Organization, Partnerships, Patent, Patents, Patterns, Proximity, Proximity, Regional, Regional Collaboration, Research Collaboration, Research-and-Development

? Cova, T.F.G.G., Pais, A.A.C.C. and Formosinho, S.J. (2013), Iberian universities: A characterisation from ESI rankings. *Scientometrics*, **94** (3), 1239-1251.

Full Text: [2013\Scientometrics94, 1239.pdf](2013/Scientometrics94,%201239.pdf)

Abstract: the access to bibliographic and citation databases allows to evaluate scientific performance, and provides useful means of general characterisation. In this paper we investigate the clustering of Iberian universities, resulting from the similarity in the number and specific nature of the scientific disciplines given by the Essential Science Indicators database. A further refining of the analysis, as provided by PCA, clearly reveals the relationship between the universities and the scientific disciplines in the main groups. Similarity between universities is not dictated only by the number of areas in the ranking, but also stems from the nature of the ranked scientific areas and the specific combination in each university.

Keywords: Access, Analysis, Association, Bibliographic, Bibliometric Tools, Citation, Citation Databases, Clustering, Countries, Database, Databases, Dimension, Documentation, Essential Science Indicators, General, Groups, h-Index, Iberian Universities, Ideas, Indicators, Mar, PCA, Performance, Principal Component Analysis, Ranking, Ranking Areas, Rankings, Science, Science Indicators, Scientific Performance, Similarity, Universities, University

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Full Text: [2013\Scientometrics94, 1253.pdf](2013/Scientometrics94,%201253.pdf)

Abstract: This study investigates the effects of large-scale research funding from the Japanese government on the research outcomes of university researchers. To evaluate the effects, we use the difference-in-differences estimator and measure research outcomes in terms of number of papers and citation counts per paper. Our analysis shows that the funding program led to an increase in the number of papers in some fields and an increase in the citation counts in the other fields. A comparison of our estimation results with assessment data obtained from peer reviews showed important differences. Since the characteristics of research vary according to the field, bibliometrics analysis should be used along with the peer review method for a more accurate analysis of research impact.

Keywords: Analysis, Assessment, Assessment Exercise Ratings, Bibliometric Indicators, Bibliometrics, Case Study, Characteristics, Citation, Citation Counts, Comparison, Curriculum-Vitae, Data, Difference-In-Differences, Effects, Field, Funding, Government Grants, Grants, Impact, Impacts, Industry, Mar, Measure, Outcomes, Papers, Peer Review, Peer Reviews, Peer-Review, Productivity, Research, Research Assessment, Research Funding, Research Impact, Review, Reviews, Science, Universities, University, University Research

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Full Text: [2013\Scientometrics94, 1275.pdf](2013/Scientometrics94,%201275.pdf)

Abstract: This paper attempts to highlight quantitatively and qualitatively the growth and development of world literature on materials science in terms of publication output and citations as per Web of Science (2006-2010). The objective of the study was to perform a scientometric analysis of all materials science research publications in the world. The parameters studied include growth of publications and citations, continent-wise distribution of publications and citations, country-wise distribution of publications, domain-wise distribution of publications and citations, publication efficiency index, distribution of publications and citations according to number of collaborating countries, variation of mean impact factor in materials science domains, identification of highly cited publications and highly preferred journals, quality of research output and application of Bradford’s law.

Keywords: Analysis, Application, Bradford’s Law, Citations, Citations Growth, Development, Distribution, Efficiency, Global, Growth, Highly Cited, Highly Cited Publications, Highly-Cited, Identification, Impact, Impact Factor, Index, Journals, Law, Literature, Mar, Materials Science, Nanoscience, Nanotechnology, Publication, Publication Efficiency Index, Publication Productivity, Publications, Quality, Quality Of, Research, Research Output, Science, Science Research, Scientometric, Scientometric Analysis, Trends, Web of Science, World

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Full Text: [2013\Scientometrics94, 1297.pdf](2013/Scientometrics94,%201297.pdf); [2012\Scientometrics-Ho.pdf](2012/Scientometrics-Ho.pdf)

Abstract: This study aimed to identify and analyze the characteristics of the top-cited articles published in the Science Citation Index Expanded from 1991 to 2010. Articles that have been cited more than 1,000 times since publication to 2010 were assessed regarding their distribution in indexed journals and categories of the Web of Science. Five bibliometric indicators were used to evaluate source institutions and countries. A new indicator, the Y-index, is proposed to assess publication quantity and the character of contribution to articles. We identify 3,652 top-cited articles with 71 % originating from US. The fourteen most productive institutions were all located in US. Science, Nature, New England Journal of Medicine, and Cell hosted the most cited publications. In addition, the Y-index was successfully applied to evaluate the publication character of authors, institutions, and countries.

Keywords: Articles, Authors, Authorship, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Characteristics, Citation, Classics, Distribution, England, Indicator, Indicators, Institutions, Journal, Journals, Mar, Medicine, Most Cited Publication, Multiple Sequence Alignment, Ophthalmology Journals, Publication, Publication Character, Publications, Research, Research Fronts, SCI-Expanded, Science, Science Citation Index, Science Citation Index Expanded, Source, Surgical Journals, Trends, US, Web of Science, Y-Index

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Full Text: [2013\Scientometrics94, 1313.pdf](2013/Scientometrics94,%201313.pdf)

Keywords: Institutional Address, MAR, Standardization

? Shiau, W.L. and Dwivedi, Y.K. (2013), Citation and co-citation analysis to identify core and emerging knowledge in electronic commerce research. *Scientometrics*, **94** (3), 1317-1337.

Full Text: [2013\Scientometrics94, 1317.pdf](2013/Scientometrics94,%201317.pdf)

Abstract: the purpose of this paper is to explore the core and emerging knowledge of electronic commerce (e-commerce) research. Data was collected from the top six e-commerce journals from 2006-2010. A total of 1,064 electronic commerce related articles and 33,173 references were identified. There were 48 high value research articles identified using a citation and co-citation analysis. Using statistical analysis including factor analysis, multidimensional scaling, and cluster analysis, we identified five research areas: trust, technology acceptance and technology application, e-commerce task-related application, e-markets, and identity and evaluation. We also identified emerging core knowledge, information systems success. The findings of this study provide core knowledge and directions for researchers and practitioners interested in the electronic commerce field.

Keywords: Acceptance, Analysis, Application, Behavior, Citation, Citation Analysis, Classification, Cluster, Cluster Analysis, Co-Citation, Co-Citation Analysis, Cocitation, Electronic Commerce, Evaluation, Factor Analysis, Field, Information, Information Systems, Information-Systems Success, Intellectual Structure, Invisible-Colleges, Journals, Knowledge, Management, Mar, Multidimensional, Multidimensional Scaling, Online Marketplaces, Purpose, References, Research, Scale Development, Scaling, Statistical Analysis, Systems, Technology, Technology Acceptance Model, Trust, User Acceptance, Value

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Full Text: [2013\Scientometrics95, 1.pdf](2013/Scientometrics95,%201.pdf)

Abstract: Peer review is a classic method in the field of quality analysis, but the effectiveness of peer reviewing has never been researched using quantity analysis indicators. A new indicator for academic journals, Effectiveness of Peer Review (EPR), is defined for evaluating the effectiveness of peer reviewing. If the assumption is valid, EPR could be a simple indicator of such effectiveness. In a sample experiment, 28 academic journals were tested, and the EPR indicator was able to reflect accurately the academic impact of those journals.

Keywords: Academic Journal, Analysis, Effectiveness, Effectiveness of Peer Review, EPR, Experiment, Field, Impact, Indicator, Indicators, Journals, M Value, Peer Review, Peer-Review, Quality, Rejection Rates, Review, Science, Sleeping Beauties, System

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Full Text: [2013\Scientometrics95, 15.pdf](2013/Scientometrics95,%2015.pdf)

Abstract: This study aims to identify possible gender inequalities in the scholarly output of researchers in the field of psychology in Spain. A sample of 522 papers and reviews published in 2007 was extracted from the Thomson ISI Web of Science. The presence of women, the collaboration pattern and the impact of these scientific publications were analyzed. The results show that the average number of female researchers per paper was 0.42 (SD 0.33) and that 42.3 % of the papers had a female researcher as the first author. Moreover, the proportion of female authors of a paper was statistically significantly higher when the first author was female. Studies carried out in cooperation with other Spanish or international institutions had fewer female authors than studies conducted at a single center. The impact of the papers, measured by the journal impact factor and the number of citations, was independent of the authors’ gender or the proportion of female authors. In summary, the study highlights a gender imbalance in Spanish scientific output in Psychology, and a higher proportion of male researchers in international networks.

Keywords: Academic Psychologists, Analysis, Authors, Citations, Collaboration, Cooperation, Female, Field, First, Gender, Gender Analysis, Impact, Impact Factor, Inequalities, Institutions, International, ISI, ISI Web of Science, Journal, Journal Impact, Journal Impact Factor, Male, Networks, Output, Papers, Pattern, Personality Psychology, Psychology, Publications, Researchers, Reviews, Scholarly Output, Science, Scientific Output, Scientific Production, Scientific Publications, Sex-Differences, Spain, Web of Science, Women

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Full Text: [2013\Scientometrics95, 25.pdf](2013/Scientometrics95,%2025.pdf)

Abstract: the central area indices and the central interval indices, as introduced in Dorta-Gonzalez and Dorta-Gonzalez (Scientometrics 88(3):729-745, 2011), are studied from a theoretical point of view. They are defined in order to yield higher impact values of “selective” authors (i.e., authors with concentrated number of citations over their publications). We show that this property is not valid for every citation distribution. However, if Zipf’s law is adopted for the citation distribution, we can show that the central area indices and the central interval indices have indeed higher values for more selective authors.

Keywords: Authors, Central Area Index, Central Interval Index, Citation, Citations, Distribution, h-Index, h-Index, Hirsch Index, Hirsch-Index, Impact, Indices, Interval, Law, Property, Publications, Scientometrics, Theoretical, Zipf’s Law

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Full Text: [2013\Scientometrics95, 35.pdf](2013/Scientometrics95,%2035.pdf)

Abstract: We performed a bibliometric analysis of published research on Global Positioning System (GPS) for the period of 1991-2010, based on the Science Citation Index and Social Sciences Citation Index databases. Our search identified a total of 15,759 GPS-related publications in the period. We analyzed the patterns of publication outputs, subject categories and major journals, international productivity and collaboration, geographic distribution of authors, and author keywords. The annual number of publications in GPS research increased from 98 in 1991 to 1934 in 2010. “Geochemistry & Geophysics”, “Geosciences, Multidisciplinary”, and “Engineering, Electrical & Electronic” were the top 3 most popular subject categories. As the flagship journal in the field, Geophysical Research Letters had the highest publication count. The USA, the UK and Germany were the top 3 most productive countries. The most productive institution was the California Institute of Technology (Caltech), followed by the Chinese Academy of Sciences and the University of Colorado. The USA was the most frequent partner in international collaborations. Caltech took the central position in the collaboration network. The major spatial clusters of authors were in the USA, the Europe Union, and East Asia (including China, Japan and South Korea). “Ionosphere”, “Remote Sensing” and “Monitoring” are growing research subjects in the field of GPS, while “Deformation”, “Geoid” and “Tectonics” are becoming gradually less significant. Our study revealed underlying patterns in scientific outputs and academic collaborations and may serve as an alternative and innovative way of revealing global research trends in GPS.

Keywords: Alternative, Analysis, Asia, Authors, Bibliometric, Bibliometric Analysis, Bibliometrics, California, China, Chinese, Citation, Citation Analysis, Collaboration, Collaborations, Databases, Distribution, Europe, Field, Germany, Global, GPS, Historical Review, International, Japan, Journal, Journals, Korea, Network, Partner, Productivity, Publication, Publications, Research, Research Trends, Review, Science, Science Citation Index, Scientific Outputs, Social Sciences, Social Sciences Citation Index, South Korea, Technology, Trends, UK, University, USA, Web

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Full Text: [2013\Scientometrics95, 45.pdf](2013/Scientometrics95,%2045.pdf)

Abstract: We continue the investigation for more than 2,150 astrophysics papers published from July 2007 to June 2008 of various possible correlations among time from submission to acceptance; nationalities of lead authors; numbers of citations to the papers in three years after publication; subdisciplines; and numbers of authors. Paper I found that submissions from American authors were accepted faster than others but by only about 3.8 days out of a median of 105 days. Here we report the following additional relationships: (1) the correlation of citation rate with lag time is weak, the most cited papers having intermediate lag times, (2) citation rates are highest for papers with European and American authors and much smaller for papers from less-developed (etc.) countries, with other prosperous countries in between, (3) citation rates are much larger for currently hot topics (exoplanets, cosmology), than for less hot ones (binary stars, for instance), (4) papers with many authors (seven to more than 100) are more often cited than 1-2 author ones, but this is not linear, and author numbers are not much correlated with lag times, and (5) the lag time for hot topics is about the same as that for less hot topics, which surprised us. of specific subfields, solar papers are, on average, accepted fastest, quite often within less than 2 months. We don’t know why.

Keywords: Acceptance, Astronomical Journals, Authors, Citation, Citation Rates, Citations, Correlation, Correlations, Investigation, Lead, Paper, Papers, Publication, Publications, Rates

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Full Text: [2013\Scientometrics95, 55.pdf](2013/Scientometrics95,%2055.pdf)

Abstract: the visibility of an article depends to a large extent on its authors. We study the question how each co-author’s relative contribution to the visibility of the article can be determined and quantified using an indicator, referring to such an indicator as a CAV-indicator. A two-step procedure is elaborated, whereby one first chooses an indicator (e.g. total number of citations, h-Index aEuro broken vertical bar) and subsequently one of two possible approaches. The case where the indicator is an h-type index is elaborated in a Lotkaian framework. Different examples illustrate the procedure and the choices involved in determining a CAV-indicator.

Keywords: Authors, Citation Analysis, Citation Frequency, Citations, Co-Authors, Co-Authorship, First, Framework, h Index, h-Index, Impact, Index, Indicator, Model, Power Law Model, Procedure, Science, Vertical, Visibility, Visibility Indicators

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Full Text: [2013\Scientometrics95, 69.pdf](2013/Scientometrics95,%2069.pdf)

Abstract: Publication productivity during 2009-2011 was studied for physicists who teach in South African universities, using data from departmental websites and Thomson Reuters’ Web of Science. The objective was to find typical ranges of two measures of individual productivity: number of papers and sum of author share, where author share per n-author paper is 1/n author units (AU). All values given below are average output per year. Median productivity was 1.33 papers (inter-quartile range 0.33-2.33) and 0.3 AU (inter-quartile range 0.1-0.5 AU). The lowest 10 % did not publish, and the top 10 % produced above four papers and above 1 AU. Productivity varied with rank, ranging from medians of 0.67 papers and 0.2 AU for lecturers to 1.67 papers and 0.4 AU for full professors. Productivity of South African professors was similar to that of a sample of USA professors in a comparable mid-ranked bracket in the Shanghai Jiao Tong world ranking of universities, and about half that of professors in the six top-ranked departments in the world, which had medians of four papers and 1 AU.

Keywords: Au, Bibliometric Analysis, Data, India, Median, Output, Papers, Patterns, Physics, Productivity, Publication, Publication Productivity, Rank, Ranking, Science, Shanghai, South Africa, South African Universities, Thomson Reuters, Thomson-Reuters, Universities, USA, Web of Science, Websites, World

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Full Text: [2013\Scientometrics95, 87.pdf](2013/Scientometrics95,%2087.pdf)

Abstract: the study of journal authorship and editorial board membership from a gender perspective is addressed in this paper following international recommendations about the need to obtain science and technology indicators by gender. Authorship informs us about active scientists who contribute to the production and dissemination of new knowledge through journal articles, while editorial board membership tells us about leading scientists who have obtained scientific recognition within the scientific community. This study analyses by gender the composition of the editorial boards of 131 high-quality Spanish journals in all fields of science, the presence of men and women as authors in a selection of 36 journals, and the evolution of these aspects from 1998 to 2009. Female presence is lower than male presence in authorship, editorial board membership and editorship. The presence of female authors is slightly lower than the presence of women in the Spanish Higher Education sector and doubles female presence in editorial boards, which mirrors female presence in the highest academic rank. The gender gap tends to diminish over the years in most areas, especially in authorship and very slightly in editorial board membership. Large editorial boards and having a female editor-in-chief are positively correlated with women presence in editorial boards. The situation of women in Spanish science is further assessed in an international context analysing a selection of international reference journals. The usefulness of journal-based indicators to monitor the situation of men and women in science and to assess the success of policies oriented to enhance gender equality in science is finally discussed.

Keywords: Analyses, Articles, Authors, Authorship, Bibliometric Analysis, Community, Composition, Context, Editorial Boards, Educational-Psychology Journals, Equality, Evolution, Female, Female Researchers, Gender, Gender Gap, Indicators, International, Journal, Journal Articles, Journals, Knowledge, Male, Management, Men, Patterns, Policies, Publications, Rank, Recommendations, Reference, Science, Science and Technology, Scientific Journals, Scientists, Sector, Selection, Spain, Spanish Journals, Technology, Women, Women and Science

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Full Text: [2013\Scientometrics95, 115.pdf](2013/Scientometrics95,%20115.pdf)

Abstract: A desirable goal of scientific management is to introduce, if it exists, a simple and reliable way to measure the scientific excellence of publicly funded research institutions and universities to serve as a basis for their ranking and financing. While citation-based indicators and metrics are easily accessible, they are far from being universally accepted as way to automate or inform evaluation processes or to replace evaluations based on peer review. Here we consider absolute measurements of research excellence at an amalgamated, institutional level and specific measures of research excellence as performance per head. Using biology research institutions in the UK as a test case, we examine the correlations between peer review-based and citation-based measures of research excellence on these two scales. We find that citation-based indicators are very highly correlated with peer-evaluated measures of group strength, but are poorly correlated with group quality. Thus, and almost paradoxically, our analysis indicates that citation counts could possibly form a basis for deciding on, how to fund research institutions, but they should not be used as a basis for ranking them in terms of quality.

Keywords: Analysis, Biology, Citation, Citation Counts, Correlations, Evaluation, Financing, Higher Education, Indicators, Institutions, Management, Measure, Metrics, Normalization, Peer Review, Peer-Review, Performance, Quality, Ranking, Research, Research Institutions, Review, Scales, Scientific Evaluation, Scientometric Indicators, Scientometrics, Strength, UK, Universities

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Full Text: [2013\Scientometrics95, 129.pdf](2013/Scientometrics95,%20129.pdf)

Abstract: An increasing number of researchers have recently shown interest in the relationship between economic growth of a country and its research output, measured in scientometric indicators. The answer is not only of theoretical interest but it can also influence the specific policies aimed at the improvement of a country’s research performance. Our paper focuses on this relationship. We argue that research output is a manifestation of the improvement of human capital in the economy. We examine this relationship specifically in South Africa for the period 1980-2008. Using the autoregressive distributed lag method, we investigate the relationship between GDP and the comparative research performance of the country in relation to the rest of the world (the share of South African papers compared to the rest of the world). The relationship is confirmed for individual fields of science (biology and biochemistry, chemistry, material sciences, physics, psychiatry and psychology). The results of this study indicate that in South Africa for the period 1980-2008 the comparative performance of the research output can be considered as a factor affecting the economic growth of the country. Similarly, the results confirm the results of Vinkler (2008) and Lee et al. (2011). In contrast, economic growth did not influence the research output of the country for the same period. Policy implications are also discussed.

Keywords: Academics, Africa, Application, ARDL, Biochemistry, Biology, Chemistry, Cointegration, Countries, Country, Distributed, Economic, Economic Growth, Economy, GDP, Growth, Human, Impact, Improvement, Indicators, Papers, Performance, Policies, Policy, Psychiatry, Psychology, Publications, Research, Research Output, Research Performance, Science, Sciences, Scientific Research, Scientometric, Scientometrics, South Africa, Theoretical, World

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Full Text: [2013\Scientometrics95, 145.pdf](2013/Scientometrics95,%20145.pdf)

Abstract: “Bibliometrics”, “scientometrics”, “informetrics”, and “webometrics” can all be considered as manifestations of a single research area with similar objectives and methods, which we call “information metrics” or iMetrics. This study explores the cognitive and social distinctness of iMetrics with respect to the general information science (IS), focusing on a core of researchers, shared vocabulary and literature/knowledge base. Our analysis investigates the similarities and differences between four document sets. The document sets are drawn from three core journals for iMetrics research (Scientometrics, Journal of the American Society for Information Science and Technology, and Journal of Informetrics). We split JASIST into document sets containing iMetrics and general IS articles. The volume of publications in this representation of the specialty has increased rapidly during the last decade. A core of researchers that predominantly focus on iMetrics topics can thus be identified. This core group has developed a shared vocabulary as exhibited in high similarity of title words and one that shares a knowledge base. The research front of this field moves faster than the research front of information science in general, bringing it closer to Price’s dream.

Keywords: Analysis, Bibliometrics, Bibliometrics, Citation Indexes, Communication, Field, General, Information, Information Science, Informetrics, Informetrics, Is, Journal, Journals, Knowledge, Knowledge Base, Library, Methods, Metrics, Publications, Representation, Research, Research Front, Science, Scientific Fields, Scientometrics, Scientometrics, Similarity, Social, Specialty, Technology, Volume

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Full Text: [2013\Scientometrics95, 159.pdf](2013/Scientometrics95,%20159.pdf)

Abstract: This article presents a review of the social media-based systems; an emerging area of information system research, design, and practice shaped by social media phenomenon. Social media-based system (SMS) is the application of a wider range of social software and social media phenomenon in organizational and non-organization context to facilitate every day interactions. To characterize SMS, a total of 274 articles (published during 2003-2011) were analyzed that were classified as computer science information system related in the Web of Science data base and had at least one social media phenomenon related keyword-social media; social network analysis; social network; social network site; and social network system. As a result, we found four main research streams in SMS research dealing with: (1) organizational aspect of SMS, (2) non-organizational aspect of SMS, (3) technical aspect of SMS, and (4) social as a tool. The results indicates that SMS research is fragmented and has not yet found way into the core IS journals, however, it is diverse and interdisciplinary in nature. We also proposed that unlike the conventional and socio-technical IS where information is bureaucratic, formal, bounded within the intranet, and tightly controlled by organizations; in the SMS context, information is social, informal, boundary-less (i.e. boundary is within the internet), has less control, and more sharing of information may lead to higher value/impact.

Keywords: Analysis, Application, Behavior, Co-Authorship, Collaboration, Context, Control, Conventional, Data, Data Base, Data-Base, Design, Information, Information Systems, Interdisciplinary, IS, Journals, Knowledge, Lead, Media, MIS Research, Network, Network Analysis, Online, Organizational, Practice, Research, Review, Science, Site, Social, Social Media, Social Media-Based Systems, Social Network Analysis, Social Networks, Sociomation, Software, Streams, Systems, Trust, Web, Web of Science

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Full Text: [2013\Scientometrics95, 183.pdf](2013/Scientometrics95,%20183.pdf)

Abstract: With the rapid rise of Chinese economy, now ranking as the second largest economy in the world in 2010, many Chinese firms have started taking technological lead in the global market. Nevertheless, whether Chinese firms have learned from their prior in-licensing technologies and accumulated technological capabilities in sustaining their economic growth remains underexplored. This paper aims to fill this void. Using a unique dataset containing the information on licensing for 83 large Chinese firms in the electronic sector during 2000-2004, we find that these firms have successfully learned from the international technologies that they previously licensed-in when subsequent patent citations made by these Chinese licensee firms to their licensed patents are used to identify these successful learners.

Keywords: Analysis, Capability, Catch-Up, China, Chinese, Citations, Competitive Advantage, Developing-Countries, Economic, Economy, Electronics, Global, Growth, Industry, Information, Innovation Performance, International, Knowledge Spillovers, Lead, Licensing, Market, Multinationals, Patent, Patent Citation, Patent Citations, Patents, R-and-D, Ranking, Sector, Technological Learning, Technologies, Technology, Technology License, World

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Full Text: [2013\Scientometrics95, 197.pdf](2013/Scientometrics95,%20197.pdf)

Abstract: the paper reports the developments and citation patterns over three time periods of research on Renewable Energy generation and Wind Power 1995-2011 in EU, Spain, Germany and Denmark. Analyses are based on Web of Science and incorporate journal articles as well as conference proceeding papers. Scientometric indicators include publication collaboration ratios, top-player distribution as well as citedness and correspondence analyses of citing publications, relative citation impact, distributions of top-cited as well as top-citing institutions and publication sources and cluster analysis of citing title terms to map knowledge export areas. Findings show an increase in citation impact for Renewable Energy and Wind Power research albeit hampered by scarcely cited conference papers. Although EU maintains its global top position in producing Renewable Energy and Wind Power research the developments of EU and German world shares as well as citation impact are negative during the most recent 7 year period. During the same time the citation impact of Spain and Denmark increase and place both nations among the top-ranking countries in Wind Power research. Spain is the only EU country that increases its world production share from 2000. China is currently ranked three after EU and USA in research output, however with a very low citation impact. Spain, Denmark and Germany each demonstrates distinct collaboration patterns and publication source and citation distribution profiles. More than half the citations to EU Wind Power research are EU-self citations. An expected intensified EU collaboration in the Wind Energy field does not come about. The most productive research institutions in Denmark and Spain are also the most cited ones.

Keywords: Analyses, Analysis, Case Study, China, Citation, Citation Analyses, Citation Impact, Citation Patterns, Citations, Cluster, Cluster Analysis, Collaboration, Collaboration Analyses, Country, Denmark, Distribution, Energy, Eu, Europe, Export, Field, Generation, Germany, Global, Impact, Indicators, Institutions, Journal, Journal Articles, Knowledge, Nations, Papers, Power, Profiles, Publication, Publication Analyses, Publications, Recent, Renewable Energy, Renewable Energy Research, Research, Research Institutions, Research Output, Science, Scientometric, Scientometric Indicators, Source, Sources, Spain, Sustainable Energy, USA, Web of Science, Wind, Wind Power Research, World

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Full Text: [2013\Scientometrics95, 225.pdf](2013/Scientometrics95,%20225.pdf)

Abstract: the network of patents connected by citations is an evolving graph, which provides a representation of the innovation process. A patent citing another implies that the cited patent reflects a piece of previously existing knowledge that the citing patent builds upon. A methodology presented here (1) identifies actual clusters of patents: i.e., technological branches, and (2) gives predictions about the temporal changes of the structure of the clusters. A predictor, called the citation vector, is defined for characterizing technological development to show how a patent cited by other patents belongs to various industrial fields. The clustering technique adopted is able to detect the new emerging recombinations, and predicts emerging new technology clusters. The predictive ability of our new method is illustrated on the example of USPTO subcategory 11, Agriculture, Food, Textiles. A cluster of patents is determined based on citation data up to 1991, which shows significant overlap of the class 442 formed at the beginning of 1997. These new tools of predictive analytics could support policy decision making processes in science and technology, and help formulate recommendations for action.

Keywords: Agriculture, Analysis, Changes, Citation, Citation Network, Citations, Cluster, Clustering, Co-Citation Clustering, Cocitation Clusters, Data, Decision, Decision Making, Decision-Making, Development, Emerging Technologies, Evolution, Examiner Citations, Innovation, Knowledge, Knowledge Flows, Measuring Progress, Methodology, Multiple Indicators, Network, Patent, Patent Citation, Patents, Policy, Policy Decision, Predictions, Predictive, Recommendations, Representation, Research Fronts, Science, Science and Technology, Science-And-Technology, Scientific Publications, Structure, Support, Technological Evolution, Technologies, Technology, Temporal, US

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Full Text: [2013\Scientometrics95, 243.pdf](2013/Scientometrics95,%20243.pdf)

Abstract: National Research Assessment Exercises (NRAEs) aim to improve returns from public funding of research. Critics argue that they undervalue publications influencing practice, not citations, implying that journals valued least by NRAEs are disproportionately useful to practitioners. Conservation biology can evaluate this criticism because it uses species recovery plans, which are practitioner-authored blueprints for recovering threatened species. The literature cited in them indicates what is important to practitioners’ work. We profiled journals cited in 50 randomly selected recovery plans from each of the USA, Australia and New Zealand, using ranking criteria from the Australian Research Council and the SCImago Institute. Citations showed no consistent pattern. Sometimes higher ranked publications were represented more frequently, sometimes lower ranked publications. Recovery plans in all countries also contained 37 % or more citations to ‘grey literature’, discounted in NRAEs. If NRAEs discourage peer-reviewed publication at any level they could exacerbate the trend not to publish information useful for applied conservation, possibly harming conservation efforts. While indicating the potential for an impact does not establish that it occurs, it does suggest preventive steps. NRAEs considering the proportion of papers in top journals may discourage publication in lower-ranked journals, because one way to increase the proportion of outputs in top journals is by not publishing in lower ones. Instead, perhaps only a user-nominated subset of publications could be evaluated, a department’s or an individual’s share of the top publications in a field could be noted, or innovative new multivariate assessments of research productivity applied, including social impact.

Keywords: Assessments, Australia, Australian, Availability, Bibliometrics, Biology, Citations, Conservation, Criteria, Era, Field, Funding, Impact, Impact Factor, Information, Journals, Literature, Metrics, Multivariate, Nature Conservation, New Zealand, New-Zealand, Nrae, Papers, Pattern, PBRF, Peer-Reviewed, Performance-Based Research, Potential, Practice, Productive Interactions, Productivity, Public, Public Funding of Research, Publication, Publications, Publishing, Rae, Ranking, Rankings, Recovery, Recovery Plans, Ref, Research, Research Excellence Framework, Research Productivity, Science, Scimago, Social, Species, Threatened, Threatened Species, Threatening Process, Trend, UK, USA, VTR, Work

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Full Text: [2013\Scientometrics95, 257.pdf](2013/Scientometrics95,%20257.pdf)

Abstract: the purpose of this study is to integrate the method of chance discovery with visualization tools (KeyGraph) for presenting important and latent research topics in the e-commerce (EC) field. This study collects keywords and abstracts from 995 articles in four primary EC journals. To establish the professional terms of EC, this work divides EC development into three periods: the development of the Internet, the growth of information technology, and the extension of commerce applications. For exploring significant and latent EC topics, this study analyzes the differences and similarities between international and Taiwanese sources. Pursuing this approach yields three findings. First, this paper determines that the KeyGraph as a computing process and a visualization tool is an effective method for exploring future research topics. Second, international EC topics have different thematic characteristics at different phases and they are more diverse and extensive than Taiwanese sources. Third, a professional thesaurus is very helpful in identifying EC research topics. All these findings suggest Taiwanese scholars should pay more attention to research issues from international journals when studying EC.

Keywords: Approach, Chance Discovery, Characteristics, Development, Discovery, EC, Electronic Commerce, Electronic Commerce, Field, Growth, Information, Information Technology, International, Internet, Journals, Keygraph, Primary, Purpose, Research, Site, Sources, Technology, Text Mining, Visualization, Work

? Gumpenberger, C., Gorraiz, J., Wieland, M., Roche, I., Schiebel, E., Besagni, D. and Francois, C. (2013), Exploring the bibliometric and semantic nature of negative results. *Scientometrics*, **95** (1), 277-297.

Full Text: [2013\Scientometrics95, 277.pdf](2013/Scientometrics95,%20277.pdf)

Abstract: Negative results are not popular to disseminate. However, their publication would help to save resources and foster scientific communication. This study analysed the bibliometric and semantic nature of negative results publications. The Journal of Negative Results in Biomedicine (JNRBM) was used as a role model. Its complete articles from 2002-2009 were extracted from SCOPUS and supplemented by related records. Complementary negative results records were retrieved from Web of Science in “Biochemistry” and “Telecommunications”. Applied bibliometrics comprised of co-author and co-affiliation analysis and a citation impact profile. Bibliometrics showed that authorship is widely spread. A specific community for the publication of negative results in devoted literature is non-existent. Neither co-author nor co-affiliation analysis indicated strong interconnectivities. JNRBM articles are cited by a broad spectrum of journals rather than by specific titles. Devoted negative results journals like JNRBM have a rather low impact measured by the number of received citations. On the other hand, only one-third of the publications remain uncited, corroborating their importance for the scientific community. The semantic analysis relies on negative expressions manually identified in JNRBM article titles and abstracts and extracted to syntactic patterns. By using a Natural Language Processing tool these patterns are then employed to detect their occurrences in the multidisciplinary bibliographical database PASCAL. The translation of manually identified negation patterns to syntactic patterns and their application to multidisciplinary bibliographic databases (PASCAL, Web of Science) proved to be a successful method to retrieve even hidden negative results. There is proof that negative results are not only restricted to the biomedical domain. Interestingly a high percentage of the so far identified negative results papers were funded and therefore needed to be published. Thus policies that explicitly encourage or even mandate the publication of negative results could probably bring about a shift in the current scientific communication behaviour.

Keywords: Analysis, Application, Authorship, Behaviour, Bibliographic, Bibliographic Databases, Bibliometric, Bibliometrics, Biomedical, Biomedicine, Citation, Citation Impact, Citations, Co-Author, Communication, Community, Complete, Database, Databases, Impact, Journal, Journals, Language, Literature, Metaanalysis, Model, Multidisciplinary, Negative Result Publication, Papers, Policies, Publication, Publication Bias, Publication Bias, Publications, Records, Resources, Results, Role, S&T Information, Science, Scientific Communication, Scientometrics, Scopus, Semantic Analysis, Translation, Web of Science

? Liu, X. and Ma, F.C. (2013), Transfer and distribution of knowledge creation activities of bio-scientists in knowledge space. *Scientometrics*, **95** (1), 299-310.

Full Text: [2013\Scientometrics95, 299.pdf](2013/Scientometrics95,%20299.pdf)

Abstract: In order to explore the rule of knowledge creation activities at both temporal and spatial scales, this paper makes statistical analysis of the time interval and spatial displacement of consecutive knowledge creation activities of high-yield, low-yield, and ASFP (all the scientists published at least four papers), respectively. The research shows that, for high-yield scientists, the time interval of knowledge creation activities obeys heavy-tailed distribution and embodies bursting features, with both long-time silence and intensive burst of creation activities. The time interval distribution of low-yield scientists is approximate to exponential distribution, and is often randomly and occasionally distributed. For ASFP, the spatial distribution of creation activities also embodies heavy-tailed features, where their activities are intensively confined to a certain knowledge field, and where long-distance exploration across the knowledge fields has also been made in knowledge creation activities.

Keywords: Analysis, Bursting, Displacement, Distributed, Distribution, Field, Heavy-Tailed Distribution, Human Dynamics, Human Dynamics, Human Mobility, Interval, Knowledge, Knowledge Creation Activity, Knowledge Space, Papers, Research, Scales, Scientists, Spatial Distribution, Statistical Analysis, Temporal, Transfer

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Full Text: [2013\Scientometrics95, 311.pdf](2013/Scientometrics95,%20311.pdf)

Abstract: There has been ample demonstration that bibliometrics is superior to peer-review for national research assessment exercises in the hard sciences. In this paper we examine the Italian case, taking the 2001-2003 university performance rankings list based on bibliometrics as benchmark. We compare the accuracy of the first national evaluation exercise, conducted entirely by peer-review, to other rankings lists prepared at zero cost, based on indicators indirectly linked to performance or available on the Internet. The results show that, for the hard sciences, the costs of conducting the Italian evaluation of research institutions could have been completely avoided.

Keywords: Accuracy, Assessment, Bibliometric Indicators, Bibliometrics, Complete, Cost, Costs, Evaluation, Exercise, Exercises, First, Indicators, Institutions, Internet, Peer Review, Peer-Review, Performance, Productivity, Ranking, Ranking, Rankings, Research, Research Assessment, Research Evaluation, Research Institutions, Sciences, Universities, University, VTR, Waste

? Stefenon, V.M., Roesch, L.F.W. and Pereira, A.B. (2013), Thirty years of Brazilian research in Antarctica: ups, downs and perspectives. *Scientometrics*, **95** (1), 325-331.

Full Text: [2013\Scientometrics95, 325.pdf](2013/Scientometrics95,%20325.pdf)

Abstract: the Antarctic continent is the most untouched region of the world but is also among the most vulnerable to global environmental change. Alterations to the Antarctic environment can have cascading effects many of which are unpredictable. Our objective was to investigate the contribution of Brazilian scientists to Antarctic research and to characterize the actions taken by the country to improve its scientific output and its international impact in this area. Scientific publications related to Antarctica, released from 1981 to 2011 were searched using three important science data bases. The data were used to determine the absolute increase and the relative growth rate of publications in order to characterize the contribution of Brazil to the world’s scientific understanding of Antarctica. The number of publications revealed an undersized contribution of the Brazilian science to the world’s publications about Antarctica. However, over the last 30 years there has been a substantial increase in the number of publications associated with governmental financial policies. As in other countries, Brazil’s most significant scientific contributions regarding the Antarctic continent are in the biological sciences. Therefore, public policies should maintain the current official support, while the research groups should pay attention to strategic scientific and technological areas still uncovered in the Antarctic research.

Keywords: Antarctic Continent, Antarctic Research, Antarctica, Bibliometric Analysis, Biological, Biological Sciences, Brazil, Continent, Country, Data, Ecological Research, Effects, Environment, Environmental, Financial Support, Global, Groups, Growth, Growth Rate, Impact, International, Island, Peninsula, Policies, Public, Public Policies, Publications, Region, Relative Growth Rate, Research, Science, Sciences, Scientific Output, Scientific Publications, Scientists, Strategic, Support, Understanding, Volume, World

? Liang, L.M., Rousseau, R. and Zhong, Z. (2013), Non-English journals and papers in physics and chemistry: Bias in citations? *Scientometrics*, **95** (1), 333-350.

Full Text: [2013\Scientometrics95, 333.pdf](2013/Scientometrics95,%20333.pdf)

Abstract: This study investigates, at the journal as well as the article level, if there is a difference in citations between English-language and non-English publications. The Web of Knowledge is used as data source. The investigation focuses on the fields of physics and chemistry. Using a precise definition of a “non-English journal”, we filter out nine physics and thirty-four chemistry non-English journals, scattered over six physics and seven chemistry subfields. Average received citations per paper (CpP) of the non-English journal(s) are compared with the CpP of pure English journals, and this in the same subfield. We clearly observe that non-English journals are inferior-in number of citations received-to pure English journals and this in all physics and chemistry subfields studied. Further, twelve physics journals and ten chemistry journals were chosen as sample journals to compare the CpP of non-English papers with that of English language papers in the same journal. The result of this comparison is that for the majority of these journals and for most of the publication years the CpP of non-English papers is lower than that of the English language papers. Finally, analyzing linguistic characteristics of the citing literature confirms the own-language preference in non-English physics and chemistry journals.

Keywords: Bias, Characteristics, Chemistry, Citation, Citations, Comparison, Data, English Paper, International Comparisons, Investigation, Journal, Journals, Language, Literature, Non, Non-English Journal, Papers, Physics, Preference, Publication, Publications, Source, Web of Knowledge

? Arora, S.K., Porter, A.L., Youtie, J. and Shapira, P. (2013), Capturing new developments in an emerging technology: An updated search strategy for identifying nanotechnology research outputs. *Scientometrics*, **95** (1), 351-370.

Full Text: [2013\Scientometrics95, 351.pdf](2013/Scientometrics95,%20351.pdf)

Abstract: Bibliometric analysis of publication metadata is an important tool for investigating emerging fields of technology. However, the application of field definitions to define an emerging technology is complicated by ongoing and at times rapid change in the underlying technology itself. There is limited prior work on adapting the bibliometric definitions of emerging technologies as these technologies change over time. The paper addresses this gap. We draw on the example of the modular keyword nanotechnology search strategy developed at Georgia Institute of Technology in 2006. This search approach has seen extensive use in analyzing emerging trends in nanotechnology research and innovation. Yet with the growth of the nanotechnology field, novel materials, particles, technologies, and tools have appeared. We report on the process and results of reviewing and updating this nanotechnology search strategy. By employing structured text-mining software to profile keyword terms, and by soliciting input from domain experts, we identify new nanotechnology-related keywords. We retroactively apply the revised evolutionary lexical query to 20 years of publication data and analyze the results. Our findings indicate that the updated search approach offers an incremental improvement over the original strategy in terms of recall and precision. Additionally, the updated strategy reveals the importance for nanotechnology of several emerging cited-subject categories, particularly in the biomedical sciences, suggesting a further extension of the nanotechnology knowledge domain. The implications of the work for applying bibliometric definitions to emerging technologies are discussed.

Keywords: Analysis, Application, Approach, Bibliometric, Bibliometric Analysis, Bibliometrics, Biomedical, Cited Subject Categories, Data, Eigenvector-Centrality, Emergence, Emerging Technologies, Experts, Field, Fields, Georgia, Growth, Improvement, Innovation, Knowledge, Lexical Query, Nanoscience, Nanotechnology, Nanotechnology Research, Particles, Precision, Publication, Publications, Publications, Recall, Research, Research Outputs, Science, Sciences, Search Strategy, Software, Strategy, Technologies, Technology, Terms, Text Mining, Trends, Work

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Full Text: [2013\Scientometrics95, 371.pdf](2013/Scientometrics95,%20371.pdf)

Abstract: Today, university ranking has turned into a critical issue in the world. Each university is identified with a surface form under which the whole performance of that university is assessed. This article intends to provide a clear picture of the inconsistencies observed in recording Iranian university titles by their affiliated authors and to clarify the negative impact of such inconsistencies in positioning Iranian universities in global university ranking systems. To collect various surface forms of Iranian university names, use was made of ISI Web of Science through keywords Cu = Iran and py = 2000-2009. Only MSRT universities were considered. Two M.A. experts listed all variant forms of a single university under that name. The form publicized in a university’s website was considered as its entry name. The major sources of variation identified were as follows: Acronyms, misspellings, abbreviations, space variations, syntactic permutation, application of vowels/consonants and vowel/consonant combinations, /a/vs./aa/, Tashdid, Kasra ezafe, redundancy, downcasing, voiceless glottal stop sound /?/, shortening and deletion of titles. It was found that at its present shape Iranian universities are not receiving the rank they really deserve simply because authors affiliated to a university use university title forms inconsistently. It was recommended that authors follow the surface form publicized by universities in their websites, use the help of an editor in their works, and not be credited for their articles in case the forms deviate from those publicized through the websites. A spell checker, as an add-ins software is highly needed to homogenize Iranian university surface forms by replacing the variants by the dominant form proposed.

Keywords: Application, Authors, Cu, Deletion, Downcasing, Experts, Forms, Global, Hazard, Impact, Information Retrieval, Iran, Iranian Universities, ISI, ISI Web of Science, Misspellings, Performance, Persian Orthography, Persian-English Transliteration, Rank, Ranking, Science, Software, Sound, Sources, Surface, Systems, Universities, University, University Ranking Systems, Web of Science, Websites, World

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Full Text: [2013\Scientometrics95, 385.pdf](2013/Scientometrics95,%20385.pdf)

Abstract: What are the factors which render an article more likely to be cited? Using social network analysis of citations between published scholarly works, the nascent field around Social Studies of Science is examined from its incipience in 1971 until 2008. To gauge intellectual positioning, closeness centrality and orthodoxy rates are derived from bibliographic networks. Bibliographic orthodoxy is defined as the propensity of an article to cite other highly popular works. Orthodoxy and closeness centrality have differing effects on citation rates, varying across historical periods of development in the field. Effects were modest, but significant. In early time periods, articles with higher orthodoxy rates were cited more, but this effect dissipated over time. In contrast, citations associated with closeness centrality increased over time. Early SSS citation networks were smaller, less structurally cohesive and less modular than later networks. In contrast, later networks were larger, more structurally cohesive, more modular and less dense. These changes to the global SSS knowledge networks are linked to changes in the scientific reward structure ensconced in the network, particularly regarding orthodoxy and closeness centrality.

Keywords: Analysis, Bibliographic, Changes, Choice, Citation, Citation Rates, Citations, Collaboration, Competition, Creativity, Development, Differentiation, Effects, Emergence, Field, Global, Innovation, Intellectual History, Knowledge, Knowledge, Movements, Network, Network Analysis, Networks, Networks, Prestige, Rates, Science, Social, Social Network Analysis, Social-Structure, SS, Structure

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Full Text: [2013\Scientometrics95, 417.pdf](2013/Scientometrics95,%20417.pdf)

Abstract: This paper examines the possible home bias in the citation of the 300 most-cited articles in selected management journals between 2005 and 2009. The management journals chosen for the study were the ten with the greatest average impact over the last 5 years. The theoretical framework was built on: the theory of asymmetric information furnished by Financial Economics; contributions in the bibliometric field which indicate geographical bias in the scientific community’s citation patterns, and the notion of paradigm, employed in the Sociology of Science field. The data from the sample provide empirical evidence of a home bias in the citation pattern of the papers analysed. Here, home bias is defined as the positive difference between the percentage of a country’s self-citations minus the average number of citations of the same nation’s work by the remaining countries surveyed.

Keywords: Americanisation, Americanization, Asymmetric Information, Bias, Bibliometric, Bibliometrics, Citation, Citation Analysis, Citation Patterns, Citations, Co-Authorship, Data, Diversification, Economics, Education, Evidence, Field, Framework, Home Bias, Impact, Information, Investment, Journals, Literature, Management, Management Education, Notion, Papers, Paradigm, Pattern, Portfolios, Science, Sciences, Self-Citations, Theoretical, Theory, Work

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Full Text: [2013\Scientometrics95, 435.pdf](2013/Scientometrics95,%20435.pdf)

Abstract: This paper presents a new method for comparing universities based on information theoretic measures. The research output of each academic institution is represented statistically by an impact-factor histogram. To this aim, for each academic institution we compute the probability of occurrence of a publication with impact factor in different intervals. Assuming the probabilities associated with a pair of academic institutions our objective is to measure the Information Gain between them. To do so, we develop an axiomatic characterization of relative information for predicting institution-institution dissimilarity. We use the Spanish university system as our scenario to test the proposed methodology for benchmarking three universities with the rest as a case study. For each case we use different scientific fields such as Information and Communication Technologies, Medicine and Pharmacy, and Economics and Business as we believe comparisons must take into account their disciplinary context. Finally we validate the Information Gain values obtained for each case with previous studies.

Keywords: Academic-Institutions, Benchmarking, Benchmarking Research Output, Business, Case Study, Characterization, Communication, Context, Economics, Impact, Impact Factor, Impact-Factor Histogram, Index, Indicators, Information, Information Conservation Constraint, Information Gain, Information Theoretic Measure, Institution-Institution Similarity, Institutions, Intervals, Measure, Medicine, Methodology, Performance, Publication, Research, Research Output, Research Performance, Scenario, Universities, University

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Full Text: [2013\Scientometrics95, 453.pdf](2013/Scientometrics95,%20453.pdf)

Abstract: This paper evaluates the European Paradox according to which Europe plays a leading world role in terms of scientific excellence, measured in terms of the number of publications, but lacks the entrepreneurial capacity of the US to transform this excellent performance into innovation, growth, and jobs. Citation distributions for the US, the European Union (EU), and the Rest of the World are evaluated using a pair of high- and low-impact indicators, as well as the mean citation rate (MCR). The dataset consists of 3.6 million articles published in 1998-2002 with a common 5-year citation window. The analysis is carried at a low aggregation level, namely, the 219 sub-fields identified with the Web of Science categories distinguished by Thomson Scientific. The problems posed by international co-authorship and the multiple assignments of articles to sub-fields are solved following a multiplicative strategy. We find that, although the EU has more publications than the US in 113 out of 219 sub-fields, the US is ahead of the EU in 189 sub-fields in terms of the high-impact indicator, and in 163 sub-fields in terms of the low-impact indicator. Finally, we verify that using the high-impact indicator the US/EU gap is usually greater than when using the MCR.

Keywords: Aggregation, Analysis, Capacity, Citation, Citation Distributions, Citation Impact, Citations, Co-Authorship, Coauthorship, Distributions, EU, Europe, European Union, Growth, High- and Low-Impact Indicators, Impact, Indicator, Indicators, Innovation, International, Mean Citation Rate, Nations, Performance, Publications, Research Performance, Role, Scales, Science, Scores, Strategy, US, US, European Union Gap, Web of Science, World

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Full Text: [2013\Scientometrics95, 465.pdf](2013/Scientometrics95,%20465.pdf)

Abstract: Multimedia has taken on a very important role in our daily life which has led to a rapid growth research on this topic. Multimedia research covers a variety of problem domains so one must examine many current popular research areas to obtain a basic understanding of current multimedia research. This allows us to understand what has been done recently and to consider what will be more important in future. In this study, we collect and analyze data from ACM Multimedia conferences from 2007 to 2011. In particular, the organized sessions (or areas) and the citation count of popular areas are examined using the Web of Science and Google Scholar. Then, the self-organizing map method is used as a visualization tool for keyword analysis in order to identify popular areas and research topics in multimedia. In addition, we also examine the consistency of the identified popular research areas and topics between the ACM Multimedia conferences and two recent journal special issues.

Keywords: ACM Sigmm, Analysis, Citation, Citations, Conferences, Consistency, Data, Google, Google Scholar, Growth, Journal, Life, Multimedia, Recent, Research, Research Topics, Role, Science, Special Issues, Topic, Understanding, Visualization, Web of Science

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Full Text: [2013\Scientometrics95, 481.pdf](2013/Scientometrics95,%20481.pdf)

Abstract: Universities currently need to satisfy the demands of different audiences. In light of the increasing policy emphasis on “third mission” activities, universities are attempting to incorporate these into their traditional missions of teaching and research. University strategies to accomplishing its traditional missions are well-honed and routinized, but the incorporation of the third mission is posing important strategic and managerial challenges for universities. This study explores the relationship between university-business collaborations and academic excellence in order to examine the extent to which academic institutions can balance these objectives. Based on data from the UK Research Assessment Exercise 2001 at the level of the university department, we find no systematic positive or negative relationship between scientific excellence and engagement with industry. Across the disciplinary fields reported in the 2001 Research Assessment Exercise (i.e. engineering, hard sciences, biomedicine, social sciences and the humanities) the relationship between academic excellence and engagement with business is largely contingent on the institutional context of the university department. This paper adds to the growing body of literature on university engagement with business by examining this activity for the social sciences and the humanities. Our findings have important implications for the strategic management of university departments and for higher education policy related to measuring the performance of higher education research institutions.

Keywords: Activity, Biomedicine, Business, Citation Analysis, Collaborations, Commercialization, Context, Data, Education, Engagement, Engineering, Entrepreneurial, Faculty, Higher Education, Humanities, Impact Assessment, Incentives, Industry, Institutions, Ivory Tower, Life-Science, Literature, Management, Performance, Policy, Productivity, Research, Research Assessment Exercise, Research Institutions, Sciences, Scientific Excellence, Social, Social Sciences, Strategic, Strategic Management, Teaching, UK, Universities, University, University Departments, University Management, University Performance, University-Business Collaborations

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Full Text: [2013\Scientometrics95, 503.pdf](2013/Scientometrics95,%20503.pdf)

Abstract: A series of techniques based on bibliometric clustering and mapping for scientometrics analysis was implemented in a software toolkit called CATAR for free use. Application of the toolkit to the field of library and information science (LIS) based on journal clustering for subfield identification and analysis to suggest a proper set of LIS journals for research evaluation is described. Two sets of data from Web of Science in the Information Science & Library Science (IS&LS) subject category of Journal Citation Reports were analyzed: one ranges from year 2000 to 2004, the other from 2005 to 2009. The clustering results in graphic dendrograms and multi-dimensional scaling maps from both datasets consistently show that some IS&LS journals clustered in the management information systems subfield are distant from the other journals in terms of their intellectual base. Additionally, the cluster characteristics analyzed based on a diversity index reveals the regional characteristics for some identified subfields. Since journal classification has become a high-stake issue that affects the evaluation of scholars and universities in some East Asian countries, both cases (isolation in intellectual base and regionalism in national interest) should be taken into consideration when developing research evaluation in LIS based on journal classification and ranking for the evaluation to be fairly implemented without biasing future LIS research.

Keywords: Analysis, Application, Asian, Bibliographic Coupling, Bibliometric, Bibliometric Analysis, Characteristics, Citation, Citation Analysis, Classification, Cluster, Clustering, Cocitation Analysis, Data, Developing, Diversity, Document Clustering, Documents, Evaluation, Field, Freeware, Identification, Index, Information, Information Science, Information Systems, Journal, Journal Citation Reports, Journal Classification, Journals, Li, Library and Information Science, Lis, Lis Journals, Lis Research, Management, Management Information, Management Information Systems, Mapping, Maps, Multidimensional, Multidimensional Scaling, Networks, Ranking, Regional, Regionalism, Research, Research Evaluation, Research Performance Evaluation, Research-Front, Scaling, Science, Scientific Journals, Scientometrics, Software, Systems, Techniques, Universities, Web of Science

Notes: CCountry

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Full Text: [2013\Scientometrics95, 529.pdf](2013/Scientometrics95,%20529.pdf)

Abstract: In this study we present an analysis of the research trends in Pakistan in the field of biotechnology for the period 1980-2011. Starting with just 15 publications in 1980 with a negligible annual growth rate for the initial 15 years, the number of publications reached 3,273 in 2011 with an annual growth rate of 22 % for the last 15 years. This growth in publications is studied through factors such as Relative Growth Rate and Doubling Time. A comparison of organizations actively engaged in research in biotechnology is made through factors such as their total publications, total citations, and average citations per paper and indices that determine the quality of publications like h-Index, g-index, hg-index and p-index. University of Karachi shows the highest number of publications (2,698), while National Institute of Biotechnology and Genetic Engineering with fewer publications shows the highest average citation per paper (8.07). Agha Khan University however, shows the highest h, g, hg and p indices.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Biotechnology, Citation, Citations, Comparison, Field, G Index, G-Index, Growth, Growth Rate, h Index, h-Index, Hg-Index, Index, Indices, Nanotechnology, Output, P-Index, Pakistan, Publications, Quality, Quality of, Quality of Publications, Rate, Research, Research Trends, Science, Scientometric, Scopus, Time, Trends, University, Web

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Full Text: [2013\Scientometrics95, 541.pdf](2013/Scientometrics95,%20541.pdf)

Abstract: Conferences play a major role for the development of scientific domains. While journal and article contributions in the field of international business (IB) are a general and well researched area of scientometric studies, conferences are not. The absence of a systematic assessment of international business conferences as a reference to the collective status of the Academy of International Business (AIB) community is astonishing. Whatever reasons are accountable for that fact, this paper starts to fill that gap. It establishes a knowledge network composed of the last six years AIB conferences. We collected all the contributions in full text with their abstracts and keywords from 2006 to 2011. All the data have been organized in a data system and we used the information-theoretic clustering method which allows different analytical views through the entire knowledge corpus. The results indicate significant statistical differences between topic modules and keyword threads of the yearly conferences. There are three keywords which dominate as a leitmotif between 2006 and 2011, but the detailed structure changes from conference to conference significantly.

Keywords: Agenda, Assessment, Bibliometric Analysis, Business, Changes, Clustering, Co-Word Analysis, Community, Conferences, Data, Development, Emerging Markets, Countries, Economies, Evolution, FDI, Field, General, Ib, Information, International, International Business, Journal, Journals, Knowledge, Longitudinal, Longitudinal Analysis, MNE, Network, Networks, Ranking, Reference, Role, Scientometric, Scientometric Studies, Structure, Topic, Trends

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Full Text: [2013\Scientometrics95, 563.pdf](2013/Scientometrics95,%20563.pdf)

Abstract: We propose an indicator to “measure” the extent to which co-publication through international collaboration enhances the value of scientific output of an organisation or agency performing academic research. A second order approach is used which combines a quality proxy (impact) and a quantity or size proxy (number of papers published) to yield a trinity of energy like scalar proxies. From these it is possible to define an index of foreign collaboration and another evenness indicator that shows the size and unevenness of the role foreign collaboration plays in the total academic output of the organization.

Keywords: Approach, Bibliometrics, Citation, Collaboration, Energy, Entropy, Exergy, Impact, Index, Index of Evenness of Collaboration, Index of Foreign Collaboration, Indicator, Indicators, International, International Collaboration, Organization, Papers, Quality, Quantity, Research, Role, Science, Scientific Collaboration, Scientific Output, Second Order, Second-Order, Size, Value

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Full Text: [2013\Scientometrics95, 571.pdf](2013/Scientometrics95,%20571.pdf)

Abstract: the objective of this study is to investigate scientific collaboration in biotechnology in the northeast region of Brazil. The data presented refer to the 1980-2010 period and were collected from the Brazilian National Council for Scientific and Technological Development platform database known as Lattes (a compilation of curricula vitae of researchers in Brazil, including a record of their scientific production) and from the Institute for Scientific Information Web of Science database. Our analysis involved the use of bibliometric indicators, specifically co-authorship between or among institutions, as well as the evaluation of social networks and multivariate statistics. Overall, we verified that collaboration takes place mostly at the intra-institutional level. At intra-regional scale, we could observe the development of four clusters in relation to the collaboration dynamics, in which geographic proximity stands out as grouping factor. At the interregional level, the partnerships revolve around institutions that count with laboratory infrastructure and research tradition in the field of biotechnology. Regarding international collaboration, it remains connected to national scientific cooperation programs.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Biotechnology, Brazil, Citation Impact, Co-Authorship, Coauthorship, Collaboration, Collaborative Scientific, Cooperation, Curricula, Data, Database, Development, Dynamics, Evaluation, Field, Indicators, Industry, Information, Infrastructure, Innovation, Institute For Scientific Information, Institutions, International, International Collaboration, Multivariate, Multivariate Statistics, Networks, Northeast Region, Partnerships, Patterns, Record, Region, Research, Scale, Science, Scientific Collaboration, Scientific Cooperation, Scientific Production, Sector, Social, Social Network, Social Networks, Statistics, Web of Science

? Orduna-Malea, E. and Ontalba-Ruiperez, J.A. (2013), Selective linking from social platforms to university websites: A case study of the Spanish academic system. *Scientometrics*, **95** (2), 593-614.

Full Text: [2013\Scientometrics95, 593.pdf](2013/Scientometrics95,%20593.pdf)

Abstract: Mention indicators have frequently been used in Webometric studies because they provide a powerful tool for determining the degree of visibility and impact of web resources. Among mention indicators, hypertextual links were a central part of many studies until Yahoo! discontinued the ‘linkdomain’ command in 2011. Selective links constitute a variant of external links where both the source and target of the link can be selected. This paper intends to study the influence of social platforms (measured through the number of selective external links) on academic environments, in order to ascertain both the percentage that they constitute and whether some of them can be used as substitutes of total external links. For this purpose, 141 URLs belonging to 76 Spanish universities were compiled in 2010 (before Yahoo! stopped their link services), and the number of links from 13 selected social platforms to these universities were calculated. Results confirm a good correlation between total external links and links that come from social platforms, with the exception of some applications (such as Digg and Technorati). For those universities with a higher number of total external links, the high correlation is only maintained on Delicious and Wikipedia, which can be utilized as substitutes of total external links in the context analyzed. Notwithstanding, the global percentage of links from social platforms constitute only a small fraction of total links, although a positive trend is detected, especially in services such as Twitter, Youtube, and Facebook.

Keywords: Case Study, Context, Correlation, External Links, Framework, Global, Impact, Indicators, Institutions, Purpose, Resources, Results, Selective, Services, Sharing Resource Systems, Small, Social, Social Platforms, Source, Spain, Spanish Universities, Trend, Universities, University, Visibility, Web, Web Links, Web-Resources, Webometrics, Websites

? Macias-Chapula, C.A. (2013), Comparative analysis of health public policy research results among Mexico, Chile and Argentina. *Scientometrics*, **95** (2), 615-628.

Full Text: [2013\Scientometrics95, 615.pdf](2013/Scientometrics95,%20615.pdf)

Abstract: the purpose was to undertake a descriptive, quantitative comparative analysis of the production, visibility and online access to public health research results in the field of health public policy among Mexico, Chile and Argentina. A literature search in the field was conducted in MEDLINE (1966-2010) and LILACS (1980-2010) through BIREME’s virtual health library. A bibliometric analysis was conducted to identify the type of documents produced, authorship, language of publication, check-tags, major subject content, journals used, and main participating institutions. Visibility was obtained through the identification of the document type used and the subject content, per database. Accessibility was limited to online full-text access. Only 6 (out of 30) health science descriptors under health public policy have emerged as relevant by all three countries in both databases; namely, health services accessibility; health care reform; decentralization; health systems; consumer participation and financing, health. References retrieved from MEDLINE corresponded to journal articles in all three countries. In LILACS monographs corresponded to over 40 %. Overall health public policy documents addressed adult female and male studies, with the exception of Argentina which addressed female and male children. Full-text accessibility was less than 25 % of total production. Health public policy research is in its infancy in Spanish speaking Latin America. While health care reforms have been implemented regionally in the last three decades, few (20 %) subject contents have been explored. Further research is needed to fill existing gaps; as well as bigger efforts to increase online full-text accessibility and dissemination of research results.

Keywords: Access, Accessibility, Adult, Analysis, Argentina, Authorship, Bibliometric, Bibliometric Analysis, Care, Children, Chile, Comparative Analysis, Database, Databases, Female, Field, Financing, Health, Health Care, Health Care Reform, Health Public Policy, Health Research, Health Services, Health Services Accessibility, Health Systems, Identification, Infancy, Institutions, Journal, Journal Articles, Journals, Knowledge Management, Language, Latin America, Latin-America, Link Research, Literature, Male, MEDLINE, Mexico, Monographs, Online, Participation, Policy, Public, Public Health, Public Health Research, Public Policy, Publication, Purpose, Reform, Reforms, Research, Research Results, Science, Services, Systems, Visibility

? Belter, C.W. (2013), A bibliometric analysis of NOAA’s Office of Ocean Exploration and Research. *Scientometrics*, **95** (2), 629-644.

Full Text: [2013\Scientometrics95, 629.pdf](2013/Scientometrics95,%20629.pdf)

Abstract: Bibliometric analysis techniques are increasingly being used to analyze and evaluate scientific research produced by institutions and grant funding agencies. This article uses bibliometric methods to analyze journal articles funded by NOAA’s Office of Ocean Exploration and Research (OER), an extramural grant-funding agency focused on the scientific exploration of the world’s oceans. OER-supported articles in this analysis were identified through grant reports, personal communication, and acknowledgement of OER support or grant numbers. The articles identified were analyzed to determine the number of publications and citations received per year, subject, and institution. The productivity and citation impact of institutions in the US receiving OER grant funding were mapped geographically. Word co-occurrence and bibliographic coupling networks were created and visualized to identify the research topics of OER-supported articles. Finally, article citation counts were evaluated by means of percentile ranks. This article demonstrates that bibliometric analysis can be useful for summarizing and evaluating the research performance of a grant funding agency.

Keywords: Analysis, Bibliographic, Bibliographic Coupling, Bibliometric, Bibliometric Analysis, Bibliometric Mapping, Bibliometric Methods, Citation, Citation Analysis, Citation Counts, Citation Impact, Citations, Cocitation, Communication, Complex Networks, Foundation, Funding, Funding Agency, Grants, Impact, Institutions, Journal, Journal Articles, Methods, Networks, Percentile, Performance, Productivity, Publications, Research, Research Evaluation, Research Funding, Research Performance, Science, Science Policy, Scientific Research, Society, Support, Techniques, Technology, US

? Dorta-Gonzalez, P. and Dorta-Gonzalez, M.I. (2013), Comparing journals from different fields of science and social science through a JCR subject categories normalized impact factor. *Scientometrics*, **95** (2), 645-672.

Full Text: [2013\Scientometrics95, 645.pdf](2013/Scientometrics95,%20645.pdf)

Abstract: the journal Impact Factor (IF) is not comparable among fields of science and social science because of systematic differences in publication and citation behaviour across disciplines. In this work, a decomposing of the field aggregate impact factor into five normally distributed variables is presented. Considering these factors, a principal component analysis is employed to find the sources of the variance in the Journal Citation Reports (JCR) subject categories of science and social science. Although publication and citation behaviour differs largely across disciplines, principal components explain more than 78 % of the total variance and the average number of references per paper is not the primary factor explaining the variance in impact factors across categories. The categories normalized impact factor based on the JCR subject category list is proposed and compared with the IF. This normalization is achieved by considering all the indexing categories of each journal. An empirical application, with one hundred journals in two or more subject categories of economics and business, shows that the gap between rankings is reduced around 32 % in the journals analyzed. This gap is obtained as the maximum distance among the ranking percentiles from all categories where each journal is included.

Keywords: Analysis, Application, Audience Factor, Behaviour, Business, Citation, Citation Analysis, Distributed, Economics, Field, h-Index, Impact, Impact Factor, Impact Factors, Indexing, Indicators, JCR, JCR Subject Categories, Journal, Journal Citation Reports, Journal Evaluation, Journals, Networks, Normalization, Percentiles, Primary, Principal Component Analysis, Publication, Ranking, Rankings, References, Science, Social, Source Normalized Indicator, Sources, Terms, Tool, Work

? de Souza, C.G. and Ferreira, M.L.A. (2013), Researchers profile, co-authorship pattern and knowledge organization in information science in Brazil. *Scientometrics*, **95** (2), 673-687.

Full Text: [2013\Scientometrics95, 673.pdf](2013/Scientometrics95,%20673.pdf)

Abstract: This paper aimed to present the profile of the researchers, the pattern of scientific collaboration and the knowledge organization in the area of information science in Brazil. The study covered sex differences, skills by region and type of institution, academic formation, indicators of productivity, relations of co-authorship, interactions with other fields of knowledge, and sectors of application of the researches developed in the area. The survey, covering the period 2000-2010, was based on information from the curricula vitae of the researchers with Research Productivity Grant funded by a government agency and from the Directory of Research Group of the National Council for Scientific and Technological Development. The results revealed that the majority of the researchers are women, both in research and postgraduate; there is a significant regional asymmetry; the studies are concentrated in public universities; the papers are published mainly in national journals with open access; the scientific production follows the same pattern of the areas of humanities, social sciences, and linguistics, literature and arts; there is a tendency of increasing the incidence and extent of co-authored papers; there is interaction with other 20 areas of knowledge, which are directly or indirectly connected, forming a single component that comprises all of them; and ‘information and S&T management’ followed by ‘education’ are the main sectors of application of the studies developed by the Brazilian researchers. The study therefore showed an overview of this scientific community seeking to contribute to a better understanding of its characteristics and specificities.

Keywords: Access, Application, Areas, Articles, Asymmetry, Brazil, Brazilian Science, Characteristics, Co-Authorship, Coauthorship, Collaboration, Community, Curricula, Education, Evolution, Humanities, Incidence, Indicator, Indicators, Information, Information Science, Interaction, Interdisciplinarity, Journals, Knowledge, Knowledge Organization, Library-Science, Literature, Management, Networks, Open, Open Access, Organization, Papers, Pattern, Productivity, Public, Region, Regional, Relations, Research, Research Activity, Researchers, Researchers Profile, Science, Science In Brazil, Sciences, Scientific Collaboration, Scientific Production, Sex, Sex Differences, Social, Social Sciences, Survey, Understanding, Universities, Women

? Ibanez, A., Bielza, C. and Larranaga, P. (2013), Relationship among research collaboration, number of documents and number of citations: A case study in Spanish computer science production in 2000-2009. *Scientometrics*, **95** (2), 689-716.

Full Text: [2013\Scientometrics95, 689.pdf](2013/Scientometrics95,%20689.pdf)

Abstract: This paper analyzes the relationship among research collaboration, number of documents and number of citations of computer science research activity. It analyzes the number of documents and citations and how they vary by number of authors. They are also analyzed (according to author set cardinality) under different circumstances, that is, when documents are written in different types of collaboration, when documents are published in different document types, when documents are published in different computer science subdisciplines, and, finally, when documents are published by journals with different impact factor quartiles. To investigate the above relationships, this paper analyzes the publications listed in the Web of Science and produced by active Spanish university professors between 2000 and 2009, working in the computer science field. Analyzing all documents, we show that the highest percentage of documents are published by three authors, whereas single-authored documents account for the lowest percentage. By number of citations, there is no positive association between the author cardinality and citation impact. Statistical tests show that documents written by two authors receive more citations per document and year than documents published by more authors. In contrast, results do not show statistically significant differences between documents published by two authors and one author. The research findings suggest that international collaboration results on average in publications with higher citation rates than national and institutional collaborations. We also find differences regarding citation rates between journals and conferences, across different computer science subdisciplines and journal quartiles as expected. Finally, our impression is that the collaborative level (number of authors per document) will increase in the coming years, and documents published by three or four authors will be the trend in computer science literature.

Keywords: Academic Staff, Activity, Association, Authors, Case Study, Citation, Citation Impact, Citation Rates, Citations, Collaboration, Collaboration Patterns, Collaborations, Computer Science, Conferences, Field, Impact, Impact Factor, Indicators, International, International Collaboration, Journal, Journals, Literature, Need, Number of Authors, Number of Citations, Number of Documents, Publications, Quality, Rates, Research, Research Collaboration, Scholar, Science, Science Research, Scientific Collaboration, Spain, System, Trend, University, Web of Science

? Wang, X.W., Wang, Z. and Xu, S.M. (2013), Tracing scientist’s research trends realtimely. *Scientometrics*, **95** (2), 717-729.

Full Text: [2013\Scientometrics95, 717.pdf](2013/Scientometrics95,%20717.pdf)

Abstract: In this research, we propose a method to trace scientist’s research trends realtimely. By monitoring the downloads of scientific articles in the journal of Scientometrics for 744 h, namely one month, we investigate the download statistics. Then we aggregate the keywords in these downloaded research papers, and analyze the trends of article downloading and keyword downloading. Furthermore, taking both the downloads of keywords and articles into consideration, we design a method to detect the emerging research trends. We find that in scientometrics field, social media, new indices to quantify scientific productivity (g-index), webometrics, semantic, text mining, and open access are emerging fields that scientometrics researchers are focusing on.

Keywords: Access, Altmetrics, Bibliometric Analysis, Citations, Design, Download, Downloads, Field, G Index, G-Index, Indices, Journal, Media, Mining, Monitoring, Number, Open, Open Access, Papers, Productivity, Realtime, Research, Research Trend, Research Trends, Scientific Productivity, Scientometrics, Social, Springer, Statistics, Text Mining, Trends, Webometrics

? Wang, Y.D., Pan, X.F., Chen, Y.T. and Gu, X. (2013), Do references in transferred patent documents signal learning opportunities for the receiving firms? *Scientometrics*, **95** (2), 731-752.

Full Text: [2013\Scientometrics95, 731.pdf](2013/Scientometrics95,%20731.pdf)

Abstract: In this study, we empirically investigate the role of references in patents in a firm’s technological learning and innovation when the patents are transferred (i.e., technology licensing activities) to these firms. This study is based on a sample of 68 Chinese high-tech firms that engaged in patent technology licensing while using a matching sample of non-licensee firms, and it examines covered patents in licensee agreements that were originally registered in the European Patent Office between 2000 and 2005. Empirical results indicate that the reference scope (defined as the number of different patent classes-classes that the examined patent does not belong to-in the backward citations) and the time lag of the backward citations each has a positive effect and a negative effect on the licensee firms’ innovation outcomes respectively, measured as the number of Chinese patent applications during the 5 years after the licensing year. However, it failed to find a positive effect of the science-based citations (defined as backward citations to journal articles) as we predicted.

Keywords: Chinese, Citations, Combinative Capabilities, Competitive Advantage, External Technology Acquisition, Innovation, Inward Technology Licensing, Journal, Journal Articles, Knowledge Spillovers, Learning, Licensing, Open Innovation, Outcomes, Patent, Patent Citations, Patents, Performance, Product Development, Reference, Reference Scope, Reference Time Lag Science-Based Citations, References, Research-And-Development, Role, Scope, Search, Technology

Notes: CCountry

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Full Text: [2013\Scientometrics95, 753.pdf](2013/Scientometrics95,%20753.pdf)

Abstract: This research aims at performing a comparative study between the Brazilian scientific production in Dentistry, from 2000 to 2009 and countries that contribute with at least 2 % of the world’s scientific production indexed in the Scopus database. More specifically, we intend to assess the annual Brazilian scientific production by comparing it to the other countries’, analyze the Brazilian and other countries’ publications in journals with higher impact factors, as well as to highlight the scientific production from these countries and its international visibility, measured by its total and by its average of citations and normalized citation index per year, by comparing the countries, and to compare the index h of such countries. As work procedure, the SCImago Journal and Country Rank was used as source, identifying the group of producing countries in the Dentistry area from 1996 to 2009. From a total of 136 countries, 13 were highlighted as the most productive, each one of them accounting for at least 2 % the worldwide scientific production in the area. The following indicators were raised for each country: number of produced documents, total of citations, self-citations, average of citations per document and index h. We verified that Brazil is the only country in Latin America that is pictured among the most productive ones in the Dentistry area. We observed that Brazil presents a growing visibility and impact in the international scenery, what suggests that its production is constantly consolidating, with Brazilian scientific recognition in the main vehicles of dissemination in the area.

Keywords: Analysis, Brazil, Citation, Citation Index, Citations, Comparative Study, Country, Database, Dentistry, Dentistry Scientific Production, Impact, Impact Factors, Index, Index h, Indicators, Information Science Research, International, Journal, Journals, Latin America, Procedure, Publications, Research, Scientific Production, Scientometric, Scientometric Analysis, Scientometric Indicators, Scimago, Scopus, Self-Citations, Source, Visibility, Work

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Full Text: [2013\Scientometrics95, 771.pdf](2013/Scientometrics95,%20771.pdf)

Abstract: Scientists collaborate increasingly on a global scale. Does this trend also hold for other bibliometric relations such as direct citations, cocitations and shared references? This study examines citation-based relations in publications published in the journal Scientometrics from 1981 to 2010. Different measures of Mean Geographical Distance (MGD) are tested. If we take all citation links into consideration, there is no indication of MGD increase, but when we look at maximum distances of each relation, a weak tendency of increasing MGD could be observed. One major factor behind the lack of growth of mean distances is the form of the distribution of citation links over distances. Our data suggest that the interactions might grow simultaneously for both short and long distances.

Keywords: Bibliometric, Citation, Citations, Co-Authorships, Co-Citations, Data, Direct Citations, Distribution, Europe, Geographical Distance, Global, Growth, Indication, Journal, Kilometers, Patterns, Publications, References, Relations, Scale, Science, Scientific Collaboration, Scientists, Scientometrics, Shared References, Trend

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Full Text: [2013\Scientometrics95, 785.pdf](2013/Scientometrics95,%20785.pdf)

Abstract: We formulate the problem of how to climb in multi-attribute rankings with known weights using mathematical optimization. A model is derived based on familiar practices used in rankings in higher education where several attributes are combined using known weights to obtain a score. The method applies in any situation where multiple attributes are used to rank entities. We invoke several assumptions such as independence among attributes and that administrators can affect the values of some of the attributes and know the cost of doing so. Our results suggest that a strategy to advance in the rankings is to focus on modifying the value of fewer rather than more attributes. The model is generalized to allow for synergies and antagonisms among the attributes.

Keywords: Advance, Assumptions, Cost, Data Envelopment Analysis (DEA), Education, Familiar, Higher Education, Impact, Linear Programming, Mathematical Model, Model, Optimization, Performance Measure, Practices, Rank, Rankings, Strategy, University Rankings, Value

? Isfandyari-Moghaddam, A. and Hasanzadeh, M. (2013), A study of factors inhibiting research productivity of Iranian women in ISI. *Scientometrics*, **95** (2), 797-815.

Full Text: [2013\Scientometrics95, 797.pdf](2013/Scientometrics95,%20797.pdf)

Abstract: Because in terms of research productivity, performance of women is weaker than men’s, and since little is known on the factors inhibiting academic women’s productivity in Iran, the present article aims to study factors inhibiting research productivity of Iranian women in ISI. To do this, at first, women who have already had published documents indexed in ISI were identified through Web of Science (WoS). Afterwards, in order to collect their view regarding factors inhibiting women’s research productivity, a researcher-made questionnaire was used. To analyze the collected data, the statistical software SPSS (version 17) was used. Both descriptive (percentage and frequency) and inferential (ANOVA) statistics were employed to reach valid findings. The findings indicate that the most inhibitory factors affecting negatively publishing scholarly articles by Iranian women are ‘Shortcomings in the existing laws’, ‘Stereotypes and beliefs concerning women’, ‘Family work’, ‘Social and cultural contingencies’, ‘Child care’, and ‘Low collaboration with male colleagues’. Finally, some remarks for the improvement of the current condition are highlighted.

Keywords: Anova, Bibliometrics, Care, Child, Collaboration, Cultural, Data, First, Gender-Differences, Improvement, Inhibitory Factors, Iran, ISI, Laws, Male, Performance, Productivity, Publication Productivity, Publishing, Questionnaire, Research, Research Hindrances, Research Performance, Research Productivity, Science, Scientific Productivity, Scientific Productivity, Scientific Products, Software, Statistics, Version, Web, Web of Science, Women, Work, WoS

? van Leeuwen, T., Costas, R., Calero-Medina, C. and Visser, M. (2013), The role of editorial material in bibliometric research performance assessments. *Scientometrics*, **95** (2), 817-828.

Full Text: [2013\Scientometrics95, 817.pdf](2013/Scientometrics95,%20817.pdf)

Abstract: In this study, the possibilities to extend the basis for research performance exercises with editorial material are explored. While this document type has been traditionally not considered as an important type of scientific communication in research performance assessment procedures, there is a perception from researchers that editorial materials should be considered as relevant document types as important sources for the dissemination of scientific knowledge. In a number of these cases, some of the mentioned editorial materials are actually ‘highly cited’. This lead to a thorough scrutiny of editorials or editorial material over the period 1992-2001, for all citation indexes of Thomson Scientific. The relevance of editorial materials through three quantitative bibliometric characteristics of scientific publications, namely page length, number of references, and the number of received citations, are thoroughly analyzed.

Keywords: Assessment, Assessments, Bibliometric, Bibliometric Methodology, Bibliometric Research, Characteristics, Citation, Citation Indexes, Citations, Communication, Document Types, Editorial Material, Exercises, Highly Cited, Highly-Cited, Journals, Knowledge, Lead, Length, Output, Perception, Performance, Procedures, Publications, References, Relevance, Research, Research Assessment, Research Performance, Reviews, Role, Scientific Communication, Scientific Publications, Sources

? Avila-Robinson, A. and Miyazaki, K. (2013), Evolutionary paths of change of emerging nanotechnological innovation systems: the case of ZnO nanostructures. *Scientometrics*, **95** (3), 829-849.

Full Text: [2013\Scientometrics95, 829.pdf](2013/Scientometrics95,%20829.pdf)

Abstract: This paper puts forward a quantitative approach aimed at the understanding of the evolutionary paths of change of emerging nanotechnological innovation systems. The empirical case of the newly emerging zinc oxide one-dimensional nanostructures is used. In line with other authors, ‘problems’ are visualized as those aspects guiding the dynamics of innovation systems. It is argued that the types of problems confronted by an innovation system, and in turn its dynamics of change, are imprinted on the nature of the underlying knowledge bases. The latter is operationalized through the construction of co-citation networks from scientific publications. We endow these co-citation networks with directionality through the allocation of a particular problem, drawn from a ‘problem space’ for nanomaterials, to each network node. By analyzing the longitudinal, structural and cognitive changes undergone by these problem-attached networks, we attempt to infer the nature of the paths of change of emerging nanotechnological innovation systems. Overall, our results stress the evolutionary mechanisms underlying change in a specific N&N subfield. It is observed that the latter may exert significant influence on the innovative potentials of nanomaterials.

Keywords: Allocation, Approach, Authors, Changes, Co-Citation, Co-Citation Networks, Cocitation, Construction, Directions, Dynamics, Emerging Technologies, Evolutionary Change, Influence, Innovation, Innovation System, Issues, Know-How, Knowledge, Knowledge Bases, Longitudinal, Mechanisms, Nanomaterials, Nanostructures, Nanotechnology, Network, Networks, Oxide, Problem Sequences, Publications, Science, Scientific Publications, Stress, Systems, Technological-Change, Trajectories, Understanding, Zinc

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Full Text: [2013\Scientometrics95, 851.pdf](2013/Scientometrics95,%20851.pdf)

Abstract: This study tests for evidence of gaming and attention mongering-here termed ego bias-in the scholarly peer review process. We explore the extent to which authors cite the target journal and its editor and also the relationship between targeted references and editorial decisions. We examine referee reports for the presence and type of references and determine the extent to which reviewers cite their own work in their reports. Our results are based on a sample of 442 manuscripts and 927 referee reports submitted to the Journal of the American Society of Information Science and Technology. We find little evidence that editors, authors or reviewers use the peer review process as an opportunity to play citation games.

Keywords: Articles, Attention, Authors, Behavior, Bias, Citation, Citation Analysis, Editors, Evidence, Gender, Impact-Factors, Information, Journal, Journals, Manuscripts, Output, Peer Review, Peer-Review, References, Review, Review Process, Scholarly Communication, Science, Scientists, Scientometrics, Technology, Testing, Work

? Orduna-Malea, E. and Ontalba-Ruiperez, J.A. (2013), Proposal for a multilevel university cybermetric analysis model. *Scientometrics*, **95** (3), 863-884.

Full Text: [2013\Scientometrics95, 863.pdf](2013/Scientometrics95,%20863.pdf)

Abstract: Universities’ online seats have gradually become complex systems of dynamic information where all their institutions and services are linked and potentially accessible. These online seats now constitute a central node around which universities construct and document their main activities and services. This information can be quantitative measured by cybermetric techniques in order to design university web rankings, taking the university as a global reference unit. However, previous research into web subunits shows that it is possible to carry out systemic web analyses, which open up the possibility of carrying out studies which address university diversity, necessary for both describing the university in greater detail and for establishing comparable ranking units. To address this issue, a multilevel university cybermetric analysis model is proposed, based on parts (core and satellite), levels (institutional and external) and sublevels (contour and internal), providing a deeper analysis of institutions. Finally the model is integrated into another which is independent of the technique used, and applied by analysing Harvard University as an example of use.

Keywords: Academic Websites, Analyses, Analysis, Communication, Complex Systems, Complutense University of Madrid, Departments, Design, Diversity, Dynamic, Global, Harvard University, Higher-Education, Impact, Information, Inlinks, Institutions, Model, Multilevel Analysis Model, Online, Open, Ranking, Rankings, Reference, Research, Science, Services, Systems, Techniques, Universities, University, Web, Web Unit Analysis, Web-Site Interlinking, Webometrics, Webometrics

? Wang, X.W., Xu, S.M., Wang, Z., Peng, L. and Wang, C.L. (2013), International scientific collaboration of China: collaborating countries, institutions and individuals. *Scientometrics*, **95** (3), 885-894.

Full Text: [2013\Scientometrics95, 885.pdf](2013/Scientometrics95,%20885.pdf)

Abstract: Using bibliometric methods, we investigate China’s international scientific collaboration from three levels of collaborating countries, institutions and individuals. We design a database in SQL Server, and make analysis of Chinese SCI papers based on the corresponding author field. We find that China’s international scientific collaboration is focused on a handful of countries. Nearly 95 % international co-authored papers are collaborated with only 20 countries, among which the USA account for more than 40 % of all. Results also show that Chinese lineage in the international co-authorship is obvious, which means Chinese immigrant scientists are playing an important role in China’s international scientific collaboration, especially in English-speaking countries.

Keywords: Analysis, Bibliometric, Bibliometric Methods, China, Chinese, Chinese Immigrant, Chinese Lineage, Co-Authorship, Coauthorship, Collaboration, Database, Design, Field, Immigrant, Infrastructure, Institutions, International, Methods, Nanotechnology, Papers, Results, Role, SCI, Science-And-Technology, Scientific Collaboration, Scientists, USA

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Full Text: [2013\Scientometrics95, 895.pdf](2013/Scientometrics95,%20895.pdf)

Abstract: Rather than “measuring” a scientist impact through the number of citations which his/her published work can have generated, isn’t it more appropriate to consider his/her value through his/her scientific network performance illustrated by his/her co-author role, thus focussing on his/her joint publications, and their impact through citations? Whence, on one hand, this paper very briefly examines bibliometric laws, like the h-Index and subsequent debate about co-authorship effects, but on the other hand, proposes a measure of collaborative work through a new index. Based on data about the publication output of a specific research group, a new bibliometric law is found. Let a co-author C have written J (joint) publications with one or several colleagues. Rank all the co-authors of that individual according to their number of joint publications, giving a rank r to each co-author, starting with r = 1 for the most prolific. It is empirically found that a very simple relationship holds between the number of joint publications J by coauthors and their rank of importance, i.e., J ae 1/r. Thereafter, in the same spirit as for the Hirsch core, one can define a “co-author core”, and introduce indices operating on an author. It is emphasized that the new index has a quite different (philosophical) perspective that the h-Index. In the present case, one focusses on “relevant” persons rather than on “relevant” publications. Although the numerical discussion is based on one “main author” case, and two “control” cases, there is little doubt that the law can be verified in many other situations. Therefore, variants and generalizations could be later produced in order to quantify co-author roles, in a temporary or long lasting stable team(s), and lead to criteria about funding, career measurements or even induce career strategies.

Keywords: Bibliometric, Bibliometric Indicators, Citations, Co-Author, Co-Authors, Co-Authorship, Coauthorship, Coauthorship Networks, Cooperation Structure, Criteria, Data, Effects, Funding, h Index, h-Index, Hirsch, Hirsch Index, Impact, Index, Indices, Invisible-Colleges, Law, Laws, Lead, Measure, Network, Performance, Productivity, Publication, Publications, Rank, Ranking, Research, Role, Scientific Collaboration, Scientific Network, Scientometrics, Self-Citations, Temporary, Value, Work

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Full Text: [2013\Scientometrics95, 911.pdf](2013/Scientometrics95,%20911.pdf)

Abstract: We investigate the impact of collaborative research in academic Finance literature to find out whether and to what extent collaboration leads to higher impact articles (6,667 articles across 2001-2007 extracted from the Web of Science). Using the top 5 % as ranked by the 4-year citation counts following publication, we also follow related secondary research questions such as the relationships between article impact and author impact; collaboration and average author impact of an article; and, the nature of geographic collaboration. Key findings indicate: collaboration does lead to articles of higher impact but there is no significant marginal value for collaboration beyond three authors; high impact articles are not monopolized by high impact authors; collaboration and the average author impact of high-impact articles are positively associated, where collaborative articles have a higher mean author impact in comparison to single-author articles; and collaboration among the authors of high impact articles is mostly cross-institutional.

Keywords: Article Impact, Author Impact, Authors, Citation, Citation Analysis, Citation Counts, Collaboration, Collaborative Research, Comparison, Finance, High-Impact Articles, Impact, Influence, Investigation, Lead, Literature, Management, Model, Publication, Quality, Research, Science, Scientific Collaboration, Teams, Value, Web of Science

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Full Text: [2013\Scientometrics95, 927.pdf](2013/Scientometrics95,%20927.pdf)

Abstract: Science studies have not yet provided a conceptual scheme that distinguishes creative accomplishments from other research contributions. Likewise, there is no commonly agreed typology capturing all important manifestations of innovative science. This article takes up these two desiderata. We argue that scientific creativity springs from the fundamental tension between originality and scientific relevance. Based on this consideration, we introduce a conceptual scheme that singles out creative research accomplishments from other contributions in science. Furthermore, this paper shows that creative contributions are not only advances in theory but also new methods, new empirical phenomena, and the development of new research instrumentation. For illustrative purposes, the article introduces examples from science history and presents results from bibliometric studies.

Keywords: Advances, Articles, Bibliometric, Bibliometric Studies, Bibliometrics, Brokerage, Citation Analysis, Creativity, Development, Discoveries, Heuristic, Highly Cited Papers, History, Impact, Instrumentation, Journals, Methods, Originality, Philosophy of Science, Relevance, Research, Research Accomplishment, Science, Scientific Creativity, Scientists, Springs, Theoretical, Theory

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Full Text: [2013\Scientometrics95, 941.pdf](2013/Scientometrics95,%20941.pdf)

Abstract: We analyzed the productivity and visibility of publications on the subject category of Clinical Neurology by countries in the period 2000-2009. We used the Science Citation Index Expanded database of the ISI Web of Knowledge. The analysis was restricted to the citable documents. Bibliometric indicators included the number of publications, the number of citations, the median and interquartile range of the citations, and the h-Index. We identified 170,483 publications (84.9 % original articles) with a relative increase of 28.5 % throughout the decade. Fourteen countries published over 2,000 documents in the decade and received more than 50,000 citations. The average of citations received per publication was 8 (interquartile range: 3-20) and the h-Index was 261. USA was the country with the highest number of publications, followed by Germany, Japan, the UK and Italy. Moreover, USA publications had the largest number of citations received (44.5 % of total), followed by the UK, Germany, Canada, and Italy. On the other hand, Sweden, the Netherlands and the UK had the highest median citations for their total publications. During the period 2000-2009 there was a significant increase in Clinical Neurology publications. Most of the publications and citations comprised 14 countries, with the USA in the first position. Interestingly, most of the publications and citations originated from only 14 countries, with European countries with relatively low population, such as Switzerland, Austria, Sweden, Belgium, and the Netherlands, in this top group.

Keywords: Analysis, Austria, Belgium, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Biomedical Journals, Canada, Citation, Citations, Clinical, Country, Database, Europe, Evolution, First, Germany, h Index, h-Index, Impact, Index, Indicators, ISI, Italy, Japan, Journals, Knowledge, Neurology, Population, Productivity, Publication, Publications, Research, Science, Science Citation Index, Science Citation Index Expanded, Scientific Impact, Scientific Production, Sweden, Switzerland, the Netherlands, UK, USA, Visibility, Web, Web of Knowledge

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Full Text: [2013\Scientometrics95, 953.pdf](2013/Scientometrics95,%20953.pdf)

Abstract: the correct attribution of scientific publications to their true owners is extremely important, considering the detailed evaluation processes and the future investments based upon them. This attribution is a hard job for bibliometricians because of the increasing amount of documents and the raise of collaboration. Nevertheless, there is no published work with a comprehensive solution of the problem. This article introduces a procedure for the detailed identification and normalisation of addresses to facilitate the correct allocation of the scientific production included in databases. Thanks to our long experience in the manual normalisation of addresses, we have created and maintained various master lists. We have already developed an application to detect institutional sectors (issued in a previous paper) and now we analyse the details of particular institutions, taking advantage of our master tables. To test our methodology we have implemented it in a Spanish data set already manually codified (95,314 unique addresses included in the year 2008 on the Web of Science databases). This data was analysed with a full text search against our master lists, giving optional codes for each address and choosing which one could be automatically encoded and which one should be reviewed manually. The results of the implementation, comparing the automatic versus manual codes, showed 87 % automatically codified records with 1.9 % of error. We should review manually only 13 %. Finally, we applied the Wilcoxon non-parametric test to show the validity of the methodology, comparing detailed codes of centres already encoded with the automatically encoded ones, and concluding that their distribution was similar with a significance of 0.078.

Keywords: Addresses Normalisation, Allocation, Application, Automatic Procedures, Bibliometric Indicators, Challenge, Codes, Collaboration, Data, Databases, Distribution, Error, Evaluation, Experience, Identification, Implementation, Institutional Addresses, Institutions, Methodology, Procedure, Publications, Records, Review, Science, Scientific Production, Scientific Publications, Significance, Solution, Universities, Validity, Web of Science, Web of Science Databases, Work

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Full Text: [2013\Scientometrics95, 967.pdf](2013/Scientometrics95,%20967.pdf)

Abstract: This study adopts a bibliometric approach to analyze the progress in global parallel computing research from the related literature in the Science Citation Index Expanded database from 1958 to 2011. By investigating the characteristics of annual publication outputs, we find that parallel computing has recently experienced increasing attention again after its first rapid development in the 1990s, and the research in this field is entering into a new phase. The distribution of publications indicates that the seven major industrial countries (G7), with USA ranking top, are identified as the most productive and influential countries in this domain. Author keywords were analyzed by comparison, and we conclude that the study focus of parallel computing has shifted from hardware to software, with parallel application and programming based on MPI, GPUs and multicores being the research tendencies; grid computing and cloud computing dominate the distributed computing area due to their heterogeneous and scalable structures; and, furthermore, the processors of parallel machines are heading for a diverse development. The citing-cited matrix brings into light the intense interactions among the disciplines of computer science, engineering, mathematics and physics. The mutual interactions between the four disciplines have increased gradually and reflect the subject characteristics in influence content.

Keywords: Application, Approach, Architectures, Attention, Bibliometric, Bibliometric Analysis, Cellular-Automata, Characteristics, Citation, Citing-Cited Matrix, Cocitation Analysis, Communication, Comparison, Computer Science, Database, Development, Distributed, Distribution, Domain Decomposition Method, Engineering, Field, Finite-Element-Analysis, First, Global, Influence, Literature, Matrix, Neural-Networks, Parallel Computing, Performance, Programming, Programming Language, Progress, Publication, Publications, Ranking, Rapid Development, Research, Research Trends, Research Trends, Science, Science Citation Index, Science Citation Index Expanded, Software, USA

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Full Text: [2013\Scientometrics95, 985.pdf](2013/Scientometrics95,%20985.pdf)

Abstract: This research explores the structure and status of theories used in Communication as an alternative for Communication discipline identity research and characteristics evaluation. This research assumes that communication theories are not only ongoing practices of intellectual communities, but also discourse about how theory can address a range of channels, transcend specific technologies and bridge levels of analysis. It examines widely-cited theoretical contentions among academic articles and the connections among these theories. Network analysis suggests that framing theory is the most influential of the identified theories (ranking first in frequency and degree, closeness, betweenness and eigenvector centrality) and serves to link other communication theories and theory groups. While mass communication and technology theories exhibited the highest centrality, interpersonal, persuasion and organization communication theories were grouped together, integrating sub-theories of each group. Framing theory was the most popular and influential communication theory bridging not only mass communication theories, but also interpersonal, technology, information system, health, gender, inter-cultural and organizational communication theories.

Keywords: Alternative, Analysis, Association, Bridge, Characteristics, Citation, Clarification, Communication, Communication Discipline, Discourse, Evaluation, Field, First, Gender, Groups, Health, Identity, Information, Journals, Network, Network Analysis, Network Analysis, Organization, Organizational, Practices, Ranking, Research, Structure, Technologies, Technology, Theoretical, Theory, Theory Network

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Full Text: [2013\Scientometrics95, 1003.pdf](2013/Scientometrics95,%201003.pdf)

Abstract: Traditional bibliometric indicators are considered too limited for some research areas such as humanities and social sciences because they mostly reveal a specific aspect of academic performance (quantity of publications) and tend to ignore a significant part of research production. The frequent misuses (e.g. improper generalizations) of bibliometric measures results in a substantial part of the research community failing to consider the exact nature of bibliometric measures. This study investigates the links between practices for assessing academic performance, bibliometric methods’ use and underlying values of research quality within the scientific community of University of LaUSAnne, Switzerland. Findings reveal four researcher profiles depending on research orientations and goals, ranging from those using “pure” quantitative tools to those using more subjective and personal techniques. Each profile is characterized according to disciplinary affiliation, tenure, academic function as well as commitment to quality values.

Keywords: Affiliation, Assessing, Authorship, Bibliometric, Bibliometric Indicators, Bibliometric Methods, Commitment, Community, Function, Humanities, Impact, Index, Indicators, Mca, Methods, Performance, Practices, Profiles, Publications, Quality, Quality Values, Research, Research Quality, Researcher’s Typology, Sciences, Scientometrics, Social, Social Sciences, Social-Sciences, Swiss University, Switzerland, Techniques, Tenure, University, University of LaUSAnne, University Profile, Vocabulary Use

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Full Text: [2013\Scientometrics95, 1023.pdf](2013/Scientometrics95,%201023.pdf)

Abstract: This study investigates the citation patterns of theoretical and empirical papers published in a top economics journal, namely American Economic Review, over a period of almost 30 years, while also exploring the determinants of citation success. The results indicate that empirical papers attract more citation success than theoretical studies. However, the pattern over time is very similar. Moreover, among empirical papers it appears that the cross-country studies are more successful than single country studies focusing on North America data or other regions.

Keywords: Citation, Citation Patterns, Citations, Country, Cross-Country, Data, Economics, Empirics, Faculty Ratings, Journal, Journals, Major Economics Departments, North, North America, Papers, Pattern, Ranking, Review, Theoretical, Theory

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Full Text: [2013\Scientometrics95, 1031.pdf](2013/Scientometrics95,%201031.pdf)

Abstract: Along with China’s economic emergence is a controversy over the quality and international visibility of citation index publications. This study uses bibliometric statistics to shed further light on the global landscape of citation index publications with special focus on China and the USA. The analysis explores 31 years of the TRS (Thomson Reuters Scientific) database, spanning the 1980-2010 period. Based on this study, the USA maintains global dominance for both WOK (Web of Knowledge) and WOS (Web of Science) TRS publications. Although China ranks a distant second for WOK, it lags behind five other nations for WOS publications. China’s scientific base needs further restructuring for greater global visibility. Emerging economies such as China, India, Brazil and South Africa are fast rising in the global ranks for WOK/WOS publications. China may already be leading the world in some publication attributes, although it could take several more decades to catch up with the USA in others. Normalizations of the publications with population, PTE (population with tertiary education) and GDP (gross domestic product) put small/low-population countries in the global lead. However, countries such as Canada, Greenland, Iceland and Sweden still rank high for most of these publication attributes. Furthermore, WOS per WOK analysis shows that small and/or economically weak countries place greater emphasis on WOS publications. This is particularly visible for countries in Africa and South America. Despite the addition of a large number of indigenous Chinese journals to the TRS database, prediction analysis suggests that China’s desire to surpass the USA could be delayed for several decades. In the race for the next-generation scientific superpower, however, China not only needs to sustain substantial investments in research and development, but also requires restructuring of its research industry. This is especially critical for data readiness, availability and accessibility to the scientific community, and radical implementations of research recommendations.

Keywords: Africa, Analysis, Articles, Availability, Bibliometric, Bibliometric Analysis, Brazil, Canada, China, Chinese, Citation, Citation Index, Citation Index Publication, Community, Data, Database, Development, Dynamics, Economic, Education, GDP, Global, Gross Domestic Product, Impact, Index, India, International, Journals, Knowledge, Landscape, Language Academic Journals, Lead, Leadership, Nations, Needs, Normalized Publication, Population, Prediction, Publication, Publications, Quality, Race, Rank, Recommendations, Research, Research and Development, Research Performance, Research-And-Development, Science, Small, South Africa, South America, Statistics, Sweden, Thomson Reuters, Thomson-Reuters, Trends, USA, Visibility, Web of Knowledge, Web of Science, World, Wos

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Full Text: [2013\Scientometrics95, 1051.pdf](2013/Scientometrics95,%201051.pdf)

Abstract: This paper reports first results on the interplay of different levels of the science system. Specifically, we would like to understand if and how collaborations at the author (micro) level impact collaboration patterns among institutions (meso) and countries (macro). All 2,541 papers (articles, proceedings papers, and reviews) published in the international journal Scientometrics from 1978-2010 are analyzed and visualized across the different levels and the evolving collaboration networks are animated over time. Studying the three levels in isolation we gain a number of insights: (1) USA, Belgium, and England dominated the publications in Scientometrics throughout the 33-year period, while the Netherlands and Spain were the subdominant countries; (2) the number of institutions and authors increased over time, yet the average number of papers per institution grew slowly and the average number of papers per author decreased in recent years; (3) a few key institutions, including Univ Sussex, KHBO, Katholieke Univ Leuven, Hungarian Acad Sci, and Leiden Univ, have a high centrality and betweenness, acting as gatekeepers in the collaboration network; (4) early key authors (Lancaster FW, Braun T, Courtial JP, Narin F, or VanRaan AFJ) have been replaced by current prolific authors (such as Rousseau R or Moed HF). Comparing results across the three levels reveals that results from one level might propagate to the next level, e.g., top rankings of a few key single authors can not only have a major impact on the ranking of their institution but also lead to a dominance of their country at the country level; movement of prolific authors among institutions can lead to major structural changes in the institution networks. To our knowledge, this is the most comprehensive and the only multi-level study of Scientometrics conducted to date.

Keywords: Analysis, Authors, Belgium, Changes, Co-Author, Collaboration, Collaboration Networks, Collaborations, Country, England, Evolving Network, First, Gatekeepers, Impact, Institutions, International, Journal, Knowledge, Lead, Micro-Marco Analysis, Movement, Network, Networks, Papers, Publications, R, Ranking, Rankings, Recent, Reviews, Science, Scientometrics, Spain, the Netherlands, USA

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Full Text: [2013\Scientometrics95, 1071.pdf](2013/Scientometrics95,%201071.pdf)

Abstract: We examine the international scientific productivity on information literacy since its inception in 1974 until late 2011, based on a bibliometric analysis of scientific articles included in the Web of Science and Scopus databases. The sample comprised two macro-domains-the most productive and the least productive. The former was the area of social sciences (SoS), covering such disciplines as information and documentation, communication, education, management, etc. The latter was the area of health sciences (HeS), covering such disciplines as medicine, nursing, etc. The objective of the study was to analyse the evolution of research activity during this period, taking into account the authors’ production, the distribution and co-authorship of the works, the affiliation, and the most frequently used journals. A quantitative and qualitative methodological approach was taken, based on statistical, mathematical, and content analyses. The results showed exponential growth of the scientific publications in both domains (R (2) = 0.9544 for SoS, and R (2) = 0.9393 for HeS), with a predominance of Anglo-Saxon authors. Author productivity was low (1.29 and 1.12 papers/author), while the dispersion of articles by journal averaged 4.96 in SoS and 1.86 in HeS. Scientific collaboration exceeded 53 % in the SoS domain and 69 % in HeS. There was a major dispersion of the places of the authors’ affiliation. In both domains, the author distributions fitted Lotka’s law, and the journal distributions Bradford’s Law.

Keywords: Activity, Affiliation, Analyses, Analysis, Approach, Authors, Behavior, Bibliometric, Bibliometric Analysis, Bibliometric Study, Bradford’s Law, Co-Authorship, Coauthorship, Collaboration, Communication, Databases, Design, Dispersion, Distribution, Documentation, Education, Evolution, Growth, Health, Health Sciences, Higher-Education, Information, Information Literacy, Instruction, International, Journal, Journals, Knowledge, Law, Library, Lotka Law, Lotka’S Law, Management, Medicine, Model, Nursing, Perspective, Productivity, Publications, Qualitative, R, Research, Science, Sciences, Scientific Collaboration, Scientific Production, Scientific Productivity, Scientific Publications, Scopus, Skills, Social, Social Sciences, Web, Web of Science

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Full Text: [2013\Scientometrics95, 1095.pdf](2013/Scientometrics95,%201095.pdf)

Abstract: the citation analysis of the research output of the German economic research institutes presented here is based on publications in peer-reviewed journals listed in the Social Science Citation Index for the 2000-2009 period. The novel feature of the paper is that a count data model quantifies the determinants of citation success and simulates their citation potential. Among the determinants of the number of cites the quality of the publication outlet exhibits a strong positive effect. The same effect has the number of the published pages, but journals with size limits also yield more cites. Field journals get less citations in comparison to general journals. Controlling for journal quality, the number of co-authors of a paper has no effect, but it is positive when co-authors are located outside the own institution. We find that the potential citations predicted by our best model lead to different rankings across the institutes than current citations indicating structural change.

Keywords: Analysis, Citation, Citation Analysis, Citations, Co-Authors, Collaboration, Comparison, Data, Economic, Economic Research Institutes, Faculties, Feature, Field, General, Journal, Journal Quality, Journals, Lead, Model, Output, Peer Reviewed Journals, Peer-Reviewed, Potential, Profession, Publication, Publication Analysis, Publications, Quality, Quality Of, Rankings, Research, Research Output, Science, Science Citation Index, Scientometrics, Size, Social Science Citation Index

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Full Text: [2013\Scientometrics95, 1113.pdf](2013/Scientometrics95,%201113.pdf)

Abstract: We compared scientific indicators related to Benin, Senegal and Ghana. We collected data from Web of Science and used bibliometric indicators like annual production, language and type of publication, citable and cited documents, citations, h-Index, field share, specialization index, and international collaboration rate. Results show that Benin performs well regarding the percentage of citable and cited documents, the share of production and the specialization index in the fields of Natural sciences and Agricultural sciences; it occupies the median position with respect to the production and the specialization index in the fields of Engineering and technology on the one hand and Medical and health sciences on the other hand, behind Ghana and ahead Senegal. It lays however behind Ghana and Senegal with respect to the total output, citations per citable or cited documents, h-Index, the share of production and specialization index in the fields of Social science and Humanities; it has the highest international collaboration rate. The study revealed that the three countries cooperated less, and only if a third western country intervened. It pointed out the role of Western countries in driving collaboration among developing countries.

Keywords: Africa, Benin, Bibliometric, Bibliometric Indicators, Citations, Collaboration, Country, Data, Developing, Developing Countries, Driving, Engineering, Field, Ghana, h Index, h-Index, Health, Health Sciences, Humanities, Index, Indicators, Informetrics, International, International Collaboration, Language, Medical, Publication, Publishing, Research Assessment, Research Policy, Results, Role, Science, Sciences, Scientific Research, Senegal, Technology, Web of Science, West Africa

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Full Text: [2013\Scientometrics95, 1141.pdf](2013/Scientometrics95,%201141.pdf)

Abstract: the seeking of evidence for revealing the research performance of Education in Taiwan, in response to the stimulus by the national research projects, is presented and interpreted. More than 70,000 publication records over the years 1990-2011 from Web of Science were downloaded and analyzed. The overview analysis by data aggregation and country ranking shows that Taiwan has significantly improved its publication productivity and citation impact over the last decade. The drill-down analysis based on journal bibliographic coupling, information visualization, and diversity and trend indexes, reveals that e-Learning and Science Education are two fast growing subfields that attract global interests and that Taiwan is among the top-ranked countries in these two fields in terms of research productivity. Implications of the analysis are discussed with an emphasis on the subfield characteristics from which more insightful interpretations can be obtained, such as the regional or cultural characteristics that may affect the performance ranking.

Keywords: Aggregation, Analysis, Bibliographic, Bibliographic Coupling, Characteristics, Citation, Citation Impact, Country, Country Ranking, Cultural, Data, Diversity, Educational Research, Effectiveness, Evidence, Global, Humanities, Impact, Index, Information, Information Visualization, Internationalization, Journal, Journal Clustering, Output, Performance, Performance Ranking, Productivity, Publication, Publication Productivity, Ranking, Records, Regional, Research, Research Evaluation, Research Performance, Research Productivity, Science, Scientometric, Scientometric Analysis, Social-Sciences, Subfield Identification, Taiwan, Trend, Universities, Visualization, Web of Science

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Full Text: [2013\Scientometrics95, 1167.pdf](2013/Scientometrics95,%201167.pdf)

Abstract: A citation advantage for research covered by the mass media is a plausible, but poorly studied phenomenon. Two previous studies, both conducted in the United States, found a positive correlation between media reporting and citations. Only one of these studies was able to conclude that the correlation was caused by a real “publicity effect” rather than by the media highlighting papers that are intrinsically destined to have greater scientific impact (called the ‘earmark’ hypothesis). This study assessed the relative importance of the publicity effect outside the US, by comparing studies published in 2008 and 2009 in the Proceedings of the National Academy of Sciences that had been featured in newspapers in Italy and the United Kingdom. Newspapers in the two countries covered a similar range of topics, and tended to over-represent local (national) research. Compared to studies not appearing in any of the newspapers considered, those featured in British newspapers had around 63 % more citations, whilst in Italian newspapers 16 %. The proportion of citations from Italian authors, however, was significantly increased by newspapers, particularly by those in Italian. The equivalent effect on citations from the UK was smaller and only marginally significant. Studies accompanied by a press release did not receive, overall, significantly more citations. In sum, results suggest that the publicity effect is strongest for English-speaking media, whilst non-English reporting has mostly a local influence. These effects might represent a confounding factor in citation-based research assessment and might contribute to the many biases known to affect the scientific literature.

Keywords: Articles, Assessment, Authors, Bias, Citation, Citations, Confounding, Correlation, Coverage, Effects, Impact, Influence, Italy, Literature, Local, Mass Media, Media, Media, News, Newspapers, Papers, Press, Release, Reporting, Research, Research Assessment, Science, Science, Scientific Impact, Scientific Literature, Scientists, UK, United Kingdom, United States, US

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Full Text: [2013\Scientometrics95, 1179.pdf](2013/Scientometrics95,%201179.pdf)

Abstract: As all databases, the bibliometric ones (e.g. Scopus, Web of Knowledge and Google Scholar) are not exempt from errors, such as missing or wrong records, which may obviously affect publication/citation statistics and-more in general-the resulting bibliometric indicators. This paper tries to answer to the question “What is the effect of database uncertainty on the evaluation of the h-Index?”, breaking the paradigm of deterministic database analysis and treating responses to database queries as random variables. Precisely an informetric model of the h-Index is used to quantify the variability of this indicator with respect to the variability stemming from errors in database records. Some preliminary results are presented and discussed.

Keywords: Analysis, Bibliometric, Bibliometric Indicators, Calculation, Citations, Data, Database, Databases, Dirty Database, Errors, Evaluation, Google, Google Scholar, h Index, h-Index, h-Index Robustness, Hirsch-Index, Indicator, Indicators, Knowledge, Model, Paradigm, Records, Scopus, Statistics, Uncertain Data, Uncertainty, Variability, Web of Knowledge

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Full Text: [2013\Scientometrics95, 1189.pdf](2013/Scientometrics95,%201189.pdf)

Abstract: We explore pilot web-based methods to probe the strategies followed by new small and medium-sized technology-based firms as they seek to commercialize emerging technologies. Tracking and understanding the behavior of such early commercial entrants is not straightforward because smaller firms with limited resources do not always widely engage in readily visible and accessible activities such as publishing and patenting. However, many new firms, even if small, present information about themselves that is available online. Focusing on the early commercialization of novel graphene technologies, we introduce a “web scraping” approach to systematically capture information contained in the online web pages of a sample of small and medium-sized high technology graphene firms in the US, UK, and China. We analyze this information and devise measures that gauge how firm specialization in the target technology impacts overall market orientation. Three groups of graphene enterprises are identified which vary by their focus on product development, materials development, and integration into existing product portfolios. Country-level factors are important in understanding these early diverging commercial approaches in the nascent graphene market. We consider management and policy implications of our findings, and discuss the value, including strengths and weaknesses, of web scraping as an additional information source on enterprise strategies in emerging technologies.

Keywords: Approach, Behavior, China, China, Commercialization, Commercialization, Development, Emerging Technologies, Emerging Technology, Enterprises, Entrepreneurship, Graphene, Groups, Impacts, Industry, Information, Innovation, Integration, Management, Market, Market Entry, Methods, Nanotechnology, Online, Pilot, Policy, Publishing, Resources, Small, Small and Medium Enterprise, Source, Technologies, Technology, UK, Understanding, United Kingdom, United States, US, Value, Web, Web Scraping

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Full Text: [2013\Scientometrics96, 1.pdf](2013/Scientometrics96,%201.pdf)

Abstract: Schubert introduced the partnership ability phi-index relying on a researcher’s number of co-authors and collaboration rate. As a Hirsch-type index, phi was expected to be consistent with Schubert-Glänzel’s model of h-Index. Schubert demonstrated this relationship with the 34 awardees of the Hevesy medal in the field of nuclear and radiochemistry (r (2) = 0.8484). In this paper, we upscale this study by testing the phi-index on a million researchers in computer science. We found that the Schubert-Glänzel’s model correlates with the million empirical phi values (r (2) = 0.8695). In addition, machine learning through symbolic regression produces models whose accuracy does not exceed a 6.1 % gain (r (2) = 0.9227). These results suggest that the Schubert-Glänzel’s model of phi-index is accurate and robust on the domain-wide bibliographic dataset of computer science.

Keywords: Accuracy, Bibliographic, Co-Authors, Co-Authorship, Collaboration, Computer Science, Correlates, Empirical Validation, Field, h Index, h-Index, Index, Journals, Learning, Machine, Machine Learning, Model, Models, Partnership Ability Index, Regression, Science, Scientists, Symbolic Regression, Testing

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Full Text: [2013\Scientometrics96, 11.pdf](2013/Scientometrics96,%2011.pdf)

Abstract: In the era of the fast-paced knowledge economy, patent data may be analyzed to measure technological competitiveness. This paper aims to explore patent performance by indicators and technology interactions based on patent citation of assignee types. This study involved four types of patent assignees (i.e. universities, industries, governments, and individuals) in five technological fields (i.e. computers and communications; drugs and medical; electrical and electronics; chemical; and mechanical) over three periods (i.e. 1997-2001, 2002-2006, and 2007-2011). Four indicators were chosen for analysis of patent performance; they included, patent share, science linkage, current impact index, and citation density. The findings of this study show that among all four assignee types, industries had the highest patent productivity in all fields, and universities had the highest impact in all fields except for drugs and medical. Other interesting phenomena were also observed. Examples include reciprocal technology interactions between universities and governments; low technology interactions of industries in each field; individuals’ higher patent performance and technology interactions in the field of drugs and medical.

Keywords: Alliances, Analysis, Chemical, Citation, Citations, Communications, Computers, Data, Diffusion, Drugs, Economy, Field, Impact, Impact Index, Index, Indicators, Innovation, Knowledge, Knowledge Flows, Linkage, Measure, Medical, Patent, Patent Bibliometrics, Patent Citation Analysis, Patent Performance, Performance, Productivity, Relevant Science, Science, Spillovers, Strength, Technological Competitiveness, Technology, Technology Interactions, Triple-Helix, Universities

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Full Text: [2013\Scientometrics96, 27.pdf](2013/Scientometrics96,%2027.pdf)

Abstract: This paper introduces a methodology for the construction of a country level patent value indicator based on the family size of a country’s patent profile at the level of technology fields. Because individual family members target different markets and technologies have a different propensity to internationalization, family size has been shown to have a restricted power to assess the quality of patent profiles of countries. We address this gap by weighting the members of patent families filed at different patent offices before calculating the family size indicators, to account for the market potential in which the patents of these families were filed. We apply different weighting schemes and test which scheme is best able to explain the export performance of countries. In order to conduct our analyses, a panel dataset, consisting of annual data (1990-2002) on international trade from the UN-COMTRADE database and patent data from the “EPO Worldwide Patent Statistical Database” (PATSTAT), was compiled. Several bivariate analyses reveal that weighted and unweighted family counts are highly correlated, meaning that statistics based on absolute (weighted or unweighted) family counts are barely affected by the chosen weighting factor. This, however, is different when using the average family size, where weighting the family members by imports, as well as GDP, can be shown to have a robust positive effect to explaining export performance. The imports and the GDP weighted average family size are thus able to act as a consistent indicator of patent value at the country and technology field level.

Keywords: Analyses, Citations, Construction, Country, Data, Database, Export, Exports, Exports, Families, Family, Family Members, Field, Foreign Trade, GDP, Impact, Indicator, Indicators, Industry, Innovation, International, International-Trade, Internationalization, Market, Markets, Methodology, Patent, Patent Families, Patent Value, Patents, Performance, Potential, Power, Product Cycle, Profiles, Quality, Quality Of, Size, Standards, Statistics, Technologies, Technology, Value, Weighting

? Mas-Bleda, A. and Aguillo, I.F. (2013), Can a personal website be useful as an information source to assess individual scientists? the case of European highly cited researchers. *Scientometrics*, **96** (1), 51-67.

Full Text: [2013\Scientometrics96, 51.pdf](2013/Scientometrics96,%2051.pdf)

Abstract: the web is not only the main scholarly communication tool but also an important source of additional information about the individual researchers, their scientific and academic activities and their formally and informally published results. The aim of this study is to investigate whether successful scientists use their personal websites to disseminate their work and career details and to know which specific contents are provided on those sites, in order to check if they could be used in research evaluation. The presence of the highly cited researchers working at European institutions were analysed, a group clearly biased towards senior male researchers working in large countries (United Kingdom and Germany). Results show that about two thirds of them have a personal website, specially the scientists from Denmark, Israel and the United Kingdom. The most frequent disciplines in those websites are economics, mathematics, computer sciences and space sciences, which probably reflect the success of open access subject repositories like RepEc, Arxiv or CiteSeerX. Other pieces of information analysed from the websites include personal and contact data, past experience and description of expertise, current activities and lists of the author’s scientific papers. Indicators derived from most of these items can be used for developing a portfolio with evaluation purposes, but the overall availability of them in the population analysed is not representative enough by now for achieving that objective. Reasons for that insufficient coverage and suggestions for improvement are discussed.

Keywords: Access, Assessment, Availability, Citation, Communication, Coverage, Data, Denmark, Developing, Economics, Europe, Evaluation, Experience, Gender, Germany, Highly Cited, Highly Cited Researchers, Highly-Cited, Home Pages, Impact, Improvement, Indicators, Information, Institutions, Israel, Male, Online, Open, Open Access, Papers, Personal Website, Population, Research, Research Evaluation, Results, Scholarly Communication, Science Research, Sciences, Scientists, Self, Social-Sciences, Source, United Kingdom, Web, Web Sites, Websites, Work

? Benson, C.L. and Magee, C.L. (2013), A hybrid keyword and patent class methodology for selecting relevant sets of patents for a technological field. *Scientometrics*, **96** (1), 69-82.

Full Text: [2013\Scientometrics96, 69.pdf](2013/Scientometrics96,%2069.pdf)

Abstract: This paper presents a relatively simple, objective and repeatable method for selecting sets of patents that are representative of a specific technological domain. The methodology consists of using search terms to locate the most representative international and US patent classes and determines the overlap of those classes to arrive at the final set of patents. Five different technological fields (computed tomography, solar photovoltaics, wind turbines, electric capacitors, electrochemical batteries) are used to test and demonstrate the proposed method. Comparison against traditional keyword searches and individual patent class searches shows that the method presented in this paper can find a set of patents with more relevance and completeness and no more effort than the other two methods. Follow on procedures to potentially improve the relevancy and completeness for specific domains are also defined and demonstrated. The method is compared to an expertly selected set of patents for an economic domain, and is shown to not be a suitable replacement for that particular use case. The paper also considers potential uses for this methodology and the underlying techniques as well as limitations of the methodology.

Keywords: Comparison, Computed Tomography, Economic, Field, Hybrid, Information Retrieval, International, Methodology, Methods, Patent, Patent Analysis, Patent Searching, Patents, Photovoltaics, Potential, Procedures, Relevance, Search, Techniques, Technological Planning, US

? Franceschini, F., Maisano, D. and Mastrogiacomo, L. (2013), Evaluating research institutions: the potential of the success-index. *Scientometrics*, **96** (1), 85-101.

Full Text: [2013\Scientometrics96, 85.pdf](2013/Scientometrics96,%2085.pdf)

Abstract: Similarly to the h-Index and other indicators, the success-index is a recent indicator that makes it possible to identify, among a general group of papers, those of greater citation impact. This indicator implements a field-normalization at the level of single paper and can therefore be applied to multidisciplinary groups of articles. Also, it is very practical for normalizations aimed at achieving the so-called size-independency. Thanks to these (and other) properties, this indicator is particularly versatile when evaluating the publication output of entire research institutions. This paper exemplifies the potential of the success-index by means of several practical applications, respectively: (i) comparison of groups of researchers within the same scientific field, but affiliated with different universities, (ii) comparison of different departments of the same university, and (iii) comparison of entire research institutions. A sensitivity analysis will highlight the success-index’s robustness. Empirical results suggest that the success-index may be conveniently extended to large-scale assessments, i.e., involving a large number of researchers and research institutions.

Keywords: Analysis, Assessments, Citation, Citation Impact, Citation Propensity, Citations, Comparison, Field, Field Normalization, General, Groups, Groups of Researchers, h Index, h-Index, Hirsch Index, Impact, Impact Factor, Indicator, Indicators, Institutions, Multidisciplinary, Output, Papers, Potential, Properties, Publication, Recent, Research, Research Institutions, Robustness, Sensitivity, Sensitivity Analysis, Success-Index, Universities, University

? Bigdeli, Z., Kokabi, M., Rajabi, G.R. and Gazni, A. (2013), Patterns of authors’ information scattering: Towards a caUSAl explanation of information scattering from a scholarly information-seeking behavior perspective. *Scientometrics*, **96** (1), 103-131.

Full Text: [2013\Scientometrics96, 103.pdf](2013/Scientometrics96,%20103.pdf)

Abstract: This study primarily aims to reveal the worldwide patterns of authors’ information scattering through illustrating the possible differences among authors based on subject, country, geographic region, institution, economic and scientific level factors. Second, changes in patterns of information scattering during the past 21 years are checked. Finally, a hypothesis aimed at demonstrating a probable relationship among the three research domains including information scattering, scholarly information-seeking behavior and scholarly journal Usage is presented. 176,943 authors, who have more than ten papers in WoS from 1990 to 2010 were examined. The findings revealed that patterns of information scattering have changed during the past 21 years, and the number of journals in the core and middle zones has almost doubled. It was also found that authors tend to use a small number of journals to retrieve the majority of their required information, while a small amount of their information needs come from a wide variety of journals. However, with regard to patterns of information scattering, some differences exist among authors based on factors including institutions, countries and subject fields. In addition, this study shows that information-scattering patterns might be affected by scholars’ information-seeking behaviors. A caUSAl explanation of information scattering through scholarly information-seeking behavior has, without a doubt, the potential to provide practical solutions to better meet scholars’ information needs and requirements.

Keywords: Authors, Authors’ Patterns of Information Scattering, Behavior, Bradford Law, Bradford’s Law, Changes, Citation Analysis, Country, Digital Libraries, Economic, Electronic Journal Use, Explanation, Impact Factor, Information, Information Scattering, Information Scattering Explanation, Information Seeking Behavior, Informetric Distributions, Institutions, Journal, Journals, Needs, Online Journals, Papers, Potential, Print Journals, Region, Research, Scattering, Scholarly Information-Seeking Behavior, Scholarly Journal Usage, Scientific Communication, Small, Social-Sciences, Solutions, WoS

? Yang, L., Chen, Z.L., Liu, T., Gong, Z., Yu, Y.J. and Wang, J. (2013), Global trends of solid waste research from 1997 to 2011 by using bibliometric analysis. *Scientometrics*, **96** (1), 133-146.

Full Text: [2013\Scientometrics96, 133.pdf](2013/Scientometrics96,%20133.pdf)

Abstract: This study explores a bibliometric approach to quantitatively assessing current research trends on solid waste, by using the related literature published between 1997 and 2011 in journals of all the subject categories of the Science Citation Index. The articles acquired from such literature were concentrated on the general analysis by publication type and language, characteristics of articles outputs, country, subject categories and journals, and the frequency of title-words and keywords used. Over the past 15 years, there had been a notable growth trend in publication outputs, along with more participation of countries/territories. The seven major industrialized countries (G7) published the majority of the world articles, while their article share was being replacing by other countries represented by BRIC countries. An analysis of the title-words, author keywords and keywords plus showed that municipal solid waste and sludge were the major research types of solid wastes and “anaerobic digestion”, “wastewater” and “heavy metals” were recent major topics of solid waste research. Meanwhile, the analysis indicated the analysis technologies, represented by solid-phase extraction and tandem mass-spectrometry, were more and more widely used for solid waste research. Besides, life cycle assessment and health risk assessment were the most two frequently environmental assessment tools used for solid waste research in the 15-year research period.

Keywords: Analysis, Approach, Assessing, Assessment, Bibliometric, Bibliometric Analysis, Bric Countries, Challenges, Characteristics, Citation, Country, Energy, Engineering, Environmental, Environmental Assessment, Extraction, Food Waste, General, Growth, Health, Health Risk, Health Risk Assessment, Journals, Language, Leachate, Life, Life Cycle, Life Cycle Assessment, Literature, Management, Mass Spectrometry, Metals, MSW, Municipal Solid Waste, Participation, Products, Publication, Pyrolysis, Recent, Research, Research Trends, Risk, Risk Assessment, SCI, Science, Science Citation Index, Sludge, Solid Phase Extraction, Solid Waste, Solid-Phase Extraction, Technologies, Trend, Trends, Waste, World

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Full Text: [2013\Scientometrics96, 147.pdf](2013/Scientometrics96,%20147.pdf)

Abstract: This study aims to map the content and structure of the knowledge base of research on intercultural relations as revealed in co-citation networks of 30 years of scholarly publications. Source records for extracting co-citation information are retrieved from Web of Science (1980-2010) through comprehensive keyword search and filtered by manual semantic coding. Exploratory network and content analysis is conducted (1) to discover the development of major research themes and the relations between them over time; (2) to locate representative core publications (the stars) that are highly co-cited with others and those (the bridges) connecting more between rather than within subfields or disciplines. Structural analysis of the co-citation networks identifies a core cluster that contains foundational knowledge of this domain. It is well connected to almost all the other clusters and covers a wide range of subject categories. The evolutionary path of research themes shows trends moving towards (e.g. psychology and business and economics) and away from (e.g. language education and communication) the core cluster over time. Based on the results, a structural framework of the knowledge domain of intercultural relations research is proposed to represent thematic relatedness between topical groups and their relations.

Keywords: Analysis, Bibliometric Analysis, Business, Cluster, Co-Citation, Co-Citation Network, Co-Citation Networks, Cocitation, Coding, Communication, Content Analysis, Development, Economics, Education, Framework, Groups, Information, Intercultural Communication, Intercultural Relations, Interdisciplinary, Knowledge, Knowledge Base, Language, Network, Network Analysis, Networks, Psychology, Publications, Records, Relations, Research, Science, Structure, Topical, Trends, Web of Science

? Ruiz-Castillo, J. (2013), The role of statistics in establishing the similarity of citation distributions in a static and a dynamic context. *Scientometrics*, **96** (1), 173-181.

Full Text: [2013\Scientometrics96, 173.pdf](2013/Scientometrics96,%20173.pdf)

Abstract: Certain key questions in Scientometrics can only be answered by following a statistical approach. This paper illustrates this point for the following question: how similar are citation distributions with a fixed, common citation window for every science in a static context, and how similar are they when the citation process of a given cohort of papers is modeled in a dynamic context?

Keywords: Approach, Characteristic Scores, Characteristic Scores and Scales, Citation, Citation Distributions, Cohort, Context, Dynamic, Impact, Log-Location-Scale Family of Distributions, Lognormal Distribution, Multivariate Models, Panel Models, Papers, Power Law Distribution, Research Performance, Role, Scales, Science, Scientometric Indicators, Scientometrics, Similarity, Statistics, Universality

? Song, M. and Kim, S.Y. (2013), Detecting the knowledge structure of bioinformatics by mining full-text collections. *Scientometrics*, **96** (1), 183-201.

Full Text: [2013\Scientometrics96, 183.pdf](2013/Scientometrics96,%20183.pdf)

Abstract: Bioinformatics is a fast-growing, diverse research field that has recently gained much public attention. Even though there are several attempts to understand the field of bioinformatics by bibliometric analysis, the proposed approach in this paper is the first attempt at applying text mining techniques to a large set of full-text articles to detect the knowledge structure of the field. To this end, we use PubMed Central full-text articles for bibliometric analysis instead of relying on citation data provided in Web of Science. In particular, we develop text mining routines to build a custom-made citation database as a result of mining full-text. We present several interesting findings in this study. First, the majority of the papers published in the field of bioinformatics are not cited by others (63 % of papers received less than two citations). Second, there is a linear, consistent increase in the number of publications. Particularly year 2003 is the turning point in terms of publication growth. Third, most researches of bioinformatics are driven by USA-based institutes followed by European institutes. Fourth, the results of topic modeling and word co-occurrence analysis reveal that major topics focus more on biological aspects than on computational aspects of bioinformatics. However, the top 10 ranked articles identified by PageRank are more related to computational aspects. Fifth, visualization of author co-citation analysis indicates that researchers in molecular biology or genomics play a key role in connecting sub-disciplines of bioinformatics.

Keywords: Analysis, Approach, Attention, Author Co-Citation Analysis, Author Cocitation, Author Cocitation Analysis, Bibliometric, Bibliometric Analysis, Bioinformatics, Biological, Biology, Citation, Citations, Co-Citation, Co-Citation Analysis, Cocitation, Cocitation Analysis, Data, Database, Field, First, Genomics, Growth, Knowledge, Mining, Modeling, Molecular Biology, Networks, Pagerank, Papers, Public, Publication, Publications, Pubmed, Pubmed Central, Research, Role, Science, Structure, Techniques, Text Mining, Text-Mining, Tool, Topic, Visualization, Web of Science, Word Co-Occurrence

? Zhuang, Y.H., Liu, X.J., Nguyen, T., He, Q.Q. and Hong, S. (2013), Global remote sensing research trends during 1991-2010: A bibliometric analysis. *Scientometrics*, **96** (1), 203-219.

Full Text: [2013\Scientometrics96, 203.pdf](2013/Scientometrics96,%20203.pdf)

Abstract: According to the articles related to remote sensing of SCI and SSCI databases during 1991-2010, this study evaluated the geographical influence of authors by the new index (geographical impact factor), and revealed the auctorial, institutional, national, and spatiotemporal patterns in remote sensing research. Remote sensing research went up significantly in the past two decades. Imaging science & photographic technology was the important subject category. International Journal of Remote Sensing was the top active journal. All authors were mainly concentrated in North America, Western Europe, and East Asia. Jackson TJ from USDA ARS was the most productive author, Coops NC from University of British Columbia had more high-quality articles, and Running SW from University of Montana carried the greatest geographical influence. The USA was the largest contributor in global remote sensing research with the most single-country and internationally collaborative articles, and the NASA was the most powerful research institute. The international cooperation of remote sensing research increased distinctly. Co-word analysis found the common remote sensing platform and sensors, revealed the widespread adoption of major technologies, and demonstrated keen interest in land cover/land use, vegetation, and climate change. Moreover, the remote sensing research was closely correlated with the satellite development.

Keywords: Adoption, Analysis, Asia, Authors, Bibliometric, Bibliometric Analysis, British Columbia, Classification, Climate, Climate Change, Cloud, Co-Word Analysis, Cooperation, Database, Databases, Development, Europe, Future, Geographic Information System (GIS), Geographical Impact Factor (GIF), Global, Impact, Impact Factor, Index, Influence, Information, International, International Cooperation, Journal, Modis, Montana, North, North America, Performance, Publications, Remote Sensing, Remote Sensing (RS), Remote-Sensing, Research, Research Trends, Satellite, SCI, Science, Scientific-Research, SSCI, Technologies, Technology, Trends, University, USA, Vegetation

? Gumpenberger, C., Ovalle-Perandones, M.A. and Gorraiz, J. (2013), On the impact of Gold Open Access journals. *Scientometrics*, **96** (1), 221-238.

Full Text: [2013\Scientometrics96, 221.pdf](2013/Scientometrics96,%20221.pdf)

Abstract: Gold Open Access (=Open Access publishing) is for many the preferred route to achieve unrestricted and immediate access to research output. However, true Gold Open Access journals are still outnumbered by traditional journals. Moreover availability of Gold OA journals differs from discipline to discipline and often leaves scientists concerned about the impact of these existent titles. This study identified the current set of Gold Open Access journals featuring a Journal Impact Factor (JIF) by means of Ulrichsweb, Directory of Open Access Journals and Journal Citation Reports (JCR). The results were analyzed regarding disciplines, countries, quartiles of the JIF distribution in JCR and publishers. Furthermore the temporal impact evolution was studied for a Top 50 titles list (according to JIF) by means of Journal Impact Factor, SJR and SNIP in the time interval 2000-2010. The identified top Gold Open Access journals proved to be well-established and their impact is generally increasing for all the analyzed indicators. The majority of JCR-indexed OA journals can be assigned to Life Sciences and Medicine. The success-rate for JCR inclusion differs from country to country and is often inversely proportional to the number of national OA journal titles. Compiling a list of JCR-indexed OA journals is a cumbersome task that can only be achieved with non-Thomson Reuters data sources. A corresponding automated feature to produce current lists “on the fly” would be desirable in JCR in order to conveniently track the impact evolution of Gold OA journals.

Keywords: Access, Articles, Availability, Citation, Country, Data, Directory of Open Access Journals (DOAJ), Distribution, Evolution, Feature, Gold, Gold Open Access, Green, Impact, Impact Analysis, Impact Evolution, Impact Factor, Indicators, Interval, JCR, Journal, Journal Citation Reports, Journal Citation Reports (JCR), Journal Impact Factor, Journals, Medicine, Open Access Journals, Open Access Publishing, Publishing, Research, Research Output, Roads, Route, Scientists, SJR, Snip, Sources, Success Rate, Temporal, Ulrichsweb

? Yang, B. and Sun, Y. (2013), An exploration of link-based knowledge map in academic web space. *Scientometrics*, **96** (1), 239-253.

Full Text: [2013\Scientometrics96, 239.pdf](2013/Scientometrics96,%20239.pdf)

Abstract: the World Wide Web has become an important source of academic information. The linking feature of the Web has been used to study the structure of academic web, as well as the presence of academic and research institutes on the Web. In this paper, we propose an integrated model for exploring the subject macrostructure of a specific academic topic on the Web and automatically depicting the knowledge map that is closer to what a domain expert would expect. The model integrates a hyperlink-induced topic search (HITS)-based link network extending strategy and a semantic based clustering algorithm with the aid of co-link analysis and social network analysis (SNA) to discover subject-based communities in the academic web space. We selected to use websites as analytical units rather than web pages because of the subject stability of a website. Compared with traditional techniques in Webometrics and SNA that have been used for such analyses, our model has the advantages of working on open web space (capability to explore unknown web resources and identify important ones) and of automatically building an extendable and hierarchical web knowledge map. The experiment in the area of Information Retrieval shows the effectiveness of the integrated model in analyzing and portraying of subject clustering phenomenon in academic web space.

Keywords: Algorithm, Analyses, Analysis, Building, Clustering, Collaboration, Detecting Community Structure, Effectiveness, Experiment, Feature, Information, Knowledge, Knowledge Discovery, Link Analysis, Model, Network, Network Analysis, Open, Research, Resources, Sites, Social, Social Network Analysis, Source, Stability, Strategy, Structure, Subject-Based Community, Techniques, Topic, Visualization, Web, Web Knowledge Map, Web-Resources, Webometrics, Websites, World Wide Web

? Brody, S. (2013), Impact factor: Imperfect but not yet replaceable. *Scientometrics*, **96** (1), 255-257.

Full Text: [2013\Scientometrics96, 255.pdf](2013/Scientometrics96,%20255.pdf)

Abstract: A recent critique of the use of journal impact factors (IF) by Vanclay noted imprecision and misuses of IF. However, the substantial alternatives he suggested offer no clear improvement over IF as a single measure of scholarly impact of a journal, leaving IF as not yet replaceable.

Keywords: Alternatives, Citation Analysis, Impact, Impact Factor, Impact Factors, Improvement, Index, Journal, Journal Impact, Journal Impact Factors, Journals, Measure, Peer Review, Recent, Scholarly Impact

? Fu, H.Z. and Ho, Y.S. (2013), Comparison of independent research of China’s top universities using bibliometric indicators. *Scientometrics*, **96** (1), 259-276.

Full Text: [2013\Scientometrics96, 259-1.pdf](2013/Scientometrics96,%20259-1.pdf) [2013\Scientometrics96, 259.pdf](2013/Scientometrics96,%20259.pdf); [2012\Scientometrics-Fu.pdf](2012/Scientometrics-Fu.pdf); [2012\Scientometrics-Fu1.pdf](2012/Scientometrics-Fu1.pdf); [2013\Scientometrics-Fu1.pdf](2013/Scientometrics-Fu1.pdf)

Abstract: the institutionally independent publications of Tsinghua University and Peking University were compared by two main indicators namely peak-year citations per publication and h-Index, based on the data extracted from the Science Citation Index Expanded, Web of Science from 1974 to 2011. Analyzed aspects covered total publication outputs, annual production, impact, authorships, Web of Science categories, journals, and most cited articles. Results shows that the two universities were in the same scale based on the peak-year citations per publication, the h-Index, and top cited articles with no less than 100 citations. Publication of the top three most productive Web of Science categories differed between these two universities. Tsinghua University published more articles in applied science and engineering fields, while Peking University had more basic science articles. In addition, article life was applied to compare the impact of the most cited articles and single author articles of the two universities.

Keywords: Bibliometric, Bibliometric Indicators, Centennial Celebration, Citation, Citation Analysis, Citations, Comparison, Data, Engineering, h Index, h-Index, Impact, Index, Indicators, Journals, Life, Materials Science, Peak-Year Citations Per Publication, Peking-University, Publication, Publications, Research, Research Output, Research Performance, Results, Scale, Science, Science Citation Index, Science Citation Index Expanded, Science Indicators, Scientific Literature, Scientometrics, Tsinghua-University, Universities, University, Web of Science

? Du, J. and Tang, X.L. (2013), Perceptions of author order versus contribution among researchers with different professional ranks and the potential of harmonic counts for encouraging ethical co-authorship practices. *Scientometrics*, **96** (1), 277-295.

Full Text: [2013\Scientometrics96, 277.pdf](2013/Scientometrics96,%20277.pdf)

Abstract: Current research performance assessment criteria contribute to some extent to author inflation per publication. Among various indicators for evaluating the quality of research with multiple authors, harmonic counting is relatively superior in terms of calculation, scientific ethics, and application. However, two important factors in harmonic counting are not yet clearly understood. These factors are the perceptions of scientists regarding the (1) corresponding author and (2) equally credited authors (ECAs). We carry out a survey investigation on different perceptions of author position versus contribution among medical researchers with different subfields and professional ranks in China, in order to provide several pieces of evidence on the aforementioned factors. We are surprised to find that researchers with different professional ranks tend to largely acknowledge their own contribution in collaborative research. Next, we conduct an empirical study to measure individual’s citation impact using inflated counts versus harmonic counts. The results indicate that harmonic h-Index cannot reflect the high peak of harmonic citations. Therefore, we use (1) harmonic R-index to differentiate authors based on the harmonic citations of each paper belonging to their respective h-cores; and (2) Normalization harmonic (h, R) index as a meaningful indicator in ranking scientists. Using a sample of 40 Ph.D. mentors in the field of cardiac and cardiovascular diseases, harmonic counts can distinguish between scientists who are often listed as major contributors and those regularly listed as co-authors. This method may also discourage unethical publication practices such as ghost authorship and gift authorship.

Keywords: Application, Ar-Index, Assessment, Authors, Authorship, Calculation, Cardiovascular, China, Citation, Citation Impact, Citations, Citations, Co-Authors, Co-Authorship, Coauthorship, Collaborative Research, Credit, Criteria, Diseases, Equal Contributions, Ethical, Ethics, Evidence, Field, Gift Authorship, h Index, h-Index, Harmonic Counting, Harmonic h-Index, Harmonic R-Index, Impact, Index, Indicator, Indicators, Investigation, Journals, Measure, Medical, Multiple Authorship, Normalization, Perceptions, Performance, Position, Potential, Practices, Publication, Publications, Quality, Quality Of, Questionnaire Survey, R, R-Index, Ranking, Research, Research Performance, Scientists, Survey

? Akcan, D., Axelsson, S., Bergh, C., Davidson, T. and Rosen, M. (2013), Methodological quality in clinical trials and bibliometric indicators: No evidence of correlations. *Scientometrics*, **96** (1), 297-303.

Full Text: [2013\Scientometrics96, 297.pdf](2013/Scientometrics96,%20297.pdf)

Abstract: Citation frequencies and journal impact factors (JIFs) are being used more and more to assess the quality of research and allocate research resources. If these bibliometric indicators are not an adequate predictor of research quality, there could be severe negative consequences for research. To analyse to which extent citation frequencies and journal impact factors correlate with the methodological quality of clinical research articles included in an SBU systematic review of antibiotic prophylaxis in surgery. All 212 eligible original articles were extracted from the SBU systematic review “Antibiotic Prophylaxis in Surgery” and categorized according to their methodological rigourness as high, moderate or low quality articles. Median of citation frequencies and JIFs were compared between the methodological quality groups using Kruskal-Wallis non-parametric test. An in-depth study of low-quality studies with higher citation frequencies/JIFs was also conducted. No significant differences were found in median citation frequencies (p = 0.453) or JIFs (p = 0.185) between the three quality groups. Studies that had high citation frequencies/JIFs but were assessed as low-quality lacked control groups, had high dropout rates or low internal validity. This study of antibiotic prophylaxis in surgery does not support the hypothesis that bibliometric indicators are a valid instrument for assessing methodological quality in clinical trials. This is a worrying observation, since bibliometric indicators have a major influence on research funding. However, further studies in other areas are needed.

Keywords: Antibiotic Prophylaxis, Articles, Assessing, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Citation, Citation Rates, Citations, Clinical, Clinical Research, Clinical Trials, Control, Control Groups, Correlations, Dropout, Evidence, Funding, Groups, History, Hta, Impact, Impact Factor, Impact Factors, Indicators, Influence, Journal, Journal Impact, Journal Impact Factors, Journal-Impact-Factor, Median, Medical Literature, Methodological Quality, Observation, Prevention, Prophylaxis, Publication, Quality, Quality Of, Rates, Research, Research Funding, Research Quality, Resources, Review, Study Quality, Support, Surgery, Systematic Review, Therapy, Users Guides, Validity

? Schubert, A. (2013), Measuring the similarity between the reference and citation distributions of journals. *Scientometrics*, **96** (1), 305-313.

Full Text: [2013\Scientometrics96, 305.pdf](2013/Scientometrics96,%20305.pdf)

Abstract: the “Jaccardized Czekanowski index”, JCz, an indicator measuring the similarity between the cited and citing journal list of a given journal is proposed in the paper. It is shown that the indicator characterizes the network properties of individual journals and, in aggregated form, also that of subject categories or countries. For subject categories, JCz appears to be related to the multidisciplinarity of the category. For countries, the multinational or local character of the publishers seems to have determining role.

Keywords: Citation, Community, Indicator, Journal, Journals, Local, Multidisciplinarity, Network, Properties, Reference, Role, Similarity, Similarity Measure

? Breimer, L.H. (2013), Impact of foreign external PhD examiners on academic collaboration patterns. *Scientometrics*, **96** (1), 315-322.

Full Text: [2013\Scientometrics96, 315.pdf](2013/Scientometrics96,%20315.pdf)

Abstract: the external examiners of 166 Swedish and 168 Danish biomedical PhD-theses, the candidates and their supervisors were assessed bibliometrically. In Sweden, 43 % of examiners were from abroad, most commonly USA and UK, while in Denmark 39 % of theses were examined by an examiner from abroad, mostly from neighbouring Sweden. As many came from Canada as from Denmark to examine Swedish theses. Foreign examiners were more merited (based on number of publications) than domestic examiners. Foreign examiners examined significantly more men in Denmark and more women in Sweden. In the case of co-publication only after the examination, one Swedish and three Danish PhD-candidates published with their foreign external examiners 4-10 years after the examination and two Swedish and seven Danish supervisors co-published with foreign examiners, suggesting that although invitation of foreign external examiners only rarely lead to collaborative work it may be more common in Denmark than in Sweden. Co-publication between external examiners and the candidates or their supervisors was rarer in Sweden than in Denmark in the period surrounding the examination, although the numbers are small. The use of foreign external examiners stimulates academic intercourse in general and sets a useful benchmark for common PhD standards but does not markedly increase international collaboration after the examination.

Keywords: Biomedical, Canada, Collaboration, Denmark, Examination, Gender Issues, General, Impact, Intercourse, International, International Collaboration, Internationalisation of Science, Lead, Men, Nepotism, Nordic Countries, PhD, PhD Process, Publications, Small, Standards, Sweden, Thesis, UK, USA, Women, Work

? Wong, C.Y. (2013), On a path to creative destruction: science, technology and science-based technological trajectories of Japan and South Korea. *Scientometrics*, **96** (1), 323-336.

Full Text: [2013\Scientometrics96, 323.pdf](2013/Scientometrics96,%20323.pdf)

Abstract: This study attempts to examine systematically the growth trajectories of science, technology and science-based technologies of Japan and South Korea. Drawing upon the empirical materials and findings, this paper provides a detailed description of the evolution and pathways taken by Japan and South Korea to achieve growth in science and technology. Both the quantities (number of papers and patents) and impact (citations) measures of research activities are used to provide a coherent depiction of progress and development trajectories. Japan and South Korea achieved significant progress in production of science and technology. However, both economies experienced a sharp contraction in the number of citations per new patent since the mid 2000s. To address their structural systemic failure, Japan and South Korea have invested heavily in scientific areas that concord with the next wave of technological innovations. The effort has recorded positive effects on science-based technological growth trajectories.

Keywords: Citations, Contraction, Creative Destruction, Cycle, Development, Dynamics, Effects, Evolution, Failure, Functionality Development, Growth, Impact, Industry, Innovation, Japan, Korea, Papers, Papers and Patents, Patent, Patents, Pathways, Production Trajectories, Progress, Research, Research-and-Development, Science, Science and Technology, Science-Based Technology, South Korea, Stocks, Systems, Technologies, Technology

? De Witte, K. and Hudrlikova, L. (2013), What about excellence in teaching? A benevolent ranking of universities. *Scientometrics*, **96** (1), 337-364.

Full Text: [2013\Scientometrics96, 337.pdf](2013/Scientometrics96,%20337.pdf)

Abstract: Existing university rankings apply fixed and exogenous weights based on a theoretical framework, stakeholder or expert opinions. Fixed weights cannot embrace all requirements of a ‘good ranking’ according to the Berlin Principles. As the strengths of universities differ, the weights on the ranking should differ as well. This paper proposes a fully nonparametric methodology to rank universities. The methodology is in line with the Berlin Principles. It assigns to each university the weights that maximize (minimize) the impact of the criteria where university performs relatively well (poor). The method accounts for background characteristics among universities and evaluates which characteristics have an impact on the ranking. In particular, it accounts for the level of tuition fees, an English speaking environment, size, research or teaching orientation. In general, medium sized universities in English speaking countries benefit from the benevolent ranking. On the contrary, we observe that rankings with fixed weighting schemes reward large and research oriented universities. Especially Swiss and German universities significantly improve their position in a more benevolent ranking.

Keywords: Characteristics, Conditional Efficiency, Criteria, Efficiency, Endogenous Weight Selection, Environment, Environmental Variables, Framework, General, Higher Education, Impact, Methodology, Models, Opinions, Performance, Rank, Ranking, Rankings, Research, Size, Teaching, Theoretical, Universities, University, University Ranking, Weighting

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Full Text: [2013\Scientometrics96, 365.pdf](2013/Scientometrics96,%20365.pdf)

Abstract: Although many studies have been conducted to clarify the factors that affect the citation frequency of “academic papers,” there are few studies where the citation frequency of “patents” has been predicted on the basis of statistical analysis, such as regression analysis. Assuming that a patent based on a variety of technological bases tends to be an important patent that is cited more often, this study examines the influence of the number of cited patents’ classifications and compares it with other factors, such as the numbers of inventors, classifications, pages, and claims. Multiple linear, logistic, and zero-inflated negative binomial regression analyses using these factors are performed. Significant positive correlations between the number of classifications of cited patents and the citation frequency are observed for all the models. Moreover, the multiple regression analyses demonstrate that the number of classifications of cited patents contributes more to the regression than do other factors. This implies that, if confounding between factors is taken into account, it is the diversity of classifications assigned to backward citations that more largely influences the number of forward citations.

Keywords: Analyses, Analysis, Articles, Characteristics, Citation, Citation Frequency, Citations, Confounding, Correlations, Counts, Diversity, Indicators, Influence, Japan, Models, Multiple Regression, Patent, Patent Citation, Patents, Regression, Regression Analysis, Statistical Analysis

? Glänzel, W. and Moed, H.F. (2013), Opinion paper: Thoughts and facts on bibliometric indicators. *Scientometrics*, **96** (1), 381-394.

Full Text: [2013\Scientometrics96, 381.pdf](2013/Scientometrics96,%20381.pdf)

Abstract: This paper aims at contributing to the on-going discussion about building and applying bibliometric indicators. It sheds light on their properties and requirements concerning six different aspects: deterministic versus probabilistic approach, application-related properties, the time dependence, normalization issues, size dependence and network indicators.

Keywords: Approach, Bibliometric, Bibliometric Indicators, Building, Citation Influence, Index, Indicators, Journal Impact Factor, Mathematical Statistics, Model, Network, Normalization, Properties, Research Output, Scientific Publications, Size, Source Normalized Impact

? Wainer, J. and Vieira, P. (2013), Correlations between bibliometrics and peer evaluation for all disciplines: the evaluation of Brazilian scientists. *Scientometrics*, **96** (2), 395-410.

Full Text: [2013\Scientometrics96, 395.pdf](2013/Scientometrics96,%20395.pdf)

Abstract: This paper correlates the peer evaluations performed in late 2009 by the disciplinary committees of CNPq (a Brazilian funding agency) with some standard bibliometric measures for 55 scientific areas. We compared the decisions to increase, maintain or decrease a scientist’s research scholarship funded by CNPq. We analyzed these decisions for 2,663 Brazilian scientists and computed their correlations (Spearman rho) with 21 different measures, among them: total production, production in the last 5 years, production indexed in Web of Science and Scopus, total citations received (according to WOS, Scopus, and Google Scholar), h-Index and m-quotient (according to the three citation services). The highest correlations for each area range from 0.95 to 0.29, although there are areas with no significantly positive correlation with any of the metrics.

Keywords: Bibliometric, Bibliometric Measures, Bibliometrics, Brazil, Citation, Citations, Correlates, Correlation, Correlations, Criteria, Disciplines, Evaluation, Field, Funding, Funding Agency, Google, Google Scholar, h Index, h-Index, Indicators, Medicine, Metaanalysis, Metrics, Peer Evaluation, Physics, Ranking, Research, Scholarship, Science, Scientist Evaluation, Scientists, Scopus, Services, Standard, Web of Science, Wos

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Full Text: [2013\Scientometrics96, 411.pdf](2013/Scientometrics96,%20411.pdf)

Abstract: This study examines the relationship between academic seniority and research productivity through a study of a sample of academics at Australian law schools. To measure research productivity, we use both publications in top law journals, variously defined, and citation metrics. A feature of the study is that we pay particular attention to addressing the endogeneity of academic rank. To do so, we use a novel identification strategy, proposed by Lewbel (Journal of Business and Economic Statistics 30:67-80, 2012), which utilises a heteroscedastic covariance restriction to construct an internal instrumental variable. Our main finding is that once endogeneity of academic rank is addressed, more senior academics at Australian law schools do not publish more articles in top law journals (irrespective of how top law journals are defined) than their less senior colleagues. However, Professors continue to have greater impact than Lecturers when research productivity is measured in terms of total citations and common citation indices, such as the h-Index and g-index.

Keywords: Academic Rank, Academics, Attention, Australia, Australian, Business, Citation, Citation Metrics, Citations, Economists, Evidence, Faculty Rank, Feature, G Index, G-Index, h Index, h-Index, Identification, Impact, Index, Indices, Journal, Journals, Law, Measure, Metrics, Performance, Productivity, Promotion, Publication, Publications, Rank, Research, Research Output, Research Productivity, Rewards, Sex, Statistics, Strategy

? Lei, X.P., Zhao, Z.Y., Zhang, X., Chen, D.Z., Huang, M.H., Zheng, J., Liu, R.S., Zhang, J. and Zhao, Y.H. (2013), Technological collaboration patterns in solar cell industry based on patent inventors and assignees analysis. *Scientometrics*, **96** (2), 427-441.

Full Text: [2013\Scientometrics96, 427.pdf](2013/Scientometrics96,%20427.pdf)

Abstract: This study examines technological collaboration in the solar cell industry using the information of patent assignees and inventors as defined by the United States Patent and Trademark Office. Three different collaborative types, namely local (same city), domestic (different cities of the same country), and international collaboration, are discussed. The general status of solar cell patent collaborations, transforming trends of collaborative patterns, average numbers of assignees and inventors for three collaborative types, and international collaboration countries are studied. It is found that co-invented patents and co-assigned patents have both increased in numbers during the four decades studied, and that collaboration between technology owners is very low while the collaboration between inventors is active. Domestic collaboration is the main collaborative pattern for both assignee collaboration and inventor collaboration. The other two collaborative types show contrary trends: international collaboration has slowly risen in the past decades while local collaboration has dwindled. The US has the largest number of internationally collaborative patents worldwide, though such patents account for a low portion of total US patents. in contrast, China has a small total number of patents and internationally collaborative patents, however its international collaborative shares are higher. The international collaboration patents among countries are few. A co-assigned patent analysis indicates that the main international cooperation partner of the United States is Japan. Based on an international co-invented patent analysis, the main international collaboration partners of the United States are Britain, Japan, and Germany; and the United States is also the most important collaboration partner of China.

Keywords: Analysis, Assignee, Britain, China, Cities, Collaboration, Collaborations, Cooperation, Country, General, Germany, Information, International, International Collaboration, International Cooperation, Inventor, Japan, Local, Networks, Partner, Patent, Patent Analysis, Patents, Pattern, PV System, Small, Solar Cell, Technology, Trends, United States, US

? Bordons, M., Aparicio, J. and Costas, R. (2013), Heterogeneity of collaboration and its relationship with research impact in a biomedical field. *Scientometrics*, **96** (2), 443-466.

Full Text: [2013\Scientometrics96, 443.pdf](2013/Scientometrics96,%20443.pdf)

Abstract: This paper analyses existing trends in the collaborative structure of the Pharmacology and Pharmacy field in Spain and explores its relationship with research impact. The evolution in terms of size of the research community, the typology of collaborative links (national, international) and the scope of the collaboration (size of links, type of partners) are studied by means of different measures based on co-authorship. Growing heterogeneity of collaboration and impact of research are observed over the years. Average journal impact (MNJS) and citation score (MNCS) normalised to world average tend to grow with the number of authors, the number of institutions and collaboration type. Both national and international collaboration show MNJS values above the country’s average, but only internationally co-authored publications attain citation rates above the world’s average. This holds at country and institutional sector levels, although not all institutional sectors obtain the same benefit from collaboration. Multilateral collaboration with high-level R&D countries yields the highest values of research impact, although the impact of collaboration with low-level R&D countries has been optimised over the years. Although scientific collaboration is frequently based on individual initiative, policy actions are required to promote the more heterogeneous types of collaboration.

Keywords: Analyses, Articles, Authors, Bilateral and Multilateral Collaboration, Biomedical, Biomedicine, Citation, Citation Rates, Co-Authorship, Coauthorship, Collaboration, Community, Cooperation, Country, Diversity, Evolution, Field, Heterogeneity, Impact, Institutions, International, International Collaboration, Journal, Journal Impact, Management, Networks, Pharmacy, Policy, Productivity, Publications, R&D, Rates, Research, Research Impact, Research Institutes, Science, Scientific Co-Authorship, Scientific Collaboration, Scope, Sector, Size, Spain, Structure, Trends, World

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Full Text: [2013\Scientometrics96, 467.pdf](2013/Scientometrics96,%20467.pdf)

Abstract: the objective of this work was to test the relationship between characteristics of an author’s network of coauthors to identify which enhance the h-Index. We randomly selected a sample of 238 authors from the Web of Science, calculated their h-Index as well as the h-Index of all co-authors from their h-Index articles, and calculated an adjacency matrix where the relation between co-authors is the number of articles they published together. Our model was highly predictive of the variability in the h-Index (R (2) = 0.69). Most of the variance was explained by number of co-authors. Other significant variables were those associated with highly productive co-authors. Contrary to our hypothesis, network structure as measured by components was not predictive. This analysis suggests that the highest h-Index will be achieved by working with many co-authors, at least some with high h-Indexes themselves. Little improvement in h-Index is to be gained by structuring a co-author network to maintain separate research communities.

Keywords: Analysis, Authors, Bibliometric Indicators, Characteristics, Citation Impact, Co-Author, Co-Author Network, Co-Authors, Coauthorship Networks, Egocentric Network, h Index, h-Index, Hirsch-Index, Improvement, Matrix, Model, Multilevel Network, Network, Patterns, Predictive, Productivity, R, Research, Science, Scientific Collaboration, Structure, Teams, Variability, Web of Science, Work

? Waaijer, C.J.F. (2013), Careers in science: Policy issues according to Nature and Science editorials. *Scientometrics*, **96** (2), 485-495.

Full Text: [2013\Scientometrics96, 485.pdf](2013/Scientometrics96,%20485.pdf)

Abstract: This study analyzes the editorials in Science and Nature published between 2000 and 2012 about careers in science. of the total body of documents, 8.8 % dealt with science careers. The editorials were manually classified by topics and then mapped using the VOSviewer. This revealed six easily distinguishable clusters: career conditions in science, the attractiveness of science as a career, merit-based career policies, the effect of research funding on careers, specific groups underrepresented in science, and mobility of scientists. The paper summarizes the main thrust of the arguments in these editorials. There is strong agreement about the problems in scientific careers, but less consensus on the solutions to these problems. The paper also explores whether mapping on the basis of automatically identified terms could have provided adequate results, but concludes that manual classification is needed.

Keywords: Academic Careers, Bibliometric Mapping, Careers, Classification, Consensus, Editorials, Funding, Gender, Groups, Mapping, Mobility, Policies, Policy, Research, Research Funding, Science, Scientific Careers, Scientists, Solutions

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Full Text: [2013\Scientometrics96, 497.pdf](2013/Scientometrics96,%20497.pdf)

Abstract: Big Science accelerator complexes are no longer mere tools for nuclear and particle physics, but modern-day experimental resources for a wide range of natural sciences and often named instrumental to scientific and technological development for innovation and economic growth. Facilities compete on a global market to attract the best users and facilitate the best science, and advertise the achievement of their users as markers of quality and productivity. Thus a need has risen for (quantitative) quality assessment of science on the level of facilities. in this article, we examine some quantitative performance measurements frequently used by facilities to display quality: technical reliability, competition for access, and publication records. We report data from the world’s three largest synchrotron radiation facilities from the years 2004-2010, and discuss their meaning and significance by placing them in proper context. While we argue that quality is not possible to completely capture in these quantitative metrics, we acknowledge their apparent importance and, hence, we introduce and propose facilitymetrics as a new feature of the study of modern big science, and as a new empirical focus for scientometrical study, in the hope that future studies can contribute to a deeper, much-needed analysis of the topic.

Keywords: Access, Achievement, Analysis, Assessment, Big Science, Competition, Context, Data, Development, Economic, Experimental, Facilities, Feature, First, Global, Growth, Innovation, Institutional Persistence, Leadership, Market, Metrics, Natural, Performance, Performance Assessment, Perspective, Policy, Productivity, Publication, Quality, Quality Assessment, Radiation, Records, Reliability, Resources, Review, Science, Sciences, Significance, Synchrotron Radiation, Synchrotron Radiation Facilities, Topic

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Full Text: [2013\Scientometrics96, 515.pdf](2013/Scientometrics96,%20515.pdf)

Abstract: Gender and racial disparities have greatly diminished in academia over the last 30 years, but attrition rates among women and minority faculty still remain high. in this paper we examine gender and racial disparities in publishing, an activity that is important for career advancement, but has not been incorporated adequately into the debate on faculty attrition. We surveyed a random sample of 1,065 authors who contributed a peer-reviewed journal article indexed in the Web of Science (WoS) in 2005 and at least one other article during the period of 2001-2004 in four academic disciplines representing natural sciences (biochemistry and water resources) and social sciences (anthropology and economics). We then report on the relationships between demographic variables (gender and race/ethnicity) and career-related variables (academic rank, discipline, and h-Index) of these authors. Our findings show that at every career level and within each discipline, women were under-represented in academic positions compared to men and an even lower percentage of women published at each academic level than were employed at that level. Further, we found that women had lower h-indices than men in all four disciplines surveyed. Societal and biological constraints may reduce women’s ability to obtain research intensive positions and contribute to these gender disparities. Hispanics and blacks were underrepresented among individuals awarded with doctoral degrees, doctorate recipients employed in academia, and academics publishing in WoS as compared to their representation in the population. Whites, Asians, and Native Americans and Pacific Islanders were adequately or over-represented in each category. Additionally, blacks had lower h-indices than the other ethnic groups across the disciplines surveyed. Compared to women, attrition among blacks and Hispanics appears to occur earlier in their career development. Cumulative experiences with discrimination and stereotypes may partly explain higher attrition and lower publication productivity among blacks and Hispanics.

Keywords: Academic Attrition, Academics, Achievement, Activity, Anthropology, Authors, Biochemistry, Biological, Blacks, Career Development, Development, Disciplines, Discrimination, Disparities, Economics, Ethnic Groups, Ethnicity, Faculty, Gender, Gender Disparities, Groups, h Index, h-Index, Journal, Journal Article, Mathematical Reasoning Ability, Men, Natural, Peer-Reviewed, Performance, Population, Productivity, Publication, Publication Productivity, Publishing, Race, Race and Ethnicity, Racial and Ethnic Disparities, Racial Disparities, Random Sample, Rank, Rates, Representation, Research, Research Collaboration, Research Productivity, Resources, Science, Sciences, Scientific Productivity, Sex-Differences, Social, Social Sciences, Survey, Water, Water Resources, Web of Science, Women, Womens Underrepresentation, Wos

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Full Text: [2013\Scientometrics96, 535.pdf](2013/Scientometrics96,%20535.pdf)

Abstract: This study uses the method of citation context analysis to compare differences in citation contexts, including cited concepts and citation functions, between natural sciences (NS) and social sciences and humanities (SSH), based on articles citing Little Science, Big Science (LSBS) published between 1963 and 2010. The findings indicate that NS and SSH researchers frequently cite LSBS as a source that is related to a specific topic and as evidence to support a claim. No significant differences were identified in the distribution of cited concepts included in LSBS, but significant differences were observed in the reasons for citing LSBS between NS and SSH citing articles. However, reverse trends were observed in the percentage of some cited concepts and citation functions between NS and SSH, which implies that subtle differences in citation behavior exist between NS and SSH researchers. in addition, each concept category has a different half-life. Concepts related to characteristics of big science and scientific collaboration have the longest half-lives.

Keywords: Analysis, Behavior, Big Science, Characteristics, Citation, Citation Contexts, Classification, Collaboration, Comparison, Concepts, Context, Distribution, Documentation, Evidence, Functions, Half-Life, Humanities, Natural, Natural Sciences, Psychology, Science, Sciences, Scientific Collaboration, Social, Social Sciences, Social Sciences and Humanities, Source, Support, Topic, Trends

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Full Text: [2013\Scientometrics96, 555.pdf](2013/Scientometrics96,%20555.pdf)

Abstract: Retraction is a self-cleaning activity done in the global science community. in this study, the retraction of global scientific publications from 2001 to 2010 was quantitatively analyzed by using the Science Citation Index Expanded. The results indicated that the number of retractions increased faster compared to the number of global scientific publications. Three very different patterns of retraction existed in each field. in the multi-disciplinary category and in the life sciences, retraction was relatively active. The impact factor strongly correlated with the number of retractions, but did not significantly correlate with the rate of retraction. Although the increases in the number of publications in China, India, and South Korea were faster, their retraction activities were higher than the worldwide average level.

Keywords: Activity, Bibliometrics, China, Citation, Citations, Community, Field, Global, Impact, Impact Factor, India, Journals, Korea, Life, Life Sciences, Misconduct, Multidisciplinary, Publications, Retraction, Science, Science Citation Index, Science Citation Index Expanded, Sciences, Scientific Publications, South Korea

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Full Text: [2013\Scientometrics96, 563.pdf](2013/Scientometrics96,%20563.pdf)

Abstract: We describe mathematically the age-independent version of the h-Index, defined by Abt (Scientometrics 91(3):863-868, 2012) and explain when this indicator is constant with age. We compare this index with the one where not the h-Index is divided by career length but where all citation numbers are divided by career length and where we then calculate the new h-Index. Both mathematical models are compared. A variant of this second method is by calculating the h-Index of the citation data, divided by article age. Examples are given.

Keywords: Age, Age-Independent, Career Length, Citation, Data, h Index, h-Index, Index, Indicator, Length, Mathematical Models, Models, Scientometrics, Transformations, Version

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Full Text: [2013\Scientometrics96, 573.pdf](2013/Scientometrics96,%20573.pdf)

Abstract: Better understanding of research and publishing misconduct can improve strategies to mitigate their occurrence. in this study, we examine various trends among 2,375 articles retracted due to misconduct in all scholarly fields. Proportions of articles retracted due to “publication misconduct” (primarily plagiarism and duplicate publication) or “distrust data or interpretations” (primarily research artifacts and unexplained irreproducibility of data) differ significantly between PubMed (35 and 59 %, respectively) and non-PubMed (56 and 27 %) articles and between English- and non-English-speaking author affiliation countries. Retraction rates due to any form of misconduct, adjusted for the size of the literature in different disciplines, vary from 0.22 per 100,000 articles in the Humanities to 7.58 in Medicine and 7.69 in Chemistry. The annual rate of article retractions due to misconduct has increased exponentially since 2001, and the percentage of all retractions involving misconduct allegations has grown from 18.5-29.2 % for each year from 1990-1993 to 55.8-71.9 % for each year from 2007-2010. Despite these increases, the prominence of research integrity in the news media has not changed appreciably over the past 20 years. Articles retracted due to misconduct are found in all major scholarly disciplines. The higher rate of plagiarism among authors from non-English speaking countries may diminish if institutions improved their support for the writing of English manuscripts by their scholars. The training of junior scholars on proper codes of research (and publishing) conduct should be embraced by all disciplines, not just by biomedical fields where the perception of misconduct is high.

Keywords: Affiliation, Articles, Authors, Biomedical, Chemistry, Codes, Data, Disciplines, Humanities, Impact, Institutions, Literature, Media, Medical, Medicine, Misconduct, Non-Pubmed, Perception, Plagiarism, Publication, Publishing, Pubmed, Rates, Research, Research Integrity, Research Misconduct, Retraction, Retractions, Scholarly Disciplines, Science, Scientific Misconduct, Size, Support, Training, Trends, Understanding

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Full Text: [2013\Scientometrics96, 589.pdf](2013/Scientometrics96,%20589.pdf)

Abstract: Small and medium-sized enterprises (SMEs) are more important today than in the past, due to their capabilities of creating jobs and boosting the economy. SMEs need continual innovation to survive in a competitive market and to continue growth. But SMEs suffer from the lack of information to generate innovative ideas. The objectives of this study are to suggest a new method to recommend promising technologies to SMEs that need “knowledge arbitrage” and to help SMEs come up with ideas on new R&D. To this end, this study used three analytic techniques: co-word analysis, collaborative filtering, and regression analysis. The suggested method is tested to assure its usefulness by the real case of knowledge arbitrage from LCD to Solar cell. The main contribution of this study is that it is the first to suggest the new method using recommendation algorithm (collaborative filtering) for SMEs’ knowledge arbitrage.

Keywords: Algorithm, Analysis, Approach, Case Study, Co-Word, Co-Word Analysis, Collaborative Filtering, Competitive, Economy, Emerging Technology, Enterprises, Example, First, Forecasting Emerging Technologies, Growth, Information, Information-Technology, Innovation, Knowledge, Knowledge Arbitrage, Market, Promising Technology, R&D, Regression, Regression Analysis, Small and Medium-Sized Enterprises (SMES), Solar, Solar Cell, Systems, Techniques, Technologies

? Liu, Y., Zuo, W., Gao, Y. and Qiao, Y.H. (2013), Comprehensive geometrical interpretation of h-type indices. *Scientometrics*, **96** (2), 605-615.

Full Text: [2013\Scientometrics96, 605.pdf](2013/Scientometrics96,%20605.pdf)

Abstract: Quantitative evaluation of scientists now has become very important at many aspects in the range of nation, even all over the world. Among the indices used for quantitative evaluation, h-type indicators are the most popular right now. However, because of the problem that mastering more than 40 variants is difficult and time-consuming, we need an intuitional and quick method by which we can present these indicators for evaluators and those even with little knowledge regarding to h-type indicators. in this paper, we introduce the paper-citation histogram in which most h-type indicators could be illustrated with their geometrical interpretation. With the help of these plots, evaluators can better understand the indices in a relatively short time. Meanwhile the geometrical interpretation can provide an insight into the research achievements of scientists.

Keywords: Evaluation, Geometrical Interpretation, H-Type Indicators, Indicators, Indices, Individual-Level, Knowledge, Research, Right, Scientists, World

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Full Text: [2013\Scientometrics96, 517.pdf](2013/Scientometrics96,%20517.pdf)

Abstract: the paper proposes two simple new indexes-k and w-to assess a scientist’s publications record based on citations. The two indexes are superior to the widely used h Index (Hirsch, 2005), as they preserve all its valuable characteristics and try to overcome one of its shortcomings, i.e. that it uses only a fraction of the information contained in a scientist’s citations profile and, as a result, it is defined over the set of positive integers and does not show a sufficiently fine ‘granularity’ to allow a fully satisfactory ranking of scientists. This problem is particularly acute in many areas of Social Sciences and Humanities, where scientific productivity and citation practices typically yield fewer citations per paper and, as a consequence, are characterized by ‘structurally’ lower values of the h Index. Both the indexes proposed are defined over R+, their integer part is equal to the scientist’s h Index and they fall in the right-open interval [h, h+1). While the h Index is influenced only by part of the citations received by a scientist’s most-cited publications, the k index takes into account all the citations received by her most-cited publications and the w index accounts for the citations received by the entire set of her publications. Variants of the k and w indexes are proposed which consider co-authorship. To show the extent to which the h Index and the new indexes proposed may yield different results, they are calculated for 332 professors of economics in Italian universities and the results obtained used to rank Italian university departments.

Keywords: Bibliometric, Bibliometrics, Characteristics, Citation, Citation Statistics, Citations, Co-Authorship, Coauthorship, Disciplines, Economic Research, Economics, Evaluating Research in Social Sciences, h Index, h-Index, Hirsch, Humanities, Index, Information, Interval, Output, Practices, Productivity, Professors, Publications, Rank, Ranking, Record, Research, Scientific Productivity, Scientists, Social Sciences, Successive h-Indexes, Universities, University

? Abbasi, A. (2013), h-Type hybrid centrality measures for weighted networks. *Scientometrics*, **96** (2), 633-640.

Full Text: [2013\Scientometrics96, 633.pdf](2013/Scientometrics96,%20633.pdf)

Abstract: in this study, new centrality (collaborative) measures are proposed for a node in weighted networks in three different categories. The bibliometric indicators’ concepts (e.g., h-Index and g-index) are applied to the network analysis measures in order to introduce the new centrality measures. First category of measures (i.e., l-index, al-index and gl-index) only considers a node’s neighbors’ degree. Second category of measures (i.e., h-Degree, a-Degree and g-Degree) takes into account the links’ weights of a node in a weighted network. Third category of measures (i.e., Hw-Degree, Aw-Degree and Gw-Degree) combines both neighbors’ degree and their links’ weight. Using a co-authorship network, the association between these new measures and the existing measures with scholars’ performance is examined to show the applicability of the new centrality measures. The analysis shows that the scholars’ citation-based performances measures are significantly associated with all the proposed centrality measures but the correlation coefficient for the ones based on average indicators (i.e., a-Degree and Aw-Degree) is the highest.

Keywords: Analysis, Association, Bibliometric, Bibliometric Indicators, Co-Authorship, Coauthorship, Coauthorship Network, Correlation, Correlation Coefficient, G Index, G-Index, h Index, h-Index, Hybrid, Hybrid Centrality Measures, Index, Indicators, Network, Network Analysis, Networks, Performance, Performance, Researchers, Scholars, Social Network Analysis, Weighted Networks

? Yang, L., Chen, Z.L., Liu, T., Wan, R., Wang, J. and Xie, W.G. (2013), Research output analysis of municipal solid waste: A case study of China. *Scientometrics*, **96** (2), 641-650.

Full Text: [2013\Scientometrics96, 641.pdf](2013/Scientometrics96,%20641.pdf)

Abstract: Municipal solid waste (MSW) management in China draws particular attention as China has become the largest MSW generator in the world. The paper analyzed the growth and development of MSW research productivity in China in terms of publication output as reflected in science citation index for the period 1997-2011. The study revealed that the output of MSW research in China has rapidly increased over the 15 years in contrast with USA. Chinese authors contributed 730 publications out of which 708 were journal articles, 17 reviews, 3 editorial materials, 1 correction and 1 meeting abstract, from 421 institutions. About 13.70 % of publications were contributed by Chinese Academy of Sciences, followed by Tongji University, Shanghai (13.15) and Tsinghua University, Beijing (11.10 %). That impact factors of the top 20 journals publishing most papers were between 0.30 and 4.63. Leading 20 authors in the area of MSW research published at least 13 articles per person. The annual share of publications varied from 0.27 to 20.96 % per year. The share was highest in the year 2009 at 20.96 %. An analysis of the title-words showed that “landfill”, “incineration” and “management” were recent major topics of municipal solid waste research in China. The results could help researchers understand the characteristics of research output and search hot spots of MSW field in China.

Keywords: Analysis, Area, Attention, Authors, Case Study, Characteristics, China, Chinese, Citation, Citation Index, Citation Patterns, Development, Field, Growth, Histcite, Impact, Impact Factors, Index, Institutions, Journal, Journal Articles, Journal Citation Reports, Journals, Knowledge, Level, Life-Cycle Assessment, Management, Msw, Municipal Solid Waste, Papers, Person, Productivity, Publication, Publications, Publishing, Pudong, Recent, Research, Research Output, Research Productivity, Reviews, Science, Science Citation Index, Shanghai, Solid Waste, Tianjin, University, USA, Waste, World

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Full Text: [2013\Scientometrics96, 651.pdf](2013/Scientometrics96,%20651.pdf)

Abstract: in recent years, several national and community-driven conference rankings have been compiled. These rankings are often taken as indicators of reputation and used for a variety of purposes, such as evaluating the performance of academic institutions and individual scientists, or selecting target conferences for paper submissions. Current rankings are based on a combination of objective criteria and subjective opinions that are collated and reviewed through largely manual processes. in this setting, the aim of this paper is to shed light into the following question: to what extent existing conference rankings reflect objective criteria, specifically submission and acceptance statistics and bibliometric indicators? the paper specifically considers three conference rankings in the field of Computer Science: an Australian national ranking, a Brazilian national ranking and an informal community-built ranking. It is found that in all cases bibliometric indicators are the most important determinants of rank. It is also found that in all rankings, top-tier conferences can be identified with relatively high accuracy through acceptance rates and bibliometric indicators. On the other hand, acceptance rates and bibliometric indicators fail to discriminate between mid-tier and bottom-tier conferences.

Keywords: Acceptance, Accuracy, Australian, Bibliometric, Bibliometric Indicators, Bibliometrics, Citation Analysis, Citation Counts, Computer Science, Conference Acceptance Rate, Conference Rankings, Conferences, Criteria, Field, Index, Indicators, Institutions, Objective Criteria, Opinions, Pagerank, Performance, Publication Counts, Rank, Ranking, Rankings, Rates, Recent, Reputation, Science, Scientists, Statistics

? Thijs, B., Schiebel, E. and Glänzel, W. (2013), Do second-order similarities provide added-value in a hybrid approach? *Scientometrics*, **96** (3), 667-677.

Full Text: [2013\Scientometrics96, 667.pdf](2013/Scientometrics96,%20667.pdf)

Abstract: Recent studies on first- and second-order similarities have shown that the latter one outperforms the first one as input for document clustering or partitioning applications. First-order similarities based on bibliographic coupling or on lexical approaches come with specific methodological issues like sparse matrices, sensitive to spelling variances or context differences. Second-order similarities were proposed to tackle these problems and take the lexical context into account. But also a hybrid combination of both types of similarities proved an important improvement which integrates the strengths of the two approaches and diminishes their weaknesses. In this paper we extend the notion of second-order similarity by applying it in the context of the hybrid approach. We conclude that there is no added value for the clearly defined clusters but that the second-order similarity can provide an additional viewpoint for the more general clusters.

Keywords: Approach, Bibliographic, Bibliographic Coupling, Citation, Clustering, Combined Cocitation, Context, Core Documents, Document Clustering, First, First Order, General, Hybrid, Hybrid Clustering, Improvement, Notion, Partitioning, Public Health, Recent, Science, Second Order, Second-Order, Similarity, Similarity Measures, Text Mining, Value, Word Analysis

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Full Text: [2013\Scientometrics96, 679.pdf](2013/Scientometrics96,%20679.pdf)

Abstract: Scientific writing is about communicating ideas. Today, simplicity is more important than ever. Scientist are overwhelmed with new information. The overall growth rate for scientific publication over the last few decades has been at least 4.7 % per year, which means doubling publication volume every 15 years. I measure simplicity/readability with proportion of adjectives and adverbs in a paper, and find natural science to be the most readable and social science the least readable.

Keywords: Growth, Growth Rate, Information, Measure, Natural, Nltk, Parts of Speech, Publication, Readability, Science, Scientific Publication, Social, Volume

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Full Text: [2013\Scientometrics96, 683.pdf](2013/Scientometrics96,%20683.pdf)

Abstract: Scientists generally do scientific collaborations with one another and sometimes change their affiliations, which leads to scientific mobility. This paper proposes a recursive reinforced name disambiguation method that integrates both coauthorship and affiliation information, especially in cases of scientific collaboration and mobility. The proposed method is evaluated using the dataset from the Thomson Reuters Scientific “Web of Science”. The probability of recall and precision of the algorithm are then analyzed. To understand the effect of the name ambiguation on the h-Index and g-index before and after the name disambiguation, calculations of their distribution are also presented. Evaluation experiments show that using only the affiliation information in the name disambiguation achieves better performance than that using only the coauthorship information; however, our proposed method that integrates both the coauthorship and affiliation information can control the bias in the name ambiguation to a higher extent.

Keywords: Affiliation, Algorithm, Author Disambiguation, Bias, Coauthorship, Collaboration, Collaborations, Control, Distribution, Evaluation, Experiments, G Index, G-Index, h Index, h-Index, Index, Information, Mobility, Performance, Precision, Recall, Scientific Collaboration, Scientific Mobility, Scientists, Thomson Reuters, Thomson-Reuters

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Full Text: [2013\Scientometrics96, 699.pdf](2013/Scientometrics96,%20699.pdf)

Abstract: Different scientific fields have different citation practices. Citation-based bibliometric indicators need to normalize for such differences between fields in order to allow for meaningful between-field comparisons of citation impact. Traditionally, normalization for field differences has usually been done based on a field classification system. In this approach, each publication belongs to one or more fields and the citation impact of a publication is calculated relative to the other publications in the same field. Recently, the idea of source normalization was introduced, which offers an alternative approach to normalize for field differences. In this approach, normalization is done by looking at the referencing behavior of citing publications or citing journals. In this paper, we provide an overview of a number of source normalization approaches and we empirically compare these approaches with a traditional normalization approach based on a field classification system. We also pay attention to the issue of the selection of the journals to be included in a normalization for field differences. Our analysis indicates a number of problems of the traditional classification-system-based normalization approach, suggesting that source normalization approaches may yield more accurate results.

Keywords: Alternative, Analysis, Approach, Attention, Audience Factor, Behavior, Bibliometric, Bibliometric Indicator, Bibliometric Indicators, Citation, Citation Analysis, Citation Impact, Classification, Comparison, Cross-Field, Field, Field Normalization, Field-Normalization, Germany, Impact, Index, Indicators, Journals, National Research Performance, Normalization, Practices, Publication, Publications, Rankings, Referencing, Science, Selection, Source, Source Normalization

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Full Text: [2013\Scientometrics96, 717.pdf](2013/Scientometrics96,%20717.pdf)

Abstract: In this study, we aim to evaluate the global scientific output of laparoscopy research, and try to find an alternative statistical approach to quantitatively and qualitatively assess the current global research trend on laparoscopy. Data were based on the Science Citation Index Expanded (SCI-E), from the Institute of Scientific Information Web of Science database. Articles referring to laparoscopy during 1997-2011 were concentrated on the analysis by scientific output characters, international collaboration, and the frequency of author keywords used. Globally, 59,264 papers were published during the 15-year study period, including 15 document types. Among them, there were 40,318 articles, to which a two-phase model was applied to simulate the high correlation between cumulative number of articles and the year. International collaborative publications were more prevalent in recent years, and were more powerful due to the sharing of ideas and workloads. Japan, Sweden, Poland, Canada, the UK, India, France and Spain benefit a lot from the international cooperation. With the comprehensive analysis of distribution and change of article titles, author keywords and abstracts, it can be concluded that research related to ‘morbid obesity’, ‘robotic surgery’, ‘prostatectomy’ and ‘NOTES (natural orifice transluminal endoscopic surgery)’ are the main orientations of all the laparoscopy research in the 21st century.

Keywords: Alternative, Analysis, Approach, Articles, Author Keywords Analysis, Bariatric Surgery, Bibliometric, Bibliometric Analysis, Bibliometrics, Canada, Cancer, Cholecystectomy, Citation, Collaboration, Cooperation, Correlation, Cumulative, Database, Distribution, Endoscopic Surgery, France, Global, Global Trend, India, Information, International, International Collaboration, International Cooperation, ISI Database, Japan, Laparoscopy, Life, Model, Morbid Obesity, Natural, Natural Orifice Transluminal Endoscopic Surgery, Notes, Obesity, Papers, Prostatectomy, Publications, Radical Prostatectomy, Recent, Research, Research Trend, Research Trends, Robot, Robotic Surgery, Scie, Science, Science Citation Index, Science Citation Index Expanded, Scientific Output, Severe Obesity, Spain, Surgery, Sweden, Trend, Trends, UK, Web of Science, Worldwide

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Full Text: [2013\Scientometrics96, 731.pdf](2013/Scientometrics96,%20731.pdf)

Abstract: the gap in statistics between multi-variate and time-series analysis can be bridged by using entropy statistics and recent developments in multi-dimensional scaling. For explaining the evolution of the sciences as non-linear dynamics, the configurations among variables can be important in addition to the statistics of individual variables and trend lines. Animations enable us to combine multiple perspectives (based on configurations of variables) and to visualize path-dependencies in terms of trajectories and regimes. Path-dependent transitions and systems formation can be tested using entropy statistics.

Keywords: Analysis, Communication, Data, Drug Discovery, Dynamic, Dynamics, Entropy, Evolution, Information, Innovation Systems, Journal Maps, Lock-In, Multidimensional, Multidimensional Scaling, Multivariate, Nonlinear, Perspective, Recent, Regimes, Scaling, Sciences, Scientometric, Self-Organized Criticality, Social-Networks, Statistics, Systems, Time Series, Time Series Analysis, Time-Series Analysis, Trajectories, Trend, Visualization

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Full Text: [2013\Scientometrics96, 743.pdf](2013/Scientometrics96,%20743.pdf)

Abstract: Scientific importance ranking has long been an important research topic in scientometrics. Many indices based on citation counts have been proposed. In recent years, several graph-based ranking algorithms have been studied and claimed to be reasonable and effective. However, most current researches fall short of a concrete view of what these graph-based ranking algorithms bring to bibliometric analysis. In this paper, we make a comparative study of state-of-the-art graph-based algorithms using the APS (American Physical Society) dataset. We focus on ranking researchers. Some interesting findings are made. Firstly, simple citation-based indices like citation count can return surprisingly better results than many cutting-edge graph-based ranking algorithms. Secondly, how we define researcher importance may have tremendous impacts on ranking performance. Thirdly, some ranking methods which at the first glance are totally different have high rank correlations. Finally, the data of which time period are chosen for ranking greatly influence ranking performance but still remains open for further study. We also try to give explanations to a large part of the above findings. The results of this study open a third eye on the current research status of bibliometric analysis.

Keywords: Algorithms, American Physical Society, Analysis, Authors, Bibliometric, Bibliometric Analysis, Citation, Citation Count, Citation Counts, Citation Networks, Comparative Study, Concrete, Correlations, Data, First, Graph-Based Ranking, Impact, Impacts, Indices, Influence, Journals, Methods, Open, Pagerank, Performance, Rank, Ranking, Recent, Recommendation Intensity, Research, Researcher Importance, Scientometrics, Search, Time Period, Topic

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Full Text: [2013\Scientometrics96, 761.pdf](2013/Scientometrics96,%20761.pdf)

Abstract: Bibliographic data of publications indexed in Web of Science with at least one (co-)author affiliated to any of the 15 West African countries and published from 2001 to 2010 included are downloaded. Analyses focused one collaboration indicators especially intra regional collaboration, intra African collaboration and collaboration with the world. Results showed that the rate of papers with only one author is diminishing whereas the rate of papers with six and more authors is increasing. Nigeria is responsible for more than half the region’s total scientific output. The main African partner countries are South Africa (in the Southern Africa, Cameroon (in the Central Africa), Kenya and Tanzania (in the Eastern Africa). The main non African partner countries are France, USA and United Kingdom, which on their own contributed to over 63 % of the papers with a non West African address. Individual countries have higher international collaboration rate, except Nigeria. West African countries cooperated less with each other and less with African and developing countries than they did with developed ones. The study suggests national authorities to express in actions their commitment to allot at least 1 % of their GDP to science and technology funding. It also suggests regional integration institutions to encourage and fund research activities that involve several institutions from different West African countries in order to increase intra regional scientific cooperation.

Keywords: Africa, African Countries, Authors, Bibliographic, Collaboration, Commitment, Cooperation, Data, Developing, Developing Countries, Economic Community of West African States, France, Funding, GDP, Indicators, Institutions, Integration, International, International Collaboration, Kenya, Networks, Nigeria, Papers, Partner, Publications, Publishing, Regional, Regional Collaboration, Research, Research Assessment, Research Collaboration, Research Policy, Results, Science, Science and Technology, Scientific Cooperation, Scientific Output, Scientific Publishing, Scientific Research, South Africa, Tanzania, Technology, United Kingdom, USA, Web of Science, West Africa, World

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Full Text: [2013\Scientometrics96, 785.pdf](2013/Scientometrics96,%20785.pdf)

Abstract: We propose new variations of the standard and the real-valued (or interpolated) h-Index. More precisely, we propose two different types. For the first type, sources are years, and items are either publications, or citations received or citations per publication. The second type makes use of the speed by which citations are received: it is a diffusion speed index.

Keywords: Bangladesh, Career Year: Author, Career Year: Journal, Citation Analysis, Citations, Diffusion, Diffusion Factors, First, h Index, h-Index, H-Type Indices, Index, Indicators, Journals, Performance Evaluation, Publication, Publications, Scientometrics, Sources, Standard

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Full Text: [2013\Scientometrics96, 799.pdf](2013/Scientometrics96,%20799.pdf)

Abstract: This paper provides scientometricians with a brief overview of the history of economic statistics and its international standards. Part of the latter is the Frascati family of standards in science and technology input statistics. Some recommendations are given for improvements in these standards. Proposals are developed to relate research inputs as defined in the Frascati manual and bibliometrically measured outputs.

Keywords: Economic, Economic Statistics, Family, Frascati, History, Input Indicators, International, National Accounts, Recommendations, Research, Science, Science and Technology, Scientometrics, Standards, Statistics, Technology

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Full Text: [2013\Scientometrics96, 819.pdf](2013/Scientometrics96,%20819.pdf)

Abstract: Larger agglomerations of individuals create a social environment can sustain a larger repertoire of intellectual capabilities, thereby facilitating the creation and recombination of ideas, and increasing the likelihood that interactions among individuals will occur through which new ideas are generated and shared. Relatedly, cities have long been the privileged setting for invention and innovation. These two phenomena are brought together in the superlinear scaling relationship whereby urban inventive output (measured through patenting) increases more than proportionally with increasing population size. We revisit the relationship between urban population size and patenting using data for a global set of metropolitan areas in the OECD and show, for the first time, that the superlinear scaling between patenting and population size observed for US metropolitan areas holds for urban areas across a variety of urban and economic systems. In fact the scaling relationships established for the US metropolitan system and for the global metropolitan system are remarkably similar.

Keywords: Agglomeration, Cities, City Size, Data, Density, Economic, Environment, Evidence, First, Global, Global Metropolitan Areas, Growth, Indicators, Innovation, Localization, Patenting, Population, Population Size, Productivity, Scaling, Size, Social, Superlinearity, Systems, Technological-Change, Urban, Urban Areas, Urban Scaling, US

Notes: CCountry

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Full Text: [2013\Scientometrics96, 829.pdf](2013/Scientometrics96,%20829.pdf)

Abstract: Pharmacology/pharmacy is an important scientific field and plays a pivotal role in new drug research and development. China has steadily increased investment in drug development. This study aimed to evaluate the productivity of China in the field pharmacology/pharmacy in the past decade in relation to ten representative countries. The publications in the field pharmacology/pharmacy of China and ten representative countries in the past decade (2001-2010) were retrieved from Web of Science database, and studies were conducted on the immediacy index of articles published in 2011. Multiple bibliometric indicators were obtained from the “InCites” analysis. Most of the bibliometric indicators for the developed countries including the USA and the European countries remained stable in the past decade. The number of publications by the Asian countries, especially China, increased dramatically in the past decade year by year; however, the Asian countries improved little in the indicators assessing the scientific quality of publications including the citation behaviors and the impact relative to either country and subject area. It may need a long time to fill in the gap, in terms of the scientific quality, between the developing countries and the developed countries. In view of the dramatic increase in the financial investment, our findings suggest that the development of the field pharmacology/pharmacy worldwide is not optimistic, which may partially explain the decreased R&D productivity of pharmaceutical industry since the last decade.

Keywords: Analysis, Asian, Assessing, Bibliometric, Bibliometric Indicators, Bibliometrics, Bibliometrics Evaluation, China, Citation, Country, Database, Developing, Developing Countries, Development, Drug, Drug Development, Evaluation, Field, Immediacy Index, Impact, Incites, Index, Indicators, Performance, Pharmaceutical Industry, Pharmacology, Pharmacy, Productivity, Publications, Quality, Quality Of, Quality of Publications, R&D, Research, Research and Development, Research Performance, Research-And-Development, Role, Science, Science-Citation-Index, USA, Web of Science

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Full Text: [2013\Scientometrics96, 845.pdf](2013/Scientometrics96,%20845.pdf)

Abstract: In the paper we show that the bibliographic data can be transformed into a collection of compatible networks. Using network multiplication different interesting derived networks can be obtained. In defining them an appropriate normalization should be considered. The proposed approach can be applied also to other collections of compatible networks. The networks obtained from the bibliographic data bases can be large (hundreds of thoUSAnds of vertices). Fortunately they are sparse and can be still processed relatively fast. We answer the question when the multiplication of sparse networks preserves sparseness. The proposed approaches are illustrated with analyses of collection of networks on the topic “social network” obtained from the Web of Science. The works with large number of co-authors add large complete subgraphs to standard collaboration network thus bluring the collaboration structure. We show that using an appropriate normalization their effect can be neutralized. Among other, we propose a measure of collaborativness of authors with respect to a given bibliography and show how to compute the network of citations between authors and identify citation communities.

Keywords: Analyses, Approach, Authors, Bibliographic, Bibliography, Citation, Citations, Co-Authors, Co-Authorship, Cocitation, Collaboration, Collection, Complete, Data, Measure, Network, Network Multiplication, Networks, Normalization, Science, Sparse Network, Standard, Structure, Topic, Two-Mode Network, Web of Science

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Full Text: [2013\Scientometrics96, 865.pdf](2013/Scientometrics96,%20865.pdf)

Abstract: There is a world trend for Research Performance Evaluation (RPE), developing of new scientometric indices and examining of their application. Consequently, concerns and anomalies arise about the convergent validity and reliability of these indices for the decision making purposes. This is especially prevalent in the region/countries/disciplines having less or emerging trends of publishing and getting citations. The present scientometric study addresses usefulness of the most noted metric h-Index along with other selected indicators in the field of Engineering in Malaysians universities. To understand, the role of this metric if any, we examined the functional correlation, predictive value and its relationship with national assessment criteria. Results report that this indicator has good potential to work alone, ease in use and robust to get a broader snapshot for positioning and performance evaluation. However, for better decision making purpose, this can be used for broader contextual peer assessment process along with other indicators. Its validity is further checked with two size independent institutional h-indices: h(G-H) and h(m).

Keywords: Application, Assessment, Author Self-Citations, Bibliometric Indicators, Citations, Convergent Validity, Correlation, Criteria, Decision, Decision Making, Decision-Making, Developing, Eigenfactor(Tm), Engineering, Evaluation, Field, h Index, H(G-H), H(M), h-Index, h-Index, Hirsch-Index, Impact Factors, Indicator, Indicators, Indices, Journals, Malaysia, Performance, Performance Evaluation, Potential, Predictive, Predictive Value, Publishing, Purpose, Reliability, Research, Research Output, Research Performance, Research Performance Evaluation, Results, Role, Science, Scientific-Research, Scientometric, Size, Trend, Trends, Universities, Validity, Value, Work, World

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Full Text: [2013\Scientometrics96, 881.pdf](2013/Scientometrics96,%20881.pdf)

Abstract: the purpose of this study is to determine principal parameters which affect the R&D exploitation and to explore R&D activities in closed science that positively affect those in open science. Based on 486 nanotechnology projects from five national R&D programs in South Korea, canonical correlation analysis is used to analyze the relationships among R&D parameters of inputs, outputs and outcomes and to determine principle parameters. As a result, this study concludes that the principal parameters are publications with high impact, patents, and academic degrees. This study also shows a positive correlation between activities in open science and closed science. The conclusions suggest that research results with high impact value should be endorsed by the Korean government and should try to keep a balance between R&D exploitation in open science and closed science. This study would be used for establishing South Korea’s R&D policy effective for faster commercialization of nanotechnology related research.

Keywords: Academic Research, Analysis, Canonical Correlation, Canonical Correlation-Analysis, Correlation, Correlation Analysis, Dea Approach, Impact, Impact Factor, Indicators, Korea, Nanotechnology, Nanotechnology Programs, Nanotechnology Research, Open, Outcomes, Patents, Performance, Policy, Principal Parameters, Public Research, Publications, Purpose, R&D, R&D Outcomes, R&D Outputs, Research, Research Results, Science, South Korea, Start-Ups, Technology-Transfer, Universities, Value

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Full Text: [2013\Scientometrics96, 901.pdf](2013/Scientometrics96,%20901.pdf)

Abstract: Regression equations to predict h Index trajectories up to 10 years ahead have been recently derived from the analysis of data from a large calibration sample of neuroscientists. These equations were regarded by their proponents as potentially useful decision aids for funding agencies, peer reviewers, and hiring committees. This paper presents the results of a validation study in a sample of Spanish psychologists including neuroscience psychologists for whom the regression equations would be expected to apply but including also psychologists in other areas of the social/behavioral sciences for whom the applicability of the regression equations might be questionable. The results do not support the equations for any of the two groups: Errors of prediction were generally large and mostly positive, the more so the larger was the value of the h Index used to make the prediction. Although the validity of these regression equations could still be investigated in additional cross-validation studies, an alternative approach to predicting future h indices is outlined and illustrated in this paper.

Keywords: Aids, Alternative, Analysis, Approach, Calibration, Citations, Cons, Data, Decision, Funding, Google Scholar, Groups, h Index, h-Index, Hiring, Index, Indices, Neuroscience, Prediction, Pros, Ranking, Regression, Researchers, Science, Sciences, Scopus, Stochastic-Model, Support, Validation, Validity, Value, Web

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Full Text: [2013\Scientometrics96, 911.pdf](2013/Scientometrics96,%20911.pdf)

Abstract: Resilience thinking is a rising topic in environmental sciences and sustainability discourse. In this paper, a bibliometric method is used to analyse the trends in resilience research in the contexts of ecological, economic, social, and integrated socio-ecological systems. Based on 919 cited publications in English which appeared between 1973 and 2011, the analysis covers the following issues: general statistical description, influential journal outlets and top cited articles, geographic distribution of resilience publications and covered case studies, national importance of resilience researchers and leading research organisations by country. The findings show that resilience thinking continues to dominate environmental sciences and has experienced a dramatic increase since its introduction in 1973. More recently, new interest has emerged for broadening the scope and applying the concept to socio-economic systems and sustainability science. The paper also shows that resilience research overall is dominated by USA, Australia, UK and Sweden, and makes the case for the need to expand this work further in the urgent need for practically oriented solutions that would help arrest further ecological deterioration.

Keywords: Adaptability, Analysis, Australia, Bibliometric, Bibliometric Analysis, Bibliometrics, Case Studies, Country, Discourse, Distribution, Economic, Environmental, General, Global Environmental-Change, Google-Scholar, Journal, Publications, Research, Resilience, Science, Sciences, Scope, Social, Social-Ecological Systems, Socio-Ecological Systems, Solutions, Sustainability, Sweden, Systems, Topic, Transformability, Trends, UK, USA, Work

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Full Text: [2013\Scientometrics96, 929.pdf](2013/Scientometrics96,%20929.pdf); [2012\Scientometrics-Ho1.pdf](2012/Scientometrics-Ho1.pdf); [2012\Scientometrics-Ho2.pdf](2012/Scientometrics-Ho2.pdf); [2013\Scientometrics-Ho2.pdf](2013/Scientometrics-Ho2.pdf)

Keywords: Bibliometric, Bibliometric Study, Research

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Full Text: [2013\Scientometrics96, 933.pdf](2013/Scientometrics96,%20933.pdf)

Keywords: Bibliometric, Bibliometric Study, Comments, Research

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Full Text: [2013\Scientometrics96, 937.pdf](2013/Scientometrics96,%20937.pdf)

Abstract: Price argued that the average scientific specialty consists of about 100 scientists, publishing an average 100 articles each during their career. Wray recently attempted to revise the number of scientists in a specialty based on the information that the average scientist publishes only 3.5 papers during their career. However, his final estimate, between 250 and 600 scientists, does not support Price’s idea that a specialty fills about 10,000 articles, unless the ad hoc assumption is made that nearly 80 % of articles circulating in a field are from other fields. This article shows that by distinguishing between graduate students, who spend only a couple of years in a specialty, and professors, who spend their entire career in a field, the ad hoc assumption becomes unnecessary, and Wray’s number of 600 scientists turns out to be a remarkable intuitive insight that is consistent with Price’s 10,000 articles. A number of 520 scientists, or somewhat larger, is suggested for Price’s estimate.

Keywords: Articles, Attempted, Community, Community Structure, Couple, Field, Graduate, Graduate Students, Information, Journals, Papers, Price, Professors, Publishing, Scientific Community, Scientists, Size, Specialty, Structure, Students, Support

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Full Text: [2013\Scientometrics96, 941.pdf](2013/Scientometrics96,%20941.pdf)

Keywords: Economics, Economy, Science

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Full Text: [2013\Scientometrics97, 3.pdf](2013/Scientometrics97,%203.pdf)

Abstract: the Democratic People’s Republic of Korea (North Korea) is one of the world’s most secretive and reclusive states. In scientometrics, even the United Nations, which compiles data from every country of the world, has been able to do little beyond counting the few scientific papers made publicly available (UNESCO 2010). The world could benefit from knowing more about North Korean science, which is quite well developed-witness all the concern about their nuclear energy and rocket launches. Here an analysis is presented of the North Korean presence in the world’s scientific literature, and of the possibilities for collaboration which offers a mechanism for positive development for their citizens and also for their neighbours.

Keywords: Analysis, Collaboration, Country, Data, Development, Energy, Korea, Literature, Mechanism, North, North Korea, Papers, Science, Scientific Collaboration, Scientific Literature, Scientific Output, Scientometrics, Unesco, Universities, World

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Full Text: [2013\Scientometrics97, 13.pdf](2013/Scientometrics97,%2013.pdf)

Abstract: the present paper attempts to shed light on outstanding research performance using the example of citation distributions. In order to answer the question of how the analysis of outstanding performance, in general, and highly cited papers, in particular, could be integrated into standard techniques of evaluative scientometrics. Two general methods are proposed: One solution aims at quantifying the performance represented by the tail of citation distributions independently of the “mainstream”, the second one, a parameter-free solution, provides performance classes for any level. Advantages and shortcoming of both methods are discussed.

Keywords: Analysis, Characteristic Scores, Characteristic Scores and Scales, Citation, Extreme Values, General, Highly Cited, Highly Cited Papers, Highly-Cited, Impact, Methods, Outlier, Papers, Performance, Qq Plot, Research, Research Performance, Scales, Scientometric, Scientometric Distributions, Scientometrics, Solution, Standard, Techniques

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Full Text: [2013\Scientometrics97, 25.pdf](2013/Scientometrics97,%2025.pdf)

Abstract: In the present paper four myths of gender differences in scientific performance are presented and discussed. The persistence of these myths in different forms of evaluation is influencing the women’s discriminations in research careers in combination with effects explained in other explanation models for the existence of the unseen barrier (glass ceiling) that keeps women from rising to the upper levels of the corporate ladder.

Keywords: Barrier, Bias, Careers, Effects, Evaluation, Explanation, Forms, Gender, Gender Bias, Gender Differences, Glass, Glass Ceiling, Models, Performance, Persistence, Research, Research Productivity, Science, Scientific Performance, Similarities, Universities, Women

? Wang, X.W., Mao, W.L., Wang, C.L., Peng, L. and Hou, H.Y. (2013), Chinese elite brain drain to USA: An investigation of 100 United States national universities. *Scientometrics*, **97** (1), 37-46.

Full Text: [2013\Scientometrics97, 37.pdf](2013/Scientometrics97,%2037.pdf)

Abstract: In this research, through the complete investigation of 100 American national universities. A list of 3,776 Chinese-American faculties are collected. Analysis is made from five aspects, including regional statistics, institution statistics, gender statistics, position statistics, and discipline statistics. New York, California and Pennsylvania have the most Chinese-American scholars, when the top three universities are the Ohio State University-Columbus, Emory University, and Texas A&M University. The number of male faculties is much greater than female, when the ratio is roughly 7:3. For the position statistics, the ratio of Professor, Associate Professor and Assistant Professor is 2.7:3:4.3. Biology, Medicine and Computer Science are the top three disciplines with the most Chinese-American faculties.

Keywords: Biology, Brain, Brain Drain, California, Chinese, Chinese-American, Complete, Disciplines, Female, Gender, Investigation, Male, Medicine, New York, Ohio, Regional, Research, Science, Statistics, Texas, United States, Universities, University, USA

? Cuxac, P., Lamirel, J.C. and Bonvallot, V. (2013), Efficient supervised and semi-supervised approaches for affiliations disambiguation. *Scientometrics*, **97** (1), 47-58.

Full Text: [2013\Scientometrics97, 47.pdf](2013/Scientometrics97,%2047.pdf)

Abstract: the disambiguation of named entities is a challenge in many fields such as scientometrics, social networks, record linkage, citation analysis, semantic web...etc. The names ambiguities can arise from misspelling, typographical or OCR mistakes, abbreviations, omissions... Therefore, the search of names of persons or of organizations is difficult as soon as a single name might appear in many different forms. This paper proposes two approaches to disambiguate on the affiliations of authors of scientific papers in bibliographic databases: the first way considers that a training dataset is available, and uses a Naive Bayes model. The second way assumes that there is no learning resource, and uses a semi-supervised approach, mixing soft-clustering and Bayesian learning. The results are encouraging and the approach is already partially applied in a scientific survey department. However, our experiments also highlight that our approach has some limitations: it cannot process efficiently highly unbalanced data. Alternatives solutions are possible for future developments, particularly with the use of a recent clustering algorithm relying on feature maximization.

Keywords: Addresses, Affiliation, Algorithm, Analysis, Approach, Authors, Bibliographic, Bibliographic Databases, Challenge, Citation, Citation Analysis, Classification, Clustering, Data, Data Cleaning, Databases, Disambiguation, Experiments, Fatal Attraction, Feature, First, Forms, Information, K-Means, Learning, Linkage, Mixing, Model, Naive Bayes, Networks, Papers, Ranking, Recent, Record, Scientific Publications, Scientometrics, Semi-Supervised, Social, Social Networks, Solutions, Survey, Training, Unification, Universities

? Ovalle-Perandones, M.A., Gorraiz, J., Wieland, M., Gumpenberger, C. and Olmeda-Gomez, C. (2013), The influence of European Framework Programmes on scientific collaboration in nanotechnology. *Scientometrics*, **97** (1), 59-74.

Full Text: [2013\Scientometrics97, 59.pdf](2013/Scientometrics97,%2059.pdf)

Abstract: This study deals primarily with the effect of certain European Framework Programmes on EU-27 member states’ publication output in nanotechnology, with a focus on their scientific collaboration over the last ten years. The study was conducted at three levels (category, journal and publication). The aim was to verify whether the newly launched category is sufficiently complete, as well as to identify the most prominent journals and compare the EU-27 member states’ output to world production. Snapshots of European networking are also provided for three key dates (2001, 2006 and 2011) to ascertain the positions of emerging and central countries and analyse their variations over time. The results confirm the speedy development in the field and the importance of the EU-27s world role. They corroborate the close correlation between funding and increased output and the intensification of collaboration among member states. Finally, the information contained in the “Funding Agency” field in the Web of Science database was also compiled, with a view to substantiating the validity of the estimated impact of EU-funding programmes on member states’ scientific output.

Keywords: Collaboration, Complete, Correlation, Database, Delineation, Development, European Framework Programmes, Field, Funding, Impact, Influence, Information, Intensification, Journal, Journals, Nanotechnology, Patents, Programmes, Publication, Role, Science, Scientific Collaboration, Scientific Output, Terms, Validity, Web of Science, World

? Cho, P.S., Do, H.H.N., Chandrasekaran, M.K. and Kan, M.Y. (2013), Identifying research facilitators in an emerging Asian Research Area. *Scientometrics*, **97** (1), 75-97.

Full Text: [2013\Scientometrics97, 75.pdf](2013/Scientometrics97,%2075.pdf)

Abstract: We introduce a novel set of metrics for triadic closure among individuals or groups to model how co-authorship networks become more integrated over time. We call this process of triadic, third-party mediated integration, research facilitation. We apply our research facilitation or RF-metrics to the development of the Pan-Asian SNP (PASNP) Consortium, the first inter-Asian genomics network. Our aim was to examine if the consortium catalyzed research facilitation or integration among the members and the wider region. The PASNP Consortium is an ideal case study of an emerging Asian Research Area because its members themselves asserted a regional Asian identity. To validate our model, we developed data mining software to extract and match full author and institutional information from the PDFs of scientific papers.

Keywords: Asian, Asian Research Area, Case Study, China, Closure, Co-Authorship, Co-Authorship Networks, Coauthorship, Countries, Data, Data Mining, Data-Mining, Development, First, Genetic Diversity, Genomics, Groups, Information, Innovation, Integration, International Collaboration, Metrics, Mining, Model, Network, Networks, Pan-Asian Snp Consortium, Papers, Region, Regional, Research, Research Facilitation, Rf-Metric, Science, Social Networks, Software, Triadic Closure, World

? Eslami, H., Ebadi, A. and Schiffauerova, A. (2013), Effect of collaboration network structure on knowledge creation and technological performance: the case of biotechnology in Canada. *Scientometrics*, **97** (1), 99-119.

Full Text: [2013\Scientometrics97, 99.pdf](2013/Scientometrics97,%2099.pdf)

Abstract: Many of the novel ideas that lead to scientific publications or yield technological advances are the result of collaborations among scientists or inventors. Although various aspects of collaboration networks have been examined, the impact of many network characteristics on knowledge creation and innovation production remains unclear due to the inconsistency of the conclusions from various research studies. One such network structure, called small world, has recently attracted much theoretical attention as it has been suggested that it can enhance the information transmission efficiency among the network actors. However, the existing empirical studies have failed to provide consistent results regarding the effect of small-world network properties on network performance in terms of its scientific and technological productivity. In this paper, using the data on 29 years of journal publications and patents in the field of biotechnology in Canada, the network of scientists’ collaboration activities has been constructed based on their co-authorships in scientific articles. Various structural properties of this network have been measured and the relationships between the network structure and knowledge creation, and quantity and quality of technological performance have been examined. We found that the structure of the co-authorship network of Canadian biotechnology scientists has a significant effect on the knowledge and innovation production, but it produced no impact on the quality of patents generated by these scientists.

Keywords: Advances, Attention, Biotechnology, Canada, Characteristics, Co-Authorship, Coauthorship, Coauthorship Network, Collaboration, Collaboration Networks, Collaborations, Constructed, Cooperation, Data, Dynamics, Efficiency, Empirical Studies, Field, Impact, Information, Innovation, Innovation, Journal, Knowledge, Lead, Multiple-Regression, Network, Network Structure, Networks, Patent Citations, Patents, Patterns, Performance, Productivity, Properties, Publications, Quality, Quality Of, Research, Research Productivity, Scientific Collaboration, Scientific Publications, Scientists, Small, Small World, Small-World Networks, Social Networks, Structure, Theoretical, Transmission, World

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Full Text: [2013\Scientometrics97, 121.pdf](2013/Scientometrics97,%20121.pdf)

Keywords: Death, First

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Full Text: [2013\Scientometrics97, 129.pdf](2013/Scientometrics97,%20129.pdf)

Abstract: This paper discusses a concept for inferring attributes of ‘frontier research’ in peer-reviewed research proposals under the popular scheme of the European Research Council (ERC). The concept serves two purposes: firstly to conceptualize, define and operationalize in scientometric terms attributes of frontier research; and secondly to build and compare outcomes of a statistical model with the review decision in order to obtain further insight and reflect upon the influence of frontier research in the peer-review process. To this end, indicators across scientific disciplines and in accord with the strategic definition of frontier research by the ERC are elaborated, exploiting textual proposal information and other scientometric data of grant applicants. Subsequently, a suitable model is formulated to measure ex-post the influence of attributes of frontier research on the decision probability of a proposal to be accepted. We present first empirical data as proof of concept for inferring frontier research in grant proposals. Ultimately the concept is aiming at advancing the methodology to deliver signals for monitoring the effectiveness of peer-review processes.

Keywords: Data, Decision, Disciplines, Effectiveness, First, Indicators, Influence, Information, Measure, Methodology, Model, Monitoring, Nov, Outcomes, Peer Review, Peer-Review, Peer-Reviewed, Research, Review, Scientometric, Strategic

? Oliveira, E.A., Peicots, R., Martelli, D.R., Quirino, I.G., Oliveira, M.C.L., Duarte, M.G., Pinheiro, S.V., Colosimo, E.A., Silva, A.C.S.E. and Martelli, H. (2013), Is there a correlation between journal impact factor and researchers’ performance? A study comprising the fields of clinical nephrology and neurosciences. *Scientometrics*, **97** (2), 149-160.

Full Text: [2013\Scientometrics97, 149.pdf](2013/Scientometrics97,%20149.pdf)

Abstract: Quantifying the scientific performance of investigators has become an integral part of decision-making in research policy. The aim of the present study was to evaluate if there is a correlation between journal impact factor (IF) and researchers’ influence among a selected group of Brazilian investigators in the fields of clinical nephrology and neurosciences. This study was based on 94 senior investigators (36 in clinical nephrology and 58 in clinical neurosciences) receiving productivity scholarships from the Brazilian Council for Scientific and Technological Development (CNPq) according to a list provided by the agency in February 2009. Scientific performance indicators included in the analysis were: number of papers indexed by the Web of Science and Scopus databases, number of citations, h- and m-index. IFs were analyzed as (1) cumulative IF (Sigma IF), (2) IF adjusted by time (IF/t), and (3) average IF. There was a moderate positive correlation only between aIF and two indicators: total number of citations (P < 0.001) and h-Index (P < 0.001). There was also a positive correlation between IF/t and m-index (P < 0.001). There was an agreement in these correlations between both groups (clinical nephrology and neurosciences). No significant correlation between the average IF and any of the scientific indicators was detected. A cut-off of 10.53 for IF/t showed the best performance in predicting researchers with m-index equal to or greater than 1. According to our findings, other qualitative and quantitative instruments rather than IF are clearly needed for identifying researchers with outstanding scientific output.

Keywords: Analysis, Citations, Clinical, Correlation, Correlations, Cumulative, Databases, Decision Making, Decision-Making, Groups, h Index, h-Index, Impact, Impact Factor, Indicators, Influence, Journal, Journal Impact, Journal Impact Factor, Nephrology, Neurosciences, Nov, P, Papers, Performance, Performance Indicators, Policy, Productivity, Qualitative, Research, Research Policy, Science, Scientific Output, Scientific Performance, Scopus, Web of Science

? Chen, Y.S., Shih, C.Y. and Chang, C.H. (2013), Patents and market value in the US pharmaceutical industry: new evidence from panel threshold regression. *Scientometrics*, **97** (2), 161-176.

Full Text: [2013\Scientometrics97, 161.pdf](2013/Scientometrics97,%20161.pdf)

Abstract: This paper applies panel threshold regression model to verify there is a triple threshold effect of patent citations/sales on the relationship between patent counts/sales and market value/sales in the American pharmaceutical industry. The results demonstrate that patent citations/sales moderates the relationship between patent counts/sales and market value/sales (i.e., the relationship between patent counts and market value). When patent citations/sales is less than or equal to the lowest threshold, 4.68, there is no significant relationship between patent counts and market value. Once patent citations/sales is more than the lowest threshold, there is a positive relationship between patent counts and market value. This study points out that the third regime is optimal because the extent of the positive relationship between patent counts and market value is most.

Keywords: Evidence, Market, Model, Nov, Patent, Patents, Pharmaceutical Industry, Regression, Regression Model, Threshold, US, Value

Notes: CCountry

? Fedderke, J.W. (2013), The objectivity of national research foundation peer review in South Africa assessed against bibliometric indexes. *Scientometrics*, **97** (2), 177-206.

Full Text: [2013\Scientometrics97, 177.pdf](2013/Scientometrics97,%20177.pdf)

Abstract: This paper examines the strength of association between the outcomes of National Research Foundation (NRF) peer review based rating mechanisms, and a range of objective measures of performance of researchers. The analysis is conducted on 1932 scholars that have received an NRF rating or an NRF research chair. We find that on average scholars with higher NRF ratings record higher performance against research output and impact metrics. However, we also record anomalies in the probabilities of different NRF ratings when assessed against bibliometric performance measures, and record a disproportionately large incidence of scholars with high peer-review based ratings with low levels of recorded research output and impact. Moreover, we find strong cross-disciplinary differences in terms of the impact that objective levels of performance have on the probability of achieving different NRF ratings. Finally, we report evidence that NRF peer review is less likely to reward multi-authored research output than single-authored output. Claims of a lack of bias in NRF peer review are thus difficult to sustain.

Keywords: Africa, Analysis, Association, Bias, Bibliometric, Evidence, Impact, Incidence, Mechanisms, Metrics, Nov, Outcomes, Peer Review, Peer-Review, Performance, Record, Research, Research Output, Review, South Africa, Strength

? Wang, Y.D., Huang, J.S., Chen, Y.T., Pan, X.F. and Chen, J. (2013), Have Chinese universities embraced their third mission? New insight from a business perspective. *Scientometrics*, **97** (2), 207-222.

Full Text: [2013\Scientometrics97, 207.pdf](2013/Scientometrics97,%20207.pdf)

Abstract: Have Chinese universities, after enormous investment over the past decade, embraced the university’s third mission-contributing to industrial and technological progress? the literature has not sufficiently addressed this question. This study intends to advance understanding of this issue by empirically addressing this question from a business perspective in a bold and unconventional way. Unlike prior studies that simply used contingent and institutional factors to describe the link between Chinese universities and industrial firms by measuring such aspects as patent licensing, co-patenting, and co-authoring, our work goes further and applies longitudinal analysis to examine the ways firms access university-level knowledge and the impact of such knowledge on firm innovation outputs. We propose that if Chinese universities embraced their third mission, then we would observe a positive effect of university-industry collaborations on firms’ subsequent innovation outputs. Empirical results based on a sample of the top 100 Chinese electronic firms in terms of output value support our hypothesis. Specifically, university patent licensing and co-patenting between universities and firms was found to positively affect firm innovation outputs. Moreover, we found that geographical distance and collaboration dominance moderate the co-patenting-innovation output relationship.

Keywords: Access, Advance, Analysis, Business, Chinese, Collaboration, Collaborations, Impact, Innovation, Institutional Factors, Knowledge, Licensing, Literature, Longitudinal, Longitudinal Analysis, Nov, Patent, Progress, Support, Understanding, Universities, University, Value, Work

? Safon, V. (2013), What do global university rankings really measure? the search for the X factor and the X entity. *Scientometrics*, **97** (2), 223-244.

Full Text: [2013\Scientometrics97, 223.pdf](2013/Scientometrics97,%20223.pdf)

Abstract: Most academic rankings attempt to measure the quality of university education and research. However, previous studies that examine the most influential rankings conclude that the variables they use could be an epiphenomenon of an X factor that has little to do with quality. The aim of this study is to investigate the existence of this hidden factor or profile in the two most influential global university rankings in the world: the Academic Ranking of World Universities (ARWU) of the University of Shanghai Jiao Tong, and the Times Higher Education (THE) ranking. Results support the existence of an underlying entity profile, characterized by institutions normally from the US that enjoy a high reputation. Results also support the idea that rankings lack the capacity to assess university quality in all its complexity, and two strategies are suggested in relation to the vicious circle created between institutional reputation and rankings.

Keywords: Academic, Arwu, Capacity, Complexity, Education, Global, Institutions, Measure, Nov, Quality, Quality Of, Ranking, Rankings, Reputation, Research, Results, Shanghai, Support, Universities, University, Us, World

? Wong, P.K. and Singh, A. (2013), Do co-publications with industry lead to higher levels of university technology commercialization activity? *Scientometrics*, **97** (2), 245-265.

Full Text: [2013\Scientometrics97, 245.pdf](2013/Scientometrics97,%20245.pdf)

Abstract: Using the university-industry co-publications (UICP) propensity indicators developed by Tijssen (CWTS Working Paper Series, CWTS-WP-2012-009, 2009), this paper examines the impact of university-industry R&D collaboration on university technology commercialization output for leading US and Canadian universities. Our analysis suggests that UICPs do have a significant positive influence on universities’ technology commercialization outputs, after controlling for the quantity and quality of their research and for their commercialization resources. The results are robust for all three common measures of university technology commercialization: patenting (both in terms of simple patent counts and citation-weighted counts), spin-off formation, and technology licensing. To supplement the aggregate regression findings, five case studies are provided that offer further insights on the caUSAl mechanisms involved. Implications of these findings and possible future research directions are discussed.

Keywords: Activity, Analysis, Case Studies, Collaboration, Impact, Indicators, Influence, Lead, Licensing, Mechanisms, Nov, Paper, Patent, Quality, Quality Of, R&D, Regression, Research, Resources, Spin-Off, Technology, Universities, University, Us

? Zhou, P., Zhong, Y.F. and Yu, M.G. (2013), A bibliometric investigation on China-UK collaboration in food and agriculture. *Scientometrics*, **97** (2), 267-285.

Full Text: [2013\Scientometrics97, 267.pdf](2013/Scientometrics97,%20267.pdf)

Abstract: Based on data from the Web of Science, international collaboration between China and the UK in food and agriculture has been investigated from various perspectives. A new method for classifying cross- or multi-disciplinary fields has been created. The comparative study focuses on China’s collaboration with selected countries including the USA, the UK, Germany and Japan. The newly proposed Integrated Impact Indicator (I3) is applied to evaluate publication impact. Although China’s total publications dropped in 2010, its research productivity in food and agriculture nevertheless kept growing and international collaboration, reflected by the number of publications, also increased in an exponential way. The growth rate of China’s internationally collaborated publications was lower than that of China’s total publications. The USA, Japan, Canada, Australia, the UK and Germany are the top partners for Chinese researchers in this field. China-UK joint publications overall increased although their share in China’s total internationally collaborated publications decreased. To China, collaborating with the USA, the UK and Germany, instead of Japan, seems to offer an option to raise impact. The rapidly growing number of international publications and impact of Chinese research in food and agriculture offers great collaboration potential for the country. The fact that the average impact of China-UK collaborative publications is higher than the domestic publications of either country implies that collaboration benefits both sides as has been found in several other studies.

Keywords: Agriculture, Australia, Benefits, Bibliometric, Bibliometric Investigation, Canada, China, Chinese, Collaboration, Comparative Study, Country, Data, Field, Food, Germany, Growth, Growth Rate, Impact, International, International Collaboration, Investigation, Japan, Multidisciplinary, Nov, Potential, Productivity, Publication, Publications, Research, Research Productivity, Science, UK, USA, Web of Science

? de Almeida, E.C.E. and Guimaraes, J.A. (2013), Brazil’s growing production of scientific articles-how are we doing with review articles and other qualitative indicators? *Scientometrics*, **97** (2), 287-315.

Full Text: [2013\Scientometrics97, 287.pdf](2013/Scientometrics97,%20287.pdf)

Abstract: This article identifies scientific fields in Brazil that have been generating new knowledge, their evolution, tendencies and the relationship between scientific production and the National Postgraduate Program (Programa Nacional de Ps-Gradua double dagger o-PNPG). It works with review articles and assesses: (a) articles published as reviews by international databases; (b) the growth of Brazilian participation in that context; (c) institutional participation; (d) the predominant fields of knowledge; (e) the most productive authors, and (f) periodicals that published the greatest number of review articles by Brazilian authors. The 5,348 review articles published between 2000 and 2009 were made available in 1,309 scientific publications, and the fields that published the most reviews were Pharmacology, Chemistry, Neurosciences, Biochemistry and Molecular Biology, Psychiatry, Neurology, Endocrinology and Internal Medicine. The reviews were produced by 27,096 authors under the auspices of 20 institutions which, together, answer for 95 % of the Brazilian production, and are public, excepting for the Pontificia Universidade Catlica do Rio Grande do Sul (PUC-RS). In the international scenario, we find that 31 countries are responsible for 90.11 % of the total scientific production and 94.08 % of the review articles. To establish a comparison between Brazil and its closest competitors, these countries can be classified arbitrarily in three groups: (1) countries with a large number of review articles (> 3100), an average number of citations above 18, and an h-Index greater than 95; (2) countries with a significant production of articles (between 2,000 and 3,000), average number of citations between 12 and 17, and an h-Index below 95. Brazil is in the third group, (3) formed by countries with a lower level of production and the two qualitative indicators at opposite poles: the average of citations on a par with the first group (> 18) and h-Indexes like those of the second group (< 95).

Keywords: Authors, Biology, Brazil, Chemistry, Citations, Comparison, Context, Databases, Evolution, First, Groups, Growth, h Index, h-Index, Indicators, Institutions, International, Knowledge, Medicine, Nov, Participation, Periodicals, Psychiatry, Public, Publications, Qualitative, Review, Reviews, Rio Grande, Scenario, Scientific Production, Scientific Publications

? Ragone, A., Mirylenka, K., Casati, F. and Marchese, M. (2013), On peer review in computer science: Analysis of its effectiveness and suggestions for improvement. *Scientometrics*, **97** (2), 317-356.

Full Text: [2013\Scientometrics97, 317.pdf](2013/Scientometrics97,%20317.pdf)

Abstract: In this paper we focus on the analysis of peer reviews and reviewers behaviour in a number of different review processes. More specifically, we report on the development, definition and rationale of a theoretical model for peer review processes to support the identification of appropriate metrics to assess the processes main characteristics in order to render peer review more transparent and understandable. Together with known metrics and techniques we introduce new ones to assess the overall quality (i.e. ,reliability, fairness, validity) and efficiency of peer review processes e.g. The robustness of the process, the degree of agreement/disagreement among reviewers, or positive/negative bias in the reviewers’ decision making process. We also check the ability of peer review to assess the impact of papers in subsequent years. We apply the proposed model and analysis framework to a large reviews data set from ten different conferences in computer science for a total of ca. 9,000 reviews on ca. 2,800 submitted contributions. We discuss the implications of the results and their potential use toward improving the analysed peer review processes. A number of interesting results were found, in particular: (1) a low correlation between peer review outcome and impact in time of the accepted contributions; (2) the influence of the assessment scale on the way how reviewers gave marks; (3) the effect and impact of rating bias, i.e. reviewers who constantly give lower/higher marks w.r.t. all other reviewers; (4) the effectiveness of statistical approaches to optimize some process parameters (e.g. ,number of papers per reviewer) to improve the process overall quality while maintaining the overall effort under control. Based on the lessons learned, we suggest ways to improve the overall quality of peer-review through procedures that can be easily implemented in current editorial management systems.

Keywords: Analysis, Assessment, Behaviour, Bias, Characteristics, Computer Science, Conferences, Control, Correlation, Data, Decision, Decision Making, Decision-Making, Development, Effectiveness, Efficiency, Framework, Identification, Impact, Improvement, Influence, Management, Metrics, Model, Nov, Outcome, Papers, Peer Review, Peer Reviews, Peer-Review, Potential, Procedures, Quality, Quality Of, Review, Reviews, Robustness, Scale, Science, Support, Systems, Techniques, Theoretical, Validity

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Full Text: [2013\Scientometrics97, 357.pdf](2013/Scientometrics97,%20357.pdf)

Abstract: It was found that the surname-based representation of Jewish authors in the top US biomedical journals corresponds to the representation of Jewish Nobel Laureates in Medicine among US laureates: Both of them are almost equally disproportionately high, with the ratio of actual to expected number close to 20 (Kissin, Scientometrics 89:273-280, 2011). The main aim of this study was to determine whether the contribution of Jewish inventors is also disproportionately high. The number of patents (US Patent and Trademark Office database) per thoUSAnd persons with the same surname (2000 Census) was determined (index P). Index P was compared with Index A, which represents the number of the articles in the top US biomedical journals, and index G, which is based on the representation of a surname in the Google’s option “Discussions”, reflecting a combination of various business and leisure activities (designed as a negative control). The collective contributions of the 96 Jewish surname groups for each of the above indices were calculated. The ratio of actual to expected number of US patents was found to be disproportionately high-6.1 (p < 0.0001). At the same time, this disproportionality was four-fold lower than that related to biomedical articles (ratio of 6.1 vs. 23.3, p < 0.0001). There was some degree of correlation between index P and index A (r = 0.407, p < 0.0001), but no significant correlation was found between index P and index G. The role of various factors in the observed disproportionalities is discussed. The greater degree of disproportionality with biomedical research articles might be a consequence of traditional Jewish inclination towards occupations in medicine.

Keywords: Authors, Biomedical, Biomedical Journals, Biomedical Research, Business, Control, Correlation, Database, Groups, Index, Indicator, Indices, Journals, Leisure Activities, Medicine, Nov, P, Patent, Patents, Representation, Research, Role, Scientometrics, US

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Full Text: [2013\Scientometrics97, 369.pdf](2013/Scientometrics97,%20369.pdf)

Abstract: This study aims to reveal the intellectual structure of Library and Information Science (LIS) in China during the period 2008-2012 utilizing co-word analysis. The status and trends of LIS in China are achieved by measuring the correlation coefficient of selected keywords extracted from relevant journals in the Chinese Journal Full-Text Database. In co-word analysis, multivariate statistical analysis and social network analysis are applied to obtain 13 clusters of keywords, a two-dimensional map, centrality and density of clusters, a strategic diagram and a relation network. Based on these results, the following conclusions can be drawn: (i) LIS in China has some established and well-developed research topics; (ii) a few emerging topics have a great potential for development; and (iii), The research topics in this LIS field are largely decentralized as a whole, where there are many marginal and immature topics.

Keywords: Analysis, China, Chinese, Co-Word, Co-Word Analysis, Correlation, Correlation Coefficient, Database, Development, Emerging Topics, Field, Information, Information Science, Intellectual Structure, Journal, Journals, Li, Library and Information Science, Lis, Multivariate, Network, Network Analysis, Nov, Potential, Research, Science, Social, Social Network Analysis, Statistical Analysis, Strategic, Structure, Trends

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Full Text: [2013\Scientometrics97, 383.pdf](2013/Scientometrics97,%20383.pdf)

Abstract: Faculty of 1000 (F1000) is a post-publishing peer review web site where experts evaluate and rate biomedical publications. F1000 reviewers also assign labels to each paper from a standard list or article types. This research examines the relationship between article types, citation counts and F1000 article factors (FFa). For this purpose, a random sample of F1000 medical articles from the years 2007 and 2008 were studied. In seven out of the nine cases, there were no significant differences between the article types in terms of citation counts and FFa scores. Nevertheless, citation counts and FFa scores were significantly different for two article types: “New finding” and “Changes clinical practice”: FFa scores value the appropriateness of medical research for clinical practice and “New finding” articles are more highly cited. It seems that highlighting key features of medical articles alongside ratings by Faculty members of F1000 could help to reveal the hidden value of some medical papers.

Keywords: Biomedical, Biomedical Publications, Citation, Citation Counts, Clinical, Clinical Practice, Experts, F1000, Highly Cited, Highly-Cited, Impact, Medical, Medical Research, Nov, Papers, Peer Review, Peer-Review, Practice, Publications, Purpose, Random Sample, Research, Review, Site, Standard, Value, Web

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Full Text: [2013\Scientometrics97, 397.pdf](2013/Scientometrics97,%20397.pdf)

Abstract: Since Schumpeter’s (The theory of economic development, 1934) seminal work on economic development, innovation is considered as one of the main drivers of firm performance and economic growth. At the same time, technological innovations vary considerably in terms of impact with only a minority of new inventions contributing significantly to technological progress and economic growth. More recently a number of indicators derived from patent documents have been advanced to capture the nature and impact of technological inventions. In this paper, we compare and validate these indicators within the field of biotechnology. An extensive analysis of the recent history of biotechnology allows us to identify the most important inventions (n = 214) that shaped the field of biotechnology in the time period 1976-2001. A considerable number of these inventions have been patented between 1976 and 2001 (n = 117, 55 %). For all USPTO biotech patents filed between 1976 and 2001 (n = 84,119), relevant indicators have been calculated. In a subsequent step, we assess which indicators allow us to distinguish between the most important patented inventions and their less influential counterparts by means of logistic regression models. Our findings show that the use of multiple, complementary indicators provides the most comprehensive picture. In addition, it is clear that ex-post indicators reflecting impact and value outperform ex-ante indicators reflecting the nature and novelty of the invention in terms of precision and recall.

Keywords: Analysis, Biotechnology, Complementary, Development, Economic, Economic Development, Field, Growth, History, Impact, Indicators, Innovation, Inventions, Logistic Regression, Models, Nov, Novelty, Patent, Patents, Performance, Precision, Progress, Recall, Recent, Regression, Theory, Time Period, Value, Work

? Moya-Anegon, F., Guerrero-Bote, V.P., Bornmann, L. and Moed, H.F. (2013), The research guarantors of scientific papers and the output counting: a promising new approach. *Scientometrics*, **97** (2), 421-434.

Full Text: [2013\Scientometrics97, 421.pdf](2013/Scientometrics97,%20421.pdf)

Abstract: We propose a method for selecting the research guarantor when papers are co-authored. The method is simply based on identifying the corresponding author. The method is here applied to global scientific output based on the SCOPUS database in order to build a new output distribution by country. This new distribution is then compared with previous output distributions by country but which were based on whole or fractional counting, not only for the total output but also for the excellence output (papers belonging to the 10 % most cited papers). The comparison allows one to examine the effect of the different methodological approaches on the scientific performance indicators assigned to countries. In some cases, there was a very large variation in scientific performance between the total output (whole counting) and output as research guarantor. The research guarantor approach is especially interesting when used with the excellence output where the quantity of excellent papers is also a quality indicator. The impact of excellent papers naturally has less variability as they are all top-cited papers.

Keywords: Approach, Comparison, Country, Database, Distribution, Global, Impact, Indicator, Indicators, Nov, Papers, Performance, Performance Indicators, Quality, Research, Scientific Output, Scientific Performance, Scopus, Variability

? Zhu, D.H., Wang, D.B., Hassan, S.U. and Haddawy, P. (2013), Small-world phenomenon of keywords network based on complex network. *Scientometrics*, **97** (2), 435-442.

Full Text: [2013\Scientometrics97, 435.pdf](2013/Scientometrics97,%20435.pdf)

Abstract: Based on the network comprised of 111,444 keywords of library and information science that are extracted from Scopus, and taken into consideration the major properties of average distance and clustering coefficients, the present authors, with the knowledge of complex network and by means of calculation, reveal the small-world effect of the keywords network. On the basis of the keywords network, the betweenness centrality is used to carry out a preliminary study on how to detect the research hotspots of a discipline. This method is also compared with that of detecting research hotspots by word frequency.

Keywords: Authors, Calculation, Clustering, Information, Information Science, Knowledge, Library and Information Science, Network, Nov, Properties, Research, Science, Scopus, Small World

? Chang, H.W. and Huang, M.H. (2013), Prominent institutions in international collaboration network in astronomy and astrophysics. *Scientometrics*, **97** (2), 443-460.

Full Text: [2013\Scientometrics97, 443.pdf](2013/Scientometrics97,%20443.pdf)

Abstract: the study explores the international collaboration network consisting of 606 astronomical institutions through the analysis of international coauthored papers published in six journals in astronomy and astrophysics from 2001 to 2009. It shows that the Istituto Nazionale di Astrofisica (INAF) and European Southern Observatory (ESO) are the most notable actors, with the highest values of centrality in the network, while Japan Meteorological Agency (JMA) is the only institution that is completely separated from others. It is observed that national academies in major countries, international organizations, and large observatories are more likely to be the central actors. Yet some world-famous astronomical institutions, such as CfA, NASA, and Caltech, are identified as remarkable actors in the network, they show no strikingly high scores in the centrality measures. Overall, astronomical institutions’ network position varies with time; nevertheless, not all of institutions present considerable changes during the investigation periods. While some institutions moved from central to relative peripheral positions, or in the opposite direction, the institutions which are positioned at the very center of the network tend to be stable over time.

Keywords: Agency, Analysis, Changes, Collaboration, Institutions, International, International Collaboration, Investigation, Japan, Journals, Network, Nov, Papers

? Luan, C.J., Liu, Z.Y. and Wang, X.W. (2013), Divergence and convergence: Technology-relatedness evolution in solar energy industry. *Scientometrics*, **97** (2), 461-475.

Full Text: [2013\Scientometrics97, 461.pdf](2013/Scientometrics97,%20461.pdf)

Abstract: Exploring and measuring technology-relatedness and its collateral technology divergence and convergence, would have far-reaching theoretical significance and academic value on the chain mode of technology development, and also on the mastery of the laws for technology evolution and progress. Taking the patentometric analysis of solar energy technology worldwide as a case, employing the methodology of technology co-classification analysis, choosing two indicators, namely, mean technology co-classification partners (MTCP) and mean technology co-classification index (MTCI), we have analyzed and measured the evolving process of technology-relatedness. The results not only demonstrate in a direct manner the continuously advancing character of solar energy technology in the tensions of technology divergence and convergence, but also reveal quantitatively that, due to the chain reaction of technology-relatedness, technology divergence and technology convergence would tend to evolve in parallel. Through these, it is indicated that technology divergence and technology convergence are two trends which would develop separately, react mutually, and serve as caUSAtion for each other, thus making chain progress and continuously pushing forward the innovation, creation and upgrading of technologies. This is a regular phenomenon on condition that the specific technology area is in a status of sustainable development. It still awaits further research on how to verify and reveal the general principles on the interaction between technology divergence and convergence by conducting empirical studies and combining patent analysis.

Keywords: Analysis, Combining, Development, Empirical Studies, Energy, Evolution, General, Index, Indicators, Innovation, Interaction, Laws, Methodology, Mode, Nov, Patent, Patent Analysis, Principles, Progress, Regular, Research, Significance, Sustainable, Sustainable Development, Technologies, Technology, Theoretical, Trends, Value

? Bilir, S., Gogus, E., Onal, O., Ozturkmen, N.D. and Yontan, T. (2013), Research performance of Turkish astronomers in the period of 1980-2010. *Scientometrics*, **97** (2), 477-489.

Full Text: [2013\Scientometrics97, 477.pdf](2013/Scientometrics97,%20477.pdf)

Abstract: We investigated the development of astronomy and astrophysics research productivity in Turkey in terms of publication output and their impacts as reflected in the science citation index for the period 1980-2010. Our study involves 838 refereed publications, including 801 articles, 16 letters, 15 reviews, and six research notes. The number of papers were prominently increased after 2000 and the average number of papers per researcher is calculated as 0.89. Total number of received citations for 838 papers is 6938, while number of citations per papers is approximately 8.3 in 30 years. Publication performance of Turkish astronomers and astrophysicists was compared with those of seven countries that have similar gross domestic expenditures on research and development, and members of organization for economic co-operation and development. Our study reveals that the output of astronomy and astrophysics research in Turkey has gradually increased over the years.

Keywords: Citation, Citation Index, Citations, Cooperation, Development, Economic, Expenditures, Impacts, Index, Nov, Organization, Papers, Performance, Productivity, Publication, Publications, Research, Research and Development, Research Performance, Research Productivity, Reviews, Science, Science Citation Index, Turkey

Keywords: Death, First

? Kumar, S. and Jan, J.M. (2013), Mapping research collaborations in the business and management field in Malaysia, 1980-2010. *Scientometrics*, **97** (3), 491-517.

Full Text: [2013\Scientometrics97, 491.pdf](2013/Scientometrics97,%20491.pdf)

Abstract: This paper examines research collaborations in the field of business and management in Malaysia, a fast-developing economy in Southeast Asia. The country aims to become a developed nation by the year 2020, guided by its well-charted Wawasan 2020 or Vision 2020 program. Research and development are important agenda items within this program. Rarely, however, have studies investigated the research collaborations of researchers based in Malaysia from the network perspective. After a manual author disambiguation process, we examined the network of 285 business and management researchers at the individual, institutional, and international levels. Author collaborations per paper almost doubled between 2001 and 2010 compared to the period 1980-1990. The popularity of researchers and the strength and diversity of their ties with other researchers had significant effects on their research performance. Furthermore, geographical proximity still mattered in intra-national collaborations. Malaysian institutions more often collaborated intra-institutionally or with foreign partners than with other institutions within Malaysia. The country’s five research universities are among the top-most productive of all institutions in Malaysia. Malaysia’s top international partners are all developed countries, including the US, Australia, Japan, the UK, and Canada. Surprisingly, Malaysia has had relatively little collaboration with ASEAN nations, of which it is a prominent member and which has an important agenda of educational cooperation within its member states. Internationally co-authored articles have been cited almost three times more than locally co-authored articles. Based on these results, we suggest an effective co-authorship strategy.

Keywords: Article, Asia, Australia, Business, Canada, Co-Authorship, Co-Authorship Networks, Co-Authorship Strategy, Coauthorship, Coauthorship Networks, Collaboration, Collaborations, Computer Science, Cooperation, Country, Development, Diversity, Economy, Effects, Europe, Field, h-Index, Impact, Information, Institutions, International, Japan, Malaya, Malaysia, Management, Mapping, Nanoscience, Nations, Netherlands, Network, Performance, Research, Research and Development, Research Collaboration, Research Performance, Research Productivity, Science, Scientific Collaboration, Scientometrics, Social Network Analysis, Southeast Asia, Strategy, Strength, UK, Universities, US, VAN

? Miller, J.C., Coble, K.H. and Lusk, J.L. (2013), Evaluating top faculty researchers and the incentives that motivate them. *Scientometrics*, **97** (3), 519-533.

Full Text: [2013\Scientometrics97, 519.pdf](2013/Scientometrics97,%20519.pdf)

Abstract: We survey tenure-track faculty members employed in three fields in colleges of agriculture at land-grant universities-agricultural economics, agronomy, and food science-to evaluate the effects of different employment structures and incentives on research productivity. These evaluations include conducting statistical tests to assess any effects of different academic appointments and developing a regression model to measure the effects of these and other attributes on individual research productivity, as defined by the number of publications in the Thomson ISI Web of Science. We find faculty who hold larger teaching and extension appointments produce fewer publications; we also find positive effects on the number of publications for grants and university funding, multi-institutional research collaboration, and number of graduate students advised.

Keywords: Agriculture, Agronomy, Article, Collaboration, Computer Science, Developing, Economics, Effects, Employment, Faculty, Food, Funding, Graduate, Graduate Students, Impact, Incentives, Information, ISI, ISI Web of Science, Measure, Model, Ms, Netherlands, Productivity, Publications, Quality, Regression, Regression Model, Research, Research Collaboration, Research Productivity, Research Productivity, Science, Science Citation Index, Scientometrics, Students, Survey, Teaching, University, USA, VAN, Web of Science

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Full Text: [2013\Scientometrics97, 535.pdf](2013/Scientometrics97,%20535.pdf)

Abstract: the number of internationally co-authored articles have significantly increased in recent years and now receive more citations than domestic works. Abramo et al. (Scientometrics 86:629-643, 2011b) investigated scholars in Italian universities and found a positive correlation between their research performance and degree of internationalization. This study uses a data set in chemistry to examine the robustness of the results presented by Abramo et al. (Scientometrics 86:629-643, 2011b) and the relationship between international collaboration and mobility among researchers. The results confirmed the robustness of the previous study and raised the possibility that the higher citation rate of international papers is not solely explained by the higher performance of researchers. Therefore, international research collaboration seems to exert some kind of “bonus” effect because of internationalization. The results also indicate that researchers who collaborate internationally accumulate science and technology human capital through collaboration. A positive relationship between the international mobility of researchers and their performance is also shown although the direction of the cause and effect is not yet clear.

Keywords: Academic Scientists, Article, Bibliometric Analysis, Bibliometrics, Chemistry, Citation, Citations, Co-Authorship, Collaboration, Computer Science, Cooperation, Correlation, Culture, Data, Human, Impact, Information, International, International Co-Authorship, International Collaboration, Internationalization, Italian Universities, Japan, Mobility, Model, Netherlands, Papers, Performance, Policy, Publications, Recent, Research, Research Collaboration, Research Performance, Robustness, Science, Science and Technology, Scientific Productivity, Scientometrics, Teams, Technology, Universities, VAN

? Abramo, G., D’Angelo, C.A. and Viel, F. (2013), The suitability of h and g indexes for measuring the research performance of institutions. *Scientometrics*, **97** (3), 555-570.

Full Text: [2013\Scientometrics97, 555.pdf](2013/Scientometrics97,%20555.pdf)

Abstract: It is becoming ever more common to use bibliometric indicators to evaluate the performance of research institutions, however there is often a failure to recognize the limits and drawbacks of such indicators. Since performance measurement is aimed at supporting critical decisions by research administrators and policy makers, it is essential to carry out empirical testing of the robustness of the indicators used. In this work we examine the accuracy of the popular “h” and “g” indexes for measuring university research performance by comparing the ranking lists derived from their application to the ranking list from a third indicator that better meets the requirements for robust and reliable assessment of institutional productivity. The test population is all Italian universities in the hard sciences, observed over the period 2001-2005. The analysis quantifies the correlations between the three university rankings (by discipline) and the shifts that occur under changing indicators, to measure the distortion inherent in use of the h and g indexes and their comparative accuracy for assessing institutions.

Keywords: Accuracy, Analysis, Application, Article, Assessing, Assessment, Bibliometric, Bibliometric Indicators, Bibliometrics, Citations, Computer Science, Correlations, Critical Decisions, Distributions, Failure, Fss, G-Index, h-Index, Hirsch-Index, Impact, Indicator, Indicators, Information, Institutions, Italian Universities, Italy, Journals, Management, Measure, Measurement, Netherlands, Output, Performance, Performance Measurement, Policy, Population, Productivity, Ranking, Rankings, Research, Research Institutions, Research Performance, Research Productivity, Robustness, Science, Sciences, Scientometrics, Success, Testing, Universities, University, Van, Work

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Full Text: [2013\Scientometrics97, 571.pdf](2013/Scientometrics97,%20571.pdf)

Abstract: the objective of this paper is to propose a cluster analysis methodology for measuring the performance of research activities in terms of productivity, visibility, quality, prestige and international collaboration. The proposed methodology is based on bibliometric techniques and permits a robust multi-dimensional cluster analysis at different levels. The main goal is to form different clusters, maximizing within-cluster homogeneity and between-cluster heterogeneity. The cluster analysis methodology has been applied to the Spanish public universities and their academic staff in the computer science area. Results show that Spanish public universities fall into four different clusters, whereas academic staff belong into six different clusters. Each cluster is interpreted as providing a characterization of research activity by universities and academic staff, identifying both their strengths and weaknesses. The resulting clusters could have potential implications on research policy, proposing collaborations and alliances among universities, supporting institutions in the processes of strategic planning, and verifying the effectiveness of research policies, among others.

Keywords: Academic Staff, Activity, Analysis, Article, Assessing, Bibliometric, Bibliometric Techniques, Characterization, Cluster, Cluster Analysis, Cluster Analysis Methodology, Collaboration, Collaborations, Computer Science, Crisis, Effectiveness, Heterogeneity, Homogeneity, Information, Institutions, International, International Collaboration, Madrid, Methodology, Methods, Multidimensional, Netherlands, Performance, Planning, Policies, Policy, Potential, Productivity, Public, Publications, Quality, Research, Research Performance, Research Policy, Results, Science, Scientometrics, Spain, Strategic, Strategic Planning, Techniques, Universities, Universities, Validation, Van, Visibility

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Full Text: [2013\Scientometrics97, 601.pdf](2013/Scientometrics97,%20601.pdf)

Abstract: In this paper, we propose a ‘scaling’ approach to compare the scientific performance of Italian heterogeneous academic disciplines. This method is based on the idea that, after eliminating the percentages of ‘silent’ researchers, the distribution of bibliometric parameters of the different academic fields can be superimposed and collapse into a unique master curve by a single scaling parameter. By using data on the scientific production of around 2,500 scholars of the university of Rome ‘La Sapienza’ from the Web of Science from 2004 to 2008, we (i) demonstrate the existence of a master curve, (ii) determine the scaling factors that work like rates of substitution to compare the scientific production across different academic fields on a common ground, (iii) show that the master bibliometric distribution follows a log-normal law and (iv) illustrate the relevance of the proposed approach for research assessment and allocation of competitive funding at the university level.

Keywords: Allocation, Approach, Article, Assessment, Bibliometric, Citation Distributions, Competitive, Computer Science, Control, Data, Disciplines, Distribution, Economy, Funding, Impact, Index, Indicators, Information, Italian Universities, Italy, Law, Management, Netherlands, Normalization, Performance, Rates, Relevance, Research, Research Assessment, Scales, Scaling, Science, Science System, Scientific Performance, Scientific Production, Scientometrics, Substitution, Universality, Universality, University, VAN, Web of Science, Work

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Full Text: [2013\Scientometrics97, 627.pdf](2013/Scientometrics97,%20627.pdf)

Abstract: Citation numbers and other quantities derived from bibliographic databases are becoming standard tools for the assessment of productivity and impact of research activities. Though widely used, still their statistical properties have not been well established so far. This is especially true in the case of bibliometric indicators aimed at the evaluation of individual scholars, because large-scale data sets are typically difficult to be retrieved. Here, we take advantage of a recently introduced large bibliographic data set, Google Scholar Citations, which collects the entire publication record of individual scholars. We analyze the scientific profile of more than 30,000 researchers, and study the relation between the h-Index, the number of publications and the number of citations of individual scientists. While the number of publications of a scientist has a rather weak relation with his/her h-Index, we find that the h-Index of a scientist is strongly correlated with the number of citations that she/he has received so that the number of citations can be effectively be used as a proxy of the h-Index. Allowing for the h-Index to depend on both the number of citations and the number of publications, we find only a minor improvement.

Keywords: Applicants, Article, Assessment, Bibliographic, Bibliographic Databases, Bibliometric, Bibliometric Indicators, Citation, Citation Analysis, Citations, Computer Science, Data, Databases, Distributions, Evaluation, Faculty, Google, Google Scholar, Google Scholar Citations, Google-Scholar, h Index, h-Index, h-Index, Hirsch-Index, Impact, Improvement, Indicators, Information, Minor, Netherlands, Productivity, Properties, Publication, Publication Record, Publications, Record, Research, Science, Scientists, Scientometrics, Scopus, Spain, Standard, Statistical Analysis, Van

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Full Text: [2013\Scientometrics97, 639.pdf](2013/Scientometrics97,%20639.pdf)

Abstract: In this study, doctoral dissertations conducted at the Turkish Universities for the period of 1990-2011 and the scientifically indexed publications of the professors supervising these dissertations were investigated. In the evaluations, the publications scores of the Google Scholar, Web of Science, and Scopus as well as the citations belonging to the publications in these indexes were included. During the relevant period, 617 professors supervised all the 1,906 doctoral dissertations in the field of economics. The first three universities with the highest number of doctoral dissertations were determined to be Istanbul University, Marmara University, and Dokuz Eylul University whereas the first three universities with the highest scientific indexes were Ihsan Dogramaci Bilkent University, Middle East Technical University, and Bogazi double dagger i University. The academicians of the last three universities also outperformed those at the other universities regarding the scientific publications they produced and the citations they received. Overall, there is a low correlation between the dissertations conducted and scientific citations. Finally, academicians with publications and/or citations in Web of Science or Scopus were researched further via logistic regressions. The results indicate that there is positive and meaningful relation with PhD degrees earned abroad and number of publication in the Web of Science.

Keywords: Article, Citations, Computer Science, Correlation, Departments, Descriptive Statistics, Dissertations, Economics, Evaluation, Faculty Ratings, Field, First, Google, Google Scholar, Graduate Education In Economics, Information, Netherlands, Phd, Productivity of Economists, Professors, Publication, Publications, Ranking, Rankings, Science, Scientific Publications, Scientometrics, Scopus, Turkey, Universities, University, Van, Web of Science

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Full Text: [2013\Scientometrics97, 659.pdf](2013/Scientometrics97,%20659.pdf)

Abstract: Shrimp aquaculture constitutes a major economic activity of some middle- and low-level economies in the world. Though it is practiced by around 70 countries, it is primarily dominated by China, Thailand, Indonesia, Vietnam, Ecuador and India. These six countries account for 80 % of the global shrimp production. The study has highlighted the role of research in the development of the industry by taking the examples of Penaeus vannamei and P. monodon. In case of the former, a seven time rise in quantum of research (studied by the number of publications as a proxy) could induce five time increase in production, whereas, in the latter case similar pattern was not noticed. The study has observed that based on shrimp production and research contribution; the major 30 countries associated with shrimp aquaculture could be categorized as: (i) high production, high-research contribution, (ii) low production, high-research contribution and (iii) high production, low-research contribution. The countries under the third category are at great risk and may suffer huge economic losses in the event of outbreak of any disease. By generating network map of research linkage across different countries the study has highlighted the potential countries for strengthening the existing linkage and fostering new linkage for knowledge consolidation. The study has given some suggestion for policy formulation for achieving a rapid growth of shrimp aquaculture in the world.

Keywords: Activity, Analysis, Aquaculture, Article, China, Collaboration, Computer Science, Contribution, Development, Disease, Economic, Formulation, Global, Global Scenario, Growth, India, Indonesia, Information, Innovation, Knowledge, Linkage, Losses, Netherlands, Network, Networks, New Delhi, P, Pattern, Penaeus, Policy, Potential, Publications, Research, Risk, Role, Science, Science Policy, Scientometrics, Shrimp Aquaculture, Shrimp Disease, Structure, Suggestion, Thailand, Van, Vietnam, World

? Peng, T.Q. and Wang, Z.Z. (2013), Network closure, brokerage, and structural influence of journals: A longitudinal study of journal citation network in Internet research (2000-2010). *Scientometrics*, **97** (3), 675-693.

Full Text: [2013\Scientometrics97, 675.pdf](2013/Scientometrics97,%20675.pdf)

Abstract: the study aims to assess journals’ structural influence in Internet research and uncover the impacts of network structures on journals’ structural influence drawing on theories of network closure and structural holes. The data of the study are the citation exchanges among 1,210 journals in Communication and other seven social scientific fields (i.e., Business, Economics/Finance, Education, Information Science, Political Science, Psychology, and Sociology) in Internet research. The top two most influential journals in Internet research are American Economic Review and Journal of Personality and Social Psychology. Journals in “Communication” field emerge to be an important source of influence in Internet research, whose mean structural influence ranks third among the eight fields, below “Business” and “Economics/Finance”, but above other five fields. Journals’ structural influences are found to grow over time and the growth rates vary across journals. Network brokerage is found to exert a significant impact on journals’ structural influence, while the impact of network closure on journals’ structural influences is not significant. The impact of network brokerage on journals’ structural influence will increase over time.

Keywords: 2000-2010, Article, Brokerage, Business, Centrality, Citation, Citation Network, Closure, Collaboration Networks, Communication, Computer Science, Data, Discipline, Education, Emergence, Field, Growth, Impact, Impacts, Index, Indicators, Influence, Information, Internet, Internet Research, Journal, Journals, Longitudinal, Management, Multilevel Models, Netherlands, Network, Network Closure, Performance, Political Science, Psychology, Rates, Research, Review, Scholarly Influence, Science, Scientometrics, Singapore, Social, Source, Van

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Full Text: [2013\Scientometrics97, 695.pdf](2013/Scientometrics97,%20695.pdf)

Abstract: the aging of scientific has generally been studied using synchronous approaches, i.e., based on references made by papers. This paper uses a diachronous model based on citations received by papers to study the changes in the life expectancy of three corpus of papers: papers from G6 and BRICS countries, papers published in Science, Nature, Physical Review and the Lancet and all papers divided into four broad fields: medical sciences, natural sciences and engineering, social sciences and arts and humanities. It shows that that: (i) life expectancy is extensively different from a corpus to another and may be either finite or infinite, meaning that the corpus would never be obsolete from a mathematical perspective; (ii) life expectancy for scientific literature has lengthened over the 1980-2000 period; (iii) life expectancy of developed countries’ (G6) literature is on average shorter than that of emerging countries (BRICS).

Keywords: Aging, Analysis, Article, Changes, Citation Distribution, Citation Distribution, Citations, Computer Science, Countries, Diachronous, Engineering, Expectancy, Fields, Growth, Half-Life, Humanities, Index, Information, Journals, Life, Life Expectancy, Life-Time, Literature, Medical, Medical Sciences, Model, Morocco, Natural, Netherlands, Obsolescence, Obsolescence, Papers, References, Review, Science, Sciences, Scientific Literature, Scientometrics, Social, Social Sciences, Social-Sciences, Synchronous, Time, Van

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Full Text: [2013\Scientometrics97, 719.pdf](2013/Scientometrics97,%20719.pdf)

Abstract: Relationships between publication language, impact factors and self-citations of journals published in individual countries, eight from Europe and one from South America (Brazil), are analyzed using bibliometric data from Thomson Reuters JCR Science Edition databases of ISI Web of Knowledge. It was found that: (1) English-language journals, as a rule, have higher impact factors than non-English-language journals, (2) all countries investigated in this study have journals with very high self-citations but the proportion of journals with high self-citations with reference to the total number of journals published in different countries varies enormously, (3) there are relatively high percentages of low self-citations in high subject-category journals published in English as well as non-English journals but national-language journals have higher self-citations than English-language journals, and (4) irrespective of the publication language, journals devoted to very specialized scientific disciplines, such as electrical and electronic engineering, metallurgy, environmental engineering, surgery, general and internal medicine, pharmacology and pharmacy, gynecology, entomology and multidisciplinary engineering, have high self-citations.

Keywords: Article, Bibliometric, Brazil, Characteristics, Computer Science, Data, Databases, Disciplines, Electronic Engineering, Engineering, Environmental, Environmental Engineering, Europe, General, Gynecology, Iceberg Hypothesis, Impact, Impact Factor, Impact Factors, Information, Internal Medicine, ISI, Jcr, Journal Categories, Journal Language, Journal Self-Citations, Journals, Knowledge, Language, Medicine, Multidisciplinary, Netherlands, Pharmacology, Pharmacy, Publication, Reference, Science, Scientific Journals, Scientometrics, Self-Citations, South America, Surgery, Thomson Reuters, Thomson-Reuters, Van, Web of Knowledge

? Romo-Fernandez, L.M., Guerrero-Bote, V.P. and Moya-Anegon, F. (2013), Co-word based thematic analysis of renewable energy (1990-2010). *Scientometrics*, **97** (3), 743-765.

Full Text: [2013\Scientometrics97, 743.pdf](2013/Scientometrics97,%20743.pdf)

Abstract: This article describes an analysis of keywords which was aimed at revealing publication patterns in the field of renewable energy, including the temporal evolution of its different research lines over the last two decades. To this end, we first retrieved the records of the sample, then we processed the keywords to resolve their obvious problems of synonymy and to limit the study to those most used. The final results showed a clear increase in scientific production related to alternative energies, and a structure corresponding to five major clusters which, at a finer level of resolution, were decomposed into 22. We analyzed the structure of the clusters and their temporal evolution, paying particular attention to uncovering the bursty periods of the different lines of research.

Keywords: Alternative, Analysis, Article, Attention, Bibliometric Analysis, Bibliometrics, Clustering, Co-Word Analysis, Computer Science, Energy, Evolution, Field, First, Index, Information, Netherlands, Publication, Records, Renewable Energy, Research, Science, Scientific Production, Scientometrics, Scimago, Scopus, Spain, Structure, Temporal, Van

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Full Text: [2013\Scientometrics97, 767.pdf](2013/Scientometrics97,%20767.pdf)

Abstract: Many different measures are used to assess academic research excellence and these are subject to ongoing discussion and debate within the scientometric, university-management and policy-making communities internationally. One topic of continued importance is the extent to which citation-based indicators compare with peer-review-based evaluation. Here we analyse the correlations between values of a particular citation-based impact indicator and peer-review scores in several academic disciplines, from natural to social sciences and humanities. We perform the comparison for research groups rather than for individuals. We make comparisons on two levels. At an absolute level, we compare total impact and overall strength of the group as a whole. At a specific level, we compare academic impact and quality, normalised by the size of the group. We find very high correlations at the former level for some disciplines and poor correlations at the latter level for all disciplines. This means that, although the citation-based scores could help to describe research-group strength, in particular for the so-called hard sciences, they should not be used as a proxy for ranking or comparison of research groups. Moreover, the correlation between peer-evaluated and citation-based scores is weaker for soft sciences.

Keywords: Article, Citations, Comparison, Computer Science, Correlation, Correlations, Disciplines, Evaluation, Groups, Humanities, Impact, Index, Indicator, Indicators, Information, Measures, Natural, Netherlands, Peer Review, Peer-Review, Policy Making, Quality, Ranking, Research, Research Assessment Exercise (RAE), Research Excellence Framework (REF), Review, Science, Sciences, Scientometric, Scientometric Indicators, Scientometrics, Size, Social, Social Sciences, Strength, Topic, Universities, Van

? Abramo, G., D’Angelo, C.A. and Rosati, F. (2013), Measuring institutional research productivity for the life sciences: the importance of accounting for the order of authors in the byline. *Scientometrics*, **97** (3), 779-795.

Full Text: [2013\Scientometrics97, 779.pdf](2013/Scientometrics97,%20779.pdf)

Abstract: Accurate measurement of institutional research productivity should account for the real contribution of the research staff to the output produced in collaboration with other organizations. In the framework of bibliometric measurement, this implies accounting for both the number of co-authors and each individual’s real contribution to scientific publications. Common practice in the life sciences is to indicate such contribution through the order of author names in the byline. In this work, we measure the distortion introduced to university-level bibliometric productivity rankings when the number of co-authors or their position in the byline is ignored. The field of observation consists of all Italian universities active in the life sciences (Biology and Medicine). The analysis is based on the research output of the university staff over the period 2004-2008. Based on the results, we recommend against the use of bibliometric indicators that ignore co-authorship and real contribution of each author to research outputs.

Keywords: Analysis, Article, Authors, Bibliometric, Bibliometric Indicators, Bibliometrics, Biology, Co-Authors, Co-Authorship, Coauthorship, Collaboration, Computer Science, Field, Fractional Counting, Framework, G-Index, Indicators, Information, Italian Universities, Italy, Life, Life Sciences, Measure, Measurement, Medicine, Netherlands, Observation, Practice, Productivity, Publications, Rankings, Research, Research Evaluation, Research Output, Research Outputs, Research Productivity, Science, Sciences, Scientific Publications, Scientometrics, Universities, University, Van, Work

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Full Text: [2013\Scientometrics97, 797.pdf](2013/Scientometrics97,%20797.pdf)

Abstract: Expert finding is of vital importance for exploring scientific collaborations to increase productivity by sharing and transferring knowledge within and across different research areas. Expert finding methods, including content-based methods, link structure-based methods, and a combination of content-based and link structure-based methods, have been studied in recent years. However, most state-of-the-art expert finding approaches have usually studied candidates’ personal information (e.g. topic relevance and citation counts) and network information (e.g. citation relationship) separately, causing some potential experts to be ignored. In this paper, we propose a topical and weighted factor graph model that simultaneously combines all the possible information in a unified way. In addition, we also design the Loopy Max-Product algorithm and related message-passing schedules to perform approximate inference on our cycle-containing factor graph model. Information Retrieval is chosen as the test field to identify representative authors for different topics within this area. Finally, we compare our approach with three baseline methods in terms of topic sensitivity, coverage rate of SIGIR PC (e.g. Program Committees or Program Chairs) members, and Normalized Discounted Cumulated Gain scores for different rankings on each topic. The experimental results demonstrate that our factor graph-based model can definitely enhance the expert-finding performance.

Keywords: Algorithm, Approach, Article, Authors, China, Citation, Citation Counts, Collaborations, Computer Science, Coverage, Design, Experimental, Expert Finding, Experts, Factor Graph, Field, Framework, Inference, Information, Knowledge, Methods, Model, Netherlands, Network, Networks, Pagerank, Performance, Potential, Productivity, R, Rankings, Recent, Relevance, Research, Scholarly Network, Science, Scientometrics, Sensitivity, Topic, Topic Relevance, Topical, Van

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Full Text: [2013\Scientometrics97, 821.pdf](2013/Scientometrics97,%20821.pdf)

Abstract: Bibliometric indicators can be determined by comparing specific citation records with the percentiles of a reference set. However, there exists an ambiguity in the computation of percentiles because usually a significant number of papers with the same citation count are found at the border between percentile rank classes. The present case study of the citations to the journal Europhysics Letters (EPL) in comparison with all physics papers from the Web of Science shows the deviations which occur due to the different ways of treating the tied papers in the evaluation of the percentage of highly cited publications. A strong bias can occur, if the papers tied at the threshold number of citations are all considered as highly cited or all considered as not highly cited.

Keywords: Article, Bias, Bibliometric, Bibliometric Indicators, Case Study, Citation, Citation Analysis, Citations, Comparison, Computation, Computer Science, Evaluation, Germany, Highly Cited, Highly-Cited, Highly-Cited-Publications Indicator, Impact Indicators, Indicators, Influence, Information, Journal, Netherlands, Papers, Percentile, Percentile Rank Classes, Percentiles, Performance, Performance Evaluation, Performance Indicators, Publications, Rank, Records, Reference, Science, Scientometrics, Threshold, Van, Web of Science

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Full Text: [2013\Scientometrics97, 831.pdf](2013/Scientometrics97,%20831.pdf)

Abstract: Thanks to a unique individual dataset of French academics in economics, we explain individual publication and citation records by gender and age, co-authorship patterns (average number of authors per article and size of the co-author network) and specialisation choices (percentage of output in each JEL code). The analysis is performed on both EconLit publication scores (adjusted for journal quality) and Google Scholar citation indexes, which allows us to present a broad picture of knowledge diffusion in economics. Citations are largely driven by publication records, which means that these two measures are partly substitutes, but citations are also substantially increased by larger research team size and co-author networks.

Keywords: Academics, Age, Analysis, Article, Authors, Citation, Citation Indexes, Citations, Co-Author, Co-Authorship, Coauthorship, Computer Science, Diffusion, Economics, Economics of Science, France, Gender, Google, Google Scholar, Index, Information, Jel, Journal, Journal Quality, Knowledge, Knowledge Diffusion, Measures, Netherlands, Network, Networks, Productivity, Productivity Determinants, Publication, Publication Scores, Quality, Records, Research, Salaries, Science, Scientometrics, Size, Van

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Full Text: [2013\Scientometrics97, 859.pdf](2013/Scientometrics97,%20859.pdf)

Abstract: Based on co-citation cluster analysis, we propose a knowledge-transfer analysis model for any technology field. In this model, patent data with backward citations to non-patent literature and forward citations by later patents would be analyzed. Co-citation clustering of the cited articles defines scientific knowledge sources, while that of the patents themselves defines technology fronts. According to the citation between the article and patent clusters, the landscape of knowledge-transfer including route and strength between scientific knowledge sources and technology fronts can be mapped out. The model has been applied to the field of transgenic rice. As a result of the analysis, ten scientific knowledge sources and eight technology fronts have emerged, and reasonable links between them have been established, which clearly show how knowledge has been transferred in this field.

Keywords: Analysis, Article, China, Chinese, Citation, Citations, Cluster, Cluster Analysis, Clustering, Co-Citation, Co-Citation Clustering, Cocitation, Computer Science, Data, Field, Gene, Information, Knowledge, Knowledge Transfer, Knowledge-Transfer, Landscape, Literature, Model, Netherlands, Patent, Patents, Plants, Protoplasts, R, Rice, Route, Science, Scientific Literature, Scientometrics, Sources, Strength, Technology, Transgenic Rice, Van

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Full Text: [2013\Scientometrics97, 871.pdf](2013/Scientometrics97,%20871.pdf)

Abstract: the most popular method for evaluating the quality of a scientific publication is citation count. This metric assumes that a citation is a positive indicator of the quality of the cited work. This assumption is not always true since citations serve many purposes. As a result, citation count is an indirect and imprecise measure of impact. If instrumental citations could be reliably distinguished from non-instrumental ones, this would readily improve the performance of existing citation-based metrics by excluding the non-instrumental citations. A citation was operationally defined as instrumental if either of the following was true: the hypothesis of the citing work was motivated by the cited work, or the citing work could not have been executed without the cited work. This work investigated the feasibility of developing computer models for automatically classifying citations as instrumental or non-instrumental. Instrumental citations were manually labeled, and machine learning models were trained on a combination of content and bibliometric features. The experimental results indicate that models based on content and bibliometric features are able to automatically classify instrumental citations with high predictivity (AUC = 0.86). Additional experiments using independent hold out data and prospective validation show that the models are generalizeable and can handle unseen cases. This work demonstrates that it is feasible to train computer models to automatically identify instrumental citations.

Keywords: Agreement, Article, Auc, Bibliometric, Bibliometrics, Biomedical, Citation, Citation Analysis, Citation-Based Metrics, Citations, Computer Science, Counts, Data, Developing, Experimental, Experiments, Feasibility, Impact, Indicator, Information, Information Retrieval, Learning, Literature, Machine, Machine Learning, Measure, Metrics, Models, Netherlands, New York, Performance, Prospective, Publication, Quality, Quality Of, Science, Scientific Publication, Scientometrics, Text Categorization, USA, Validation, Van, Work

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Full Text: [2013\Scientometrics97, 883.pdf](2013/Scientometrics97,%20883.pdf)

Abstract: This paper proposes a framework to identify and evaluate companies from the technological perspective to support merger and acquisition (M&A) target selection decision-making. This employed a text mining-based patent map approach to identify companies which can fulfill a specific strategic purpose of M&A for enhancing technological capabilities. The patent map is the visualized technological landscape of a technology industry by using technological proximities among patents, so companies which closely related to the strategic purpose can be identified. To evaluate the technological aspects of the identified companies, we provide the patent indexes that evaluate both current and future technological capabilities and potential technology synergies between acquiring and acquired companies. Furthermore, because the proposed method evaluates potential targets from the overall corporate perspective and the specific strategic perspectives simultaneously, more robust and meaningful result can be obtained than when only one perspective is considered. Thus, the proposed framework can suggest the appropriate target companies that fulfill the strategic purpose of M&A for enhancing technological capabilities. For the verification of the framework, we provide an empirical study using patent data related to flexible display technology.

Keywords: Alliances, Approach, Article, Business, Capabilities, Computer Science, Data, Database, Decision Making, Decision-Making, Decisions, Evaluation, Framework, Industry, Information, Innovation, Knowledge, Korea, Landscape, M&A Target Selection, Management, Mining, Netherlands, Patent, Patent Analysis, Patent Information, Patents, Potential, Purpose, Research-And-Development, Sao, Science, Scientometrics, Selection, South Korea, Strategic, Subject-Action-Object, Support, Technological Similarity, Technology, Technology Acquisition, Text Mining, Text-Mining, Van, Verification

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Keywords: Computer Science, England, Information, Netherlands, Science, Scientometrics, Van

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Full Text: [2013\Scientometrics97, 913.pdf](2013/Scientometrics97,%20913.pdf)

Keywords: Analysis, Computer Science, H-Star, Human, Industry, Information, Netherlands, Policy, Science, Scientometrics, Star, Technology, Technology Transfer, University Entrepreneurship, USA, Van

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Full Text: [2013\Scientometrics97, 927.pdf](2013/Scientometrics97,%20927.pdf)

Abstract: Three periods can be distinguished in university patenting at the U.S. Patent and Trade Office (USPTO) since the Bayh-Dole Act of 1980: (1) a first period of exponential increase in university patenting till 1995 (filing date) or 1999 (issuing date); (2) a period of relative decline since 1999; and (3) in most recent years-since 2008-a linear increase in university patenting. We argue that this last period is driven by specific non-US universities (e.g., Tokyo University and Chinese University) patenting increasingly in the USA as the most competitive market for high-tech patents.

Keywords: Act, Bayh-Dole Act, Chinese, Comments, Competitive, Computer Science, First, Indicator, Industry-Government Relations, Information, Innovation, Market, Netherlands, Patent, Patents, Perspective, Recent, Science, Scientometrics, Spin-Offs, Systems, Technology, Technology Transfer, Till, Trade, Triple-Helix, Universities, University, USA, Van

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Full Text: [2014\Scientometrics98, 5.pdf](2014/Scientometrics98,%205.pdf)

Keywords: Price

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Full Text: [2014\Scientometrics98, 11.pdf](2014/Scientometrics98,%2011.pdf)

Abstract: in this position paper we discuss the current status of the core scientific journals in China. Based on discussions of journals’ relation to a small group of full-text database providers, open access publishing and copyright problems, we conclude that China’s digital publishing industry is not yet in a healthy state and some key issues related to revenue, digital piracy and copyright must be solved.

Keywords: Access, China, Citation Impact, Copyright Issues, Database, Digital, Digital Publishing, Full-Text Databases, Issues, Journals, Open, Open Access, Open Access, Providers, Publishing, Scientific Journals, Small, State

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Full Text: [2014\Scientometrics98, 23.pdf](2014/Scientometrics98,%2023.pdf)

Abstract: in science mapping, bibliographic coupling (BC) has been a standard tool for discovering the cognitive structure of research areas, such as constituent subareas, directions, schools of thought, or paradigms. Modelled as a set of documents, research areas are often sorted into document clusters via BC representing a thematic unit each. in this paper we propose an alternative method called age-sensitive bibliographic coupling: the aim is to enable the standard method to produce historically valid thematic units, that is, to yield document clusters that represent the historical development of the thematic structure of the subject as well. As such, the method is expected to be especially beneficial for investigations on science dynamics and the history of science. We apply the method within a bibliometric study in the modern history of bioscience, addressing the development of a complex, interdisciplinary discourse called the Species Problem. As a result, a quantitative and qualitative comparison of the standard and the proposed method of bibliographic coupling will be reported, together with a pilot study on the cognitive-historical structure of the Species Problem, regarding an important fragment of the discourse.

Keywords: Alternative, BC, Bibliographic, Bibliographic Coupling, Bibliometric, Bibliometric Study, Citation Analysis, Comparison, Development, Discourse, Dynamics, History, History of Science, Interdisciplinary, Investigations, Mapping, Pilot, Qualitative, Research, Science, Science Dynamics, Science Mapping, Species, Species Problem, Standard, Structure

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Full Text: [2014\Scientometrics98, 53.pdf](2014/Scientometrics98,%2053.pdf)

Abstract: in order to gain a deeper understanding of the international collaboration of global library and information science (LIS), The present paper investigated the trends, networks as well as core groups of the international collaboration in LIS at the country and institution levels by combining bibliometric analysis and social network analysis. in this study, a total of 8,570 papers from 15 core journals during the period of 2000-2011 were collected. The results indicate that 66 % of papers are joint publications in global LIS. Two-country papers and two-institution papers are the two primary collaboration patterns in the international collaboration at the country and institution levels respectively. Through social network analysis, it is observed that the country collaboration network has reached a certain degree of maturity over the past 12 years in global LIS, while the international institution collaboration network has not yet matured and is made up of dozens of components. in the country collaboration network, the position of USA and UK are remarkable. Although the USA is positioned at the center of the network, institutions located in the USA are more inclined to have collaboration within domestic, suggesting institutions in the USA have a low tendency towards international collaboration. in the institution collaboration network, it is found that two groups located in the USA and Europe respectively. The results of the institution collaboration network also reveal that Katholieke Univ Leuven has not only the largest collaboration breadth, but also strong capabilities to control communication within the international institution collaboration network.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Breadth, China, Coauthorship, Collaboration, Collaboration Pattern, Combining, Communication, Control, Country, Europe, Evolutionary Trend, Global, Global Trends, Groups, Information, Information Science, Information-Science, Institutions, International, International Collaboration, Journals, Knowledge, LI, Library, Library and Information Science, LIS, Nanotechnology Research, Network, Network Analysis, Networks, Papers, Patterns, Primary, Publications, Science, Scientific Collaboration, Social, Social Network Analysis, Trends, UK, Understanding, USA

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Full Text: [2014\Scientometrics98, 73.pdf](2014/Scientometrics98,%2073.pdf)

Abstract: Research and development of rice, a major crop, has been promoted on an interdisciplinary basis with the involvement of various research fields ranging from natural sciences to socioeconomics in Japan. This paper focuses on the structure of interdisciplinarity in Japanese rice research and technology development by analyzing the relationship among all relevant disciplines with the use of a compiled bibliography of Japanese rice research with 19,389 articles in 1,611 journals in the publishing years of 1990-2000. The relationship among the disciplines was characterized by the frequency distribution of articles among journals classified into 24 categories based on the law of scattering originally identified by Bradford (Engineering 13:785-786, 1934). The 24 journal categories ranked in decreasing order of productivity of articles were divided into 3 zones; the first nuclear zone with a smaller number of highly productive journal disciplines; the second zone with a large number of less productive disciplines; and the last zone with a larger number of the least productive disciplines, which characterized the structure of interdisciplinarity in Japanese rice research and technology development. Other aspects of the interdisciplinarity were further explored with reference to peripheral journals with a minimal number of papers on a certain subject, and the Groos droop phenomenon at the end of Bradford’s S-shape curve that is the region of the least productive journals with only one paper on a certain subject, by analyzing the frequency distribution of articles in journal categories.

Keywords: Approach, Bibliography, Bibliometric, Bradford’s Scattering Law, Development, Disciplines, Distribution, Engineering, First, Interdisciplinarity, Interdisciplinary, Japan, Journal, Journals, Law, Natural, Natural Sciences, Papers, Productivity, Publishing, Reference, Region, Research, Research & Development (R& D), Research and Development, Rice, Scattering, Sciences, Structure, Technology, the Groos Droop

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Full Text: [2014\Scientometrics98, 99.pdf](2014/Scientometrics98,%2099.pdf)

Abstract: This paper analyses the scientific cooperation between German and Chinese institutions in the field of the life sciences on the basis of co-publications published between 2007 and 2011 in Web of Science covered sources. After analyzing the global output of publications in the life sciences, and identifying China’s most important international partners on country level, this study focuses on a network and cluster analysis of German-Chinese co-publications on an institutional level. Cleaning and standardizing all German and Chinese addresses, a total of 531 German and 700 Chinese institutions were identified that co-published together in the period under analysis. Disaggregating the institutes of Chinese Academy of Sciences made it possible to obtain more meaningful information on existing co-publication structures. Using VOSviewer the German-Chinese collaboration network in the life sciences is visualized and clusters of similar institutions identified. The seven most important clusters of German-Chinese co-publications partners are briefly described providing background information for funding agencies such as the German Federal Ministry of Education and Research or researchers in the life sciences, who wish to establish collaborations with German or Chinese institutions.

Keywords: Analyses, Analysis, Bibliometrics, Chinese, Cluster, Cluster Analysis, Co-Publication Analysis, Collaboration, Collaborations, Cooperation, Country, Education, Field, Funding, German-Chinese Cooperation, Global, Information, Institutions, International, International Collaboration, Life, Life Sciences, Network, Performance, Publications, Research, Science, Sciences, Scientific Cooperation, Social Network Analysis, Sources, Standardizing, Vosviewer, Web of Science, World

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Full Text: [2014\Scientometrics98, 119.pdf](2014/Scientometrics98,%20119.pdf); [2014\Scientometrics98, 119.pdf](2014/Scientometrics98,%20119.pdf); [2013\Scientometrics-Ho2.pdf](2013/Scientometrics-Ho2.pdf); [2013\Scientometrics-Ho4.pdf](2013/Scientometrics-Ho4.pdf)

Abstract: This study was designed to evaluate China’s scientific output of chemical engineering in Science Citation Index Expanded in the Web of Science from 1992 to 2011. The document type, language, trend and collaboration patterns were analyzed, as well as the output of different journals. Distributions of article titles and abstracts, author keywords, KeyWords Plus of different periods, and the most cited articles were studied to figure out the research focuses and trends. Chinese Journal of Catalysis, Industrial & Engineering Chemistry Research, and Chinese Journal of Chemical Engineering published most of Chinese articles in the area of chemical engineering. The Chemical Engineering Department of Tsinghua University, Zhejiang University, Tianjin University, and East China University of Science and Technology were the top four institutions that published most articles in China. This study showed that adsorption, photocatalysis and synthesis have been the hot points of research in the past two decades, while ionic liquid tends to be the new area of special interest in future. Pseudo-second order model for sorption processes is getting more and more popular with great influence since its publication. in addition, the ratio of institutional independent articles: nationally collaborative articles: internationally collaborative articles has been developed to compare different institutions’ publication characteristics.

Keywords: Adsorption, Analysis, Aqueous-Solution, Articles, Bibliometric, Bibliometric Analysis, Catalysis, Characteristics, Chemical, Chemical Engineering, Chemistry, China, Chinese, Citation, Collaboration, Engineering, Evolution, Highly Cited, History, Influence, Institutions, Ionic Liquid, Journal, Journals, Language, Liquid, Model, Most Cited Articles, Patterns, Photocatalysis, Profile, Pseudo Second Order, Pseudo-Second Order, Pseudo-Second Order Model, Pseudo-Second-Order, Publication, Publication Characteristics, Publications, Research, Science, Science Citation Index, Science Citation Index Expanded, Scientific Output, Scientometric Analysis, Sorption, Synthesis, Technology, Titles, Trend, Trends, University, Web of Science

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Full Text: [2014\Scientometrics98, 137.pdf](2014/Scientometrics98,%20137.pdf); [2013\Scientometrics-Ho1.pdf](2013/Scientometrics-Ho1.pdf)

Abstract: This study aimed to identify and analyze characteristics of classic articles published in the Web of Science social work subject category from 1856 to 2011. Articles that have been cited at least 50 times were assessed regarding publication outputs, distribution of outputs in journals, publications of authors, institutions, countries as well as citation life cycles of articles with the highest total citations since its publication up to 2011 and the highest citations in 2011. Five bibliometric indicators were used to evaluate source countries, institutions, and authors. Results showed that 721 of the most highly referenced articles, published between 1957 and 2008, had been cited at least 50 times. Child Abuse & Neglect and American Journal of Community Psychology published the most classic articles. USA produced 89 % of classic articles and also published the most number of single, internationally collaborative, first author, and corresponding author classic articles. The top 38 productive institutions were all located in the US. The University of Illinois was the most productive institution for the total classic articles while University of California, Los Angeles produced the most inter-institutionally collaborative articles and Arizona State University published the most single institution articles. Furthermore, a new indicator, Y-index was successfully applied to evaluate publication characteristics of authors and institutions. High percentage of authors had the same numbers of first author and corresponding author status of classic articles in social work field.

Keywords: American, Analysis, Arizona, Article Life, Articles, Authors, Authorship, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, California, Characteristics, Child, Citation, Citations, Classic Articles, Community, Distribution, Field, First, Health, Highly-Cited Articles, Illinois, Indicator, Indicators, Institutions, Journal, Journals, Life, National-Survey, Psychology, Publication, Publications, Results, Science, Science Citation Index, Sexual-Abuse, Social, Social Science Citation Index, Social Work, Source, SSCI, Strengths Perspective, Top-Cited Articles, University, US, USA, Validation, Web of Science, Work, Y-Index

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Full Text: [2014\Scientometrics98, 157.pdf](2014/Scientometrics98,%20157.pdf)

Abstract: Date palm (Phoenix dactylifera) is one of the commonly used polyphenolic rich fruits attributing also to various therapeutic effect in different diseases and disorders. We aimed to study and analyse the global research output related to date palm based on a fact of its large consumption and production in Middle East. We analysed 1,376 papers obtained from SCOPUS database for the period of 2000-11. The study examines major productive countries and their citation impact. We have also analysed inter-collaborative linkages, national priorities of date palm research, besides analysing the characteristics of its high productivity institutions, authors and journal.

Keywords: Authors, Characteristics, Citation, Citation Impact, Consumption, Database, Date Palm, Diseases, Fruits, Global, Impact, Institutions, Journal, Papers, Phoenix Dactylifera, Plant Species, Productivity, Publications, Research, Research Output, Scientometric, Scientometrics, Scopus, Therapeutic

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Full Text: [2014\Scientometrics98, 173.pdf](2014/Scientometrics98,%20173.pdf)

Abstract: Benford’s Law is a logarithmic probability distribution function used to predict the distribution of the first significant digits in numerical data. This paper presents the results of a study of the distribution of the first significant digits of the number of articles published of journals indexed in the JCR(A (R)) Sciences and Social Sciences Editions from 2007 to 2011. The data of these journals were also analyzed by the country of origin and the journal’s category. Results considering the number of articles published informed by Scopus are also presented. Comparing the results we observe that there is a significant difference in the data informed in the two databases.

Keywords: Articles, Benford’s Law, Comparison, Country, Country of Origin, Data, Databases, Distribution, First, Fraud, Function, JCR((R)), Journals, Law, Numerical Data, Origin, Probability Distribution, R, Results, Sciences, Scientific Journals, Scopus, Social Sciences

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Full Text: [2014\Scientometrics98, 185.pdf](2014/Scientometrics98,%20185.pdf)

Abstract: Citation time series are not easy to compile from the most popular databases. The Data for Research service of the JSTOR journal database is a large and high-quality sample of citations, weighted towards humanities and social sciences. It provides time series citation data over many decades, back to the origins of the constituent journals. The citation trajectories of Nobel Prize winners in economics are analyzed here from 1930 to 2005. They are described mathematically by means of the Bass model of the diffusion of innovations. A bell-shaped curve provides a good fit with most prize winner citation trajectories, and suggests that economic knowledge follows the typical innovation cycle of adoption, peak, and decline within scholarly careers and shortly afterwards. Several variant trajectories are described.

Keywords: Adoption, Bibliometrics, Careers, Citation, Citation Analysis, Citations, Data, Database, Databases, Diffusion, Diffusion-Models, Economic, Economics, Humanities, Innovation, Journal, Journals, Knowledge, Model, Nobel Prize, Research, Sciences, Service, Social, Social Sciences, Time, Time Series

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Full Text: [2014\Scientometrics98, 197.pdf](2014/Scientometrics98,%20197.pdf)

Abstract: the number of LA-C indexed journals in WoS has increased from 69 to 248 titles in just a period of four years (2006-2009). This unprecedented growth is related to a change in the editorial policy of WoS rather than to a change in the LA-C scientific community. We find that in the LA-C region, Brazil had the largest increase in its WoS production that also corresponded to a large increase in its production in its indexed local journals. As a consequence, Portuguese has been promoted to the second scientific language, only after English, in the LA-C production in WoS. However, while the Brazilian production in its local journals represents about one quarter of its whole WoS production, it shows a rather little effect on the respective number of citations. The rest of the LA-C countries represented in WoS still show very low levels in production and impact. Scopus has also enlarged considerably the database’s coverage of LA-C journals but with a steady growth in the period considered in this study.

Keywords: Brazil, Citations, Community, Country, Coverage, Determinants, English, Growth, Impact, Journals, Language, Latin America, Latin American Journals, Local, Local Journals in WOS, Mainstream Local Journals, Policy, Production and Impact, Publication, Region, Research Output, Science, Scientific Community, Scopus, Visibility, WOS

? Bornmann, L. and Marx, W. (2014), How should the societal impact of research be generated and measured? A proposal for a simple and practicable approach to allow interdisciplinary comparisons. *Scientometrics*, **98** (1), 211-219.

Full Text: [2014\Scientometrics98, 211.pdf](2014/Scientometrics98,%20211.pdf)

Abstract: Since the 1990s, the scope of research evaluation has widened to encompass the societal products (outputs), societal use (societal references) and societal benefits (changes in society) of research. Research evaluation has been extended to include measures of the (1) social, (2) cultural, (3) environmental and (4) economic returns from publicly funded research. Even though no robust or reliable methods for measuring societal impact have yet been developed. in this study, we would like to introduce an approach which, unlike the currently common case study approach (and others), is relatively simple, can be used in almost every subject area and delivers results regarding societal impact which can be compared between disciplines. Our approach to societal impact starts with the actual function of science in society: to generate reliable knowledge. That is why a study (which we would like to refer to as an assessment report) summarising the status of the research on a certain subject represents knowledge which is available for society to access. Societal impact is given when the content of a report is addressed outside of science (in a government document, for example).

Keywords: Access, Approach, Assessment, Assessment Report, Benefits, Case Study, Changes, Citation, Cultural, Disciplines, Economic, Environmental, Evaluation, Function, Impact, Interdisciplinary, Ipcc, Knowledge, Measures, Metaanalysis, Methods, References, Research, Research Assessment, Research Evaluation, Science, Scientists, Scope, Social, Social Benefits, Societal Impact, Society

? Ma, F.C., Lyu, P.H., Yao, Q., Yao, L. and Zhang, S.J. (2014), Publication trends and knowledge maps of global translational medicine research. *Scientometrics*, **98** (1), 221-246.

Full Text: [2014\Scientometrics98, 221.pdf](2014/Scientometrics98,%20221.pdf)

Abstract: Translational medical research literatures have increased rapidly in last decades and there have been fewer attempts or efforts to map global research context of translational medical related research. The main purpose of this study is to evaluate the global progress and to assess the current quantitatively trends on translational medical research by using a scientometric approach to survey translational medicine related literatures in Science Citation Index Expanded (SCI-E), Social Science Citation Index and PubMed database from 1992 to 2012. The scientometric methods and knowledge visualization technologies were employed in this paper. The document types, languages, publication patterns, subject categories, journals, geographic and institutional distributions, top cited papers, and the distribution of keywords as well as MeSH terms were thoroughly examined. Translational medicine research has increased rapidly over past 20 years, most notably in the last 4 years. in total, there are currently 3,627 research articles in 1,062 journals listed in 91 SCI-E subject categories. The top 20 productive countries and institutes were analyzed herein, where 11 key papers in translational medical research and research foci were identified. Research outputs descriptors have suggested that the presence of a solid development in translational medical research, where research in this field has mainly focused on experimental medicine, general internal medicine, and medical laboratory technologies. All these outcomes have been concentrated in several journals such as Translational Research, Translational Oncology, Translational Stroke Research, and Translational Neuroscience. G7 countries make up the leading nations for translational medical research, where the center is located in USA. American institutions have made great advances in paper productions, citations, and cooperation, with overall great strengths and good development prospects. Moreover, the evolution pathway of translational medical research has been summarized as bellows: problems emerged, causes analyzed, challenges faced and solutions proposed, translational medical research programs been formally established, theoretical and applied research, all of which was in full swing. During this process, neoplasms and genomics, interdisciplinary communication between academic medical centers/institutes, drug design and development, cardiovascular and brain diseases, and even biomedical research have been identified as mainstream topics in translational medical research fields.

Keywords: Advances, Applied Research, Approach, Biomedical, Biomedical Research, Brain, Breast-Cancer, Cardiovascular, Care, Citation, Citations, Clinical-Applications, Communication, Context, Cooperation, Database, Design, Development, Disease, Diseases, Distribution, Drug, Drug Design, Evolution, Experimental, Experimental Medicine, Field, G7 Countries, General, Genomics, Global, Graphene, Institutions, Interdisciplinary, Internal Medicine, Journals, Knowledge, Knowledge Mapping, Languages, Management, Medical, Medical Research, Medicine, Methods, Nations, Neoplasms, Oncology, Outcomes, Papers, Progress, Publication, Pubmed, Purpose, Quality, Research, Research Trend, SCIE, Science, Science Citation Index, Science Citation Index Expanded, Science-Citation-Index, Scientometric, Social Science Citation Index, Solutions, Stem-Cells, Stroke, Survey, Technologies, Theoretical, Translational Medical Research, Trends, USA, Visualization, Web of Science

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Full Text: [2014\Scientometrics98, 247.pdf](2014/Scientometrics98,%20247.pdf)

Abstract: Few comprehensive and long time-span studies have examined the Information and Communication Technologies (ICT) sector in China and its implications for China’s national and regional innovation system. Taking advantage of the patents granted by the State Intellectual Property Office of the People’s Republic of China from 1985 to 2010, this paper examined innovation performance in the Chinese ICT industry with the help of bibliometric techniques. The analysis has been conducted from several perspectives, including the trend and character of patent outputs, the most prolific Chinese regions and their changes, the primary innovators and their type of institutions, and the collaboration among university (U)-industry (I)-research institutes (R). The results show that the great importance that the government and domestic enterprises attach to technology R&D and patent protection has brought significant improvements in the Chinese ICT sector, and enterprises have thus gradually become the main body of technological innovation in recent years. in terms of U-I-R collaborations, I-I collaborations are the most popular pattern, followed by U-I and I-R collaborations. in the last 20 years or so, U-I-R collaborations have improved, but they are still weak. in the future, U-I-R collaborations should be further reinforced, and more universities and research institutes should be encouraged to become involved in U-I-R collaborations to help enterprises enhance their innovative capabilities.

Keywords: Analysis, Bibliometric, Bibliometric Techniques, Changes, China, Chinese, Collaboration, Collaborations, Communication, Enterprises, Government, ICT, Industry-University-Research Institute, Information, Innovation, Innovation System, Institutions, IR, Patent, Patents, Pattern, People’S Republic of China, Performance, Primary, Property, Protection, R, R&D, Recent, Regional, Research, Research Performance, Sector, Systems, Techniques, Technological Innovation, Technology, Trend, Triple-Helix, Universities, University

Notes: CCountry

? Mamtora, J., Wolstenholme, J.K. and Haddow, G. (2014), Environmental sciences research in northern Australia, 2000-2011: A bibliometric analysis within the context of a national research assessment exercise. *Scientometrics*, **98** (1), 265-281.

Full Text: [2014\Scientometrics98, 265.pdf](2014/Scientometrics98,%20265.pdf)

Abstract: This paper reports on a bibliometric analysis of environmental sciences research in northern Australia between 2000 and 2011. It draws on publications data for Charles Darwin University (CDU) and James Cook University (JCU) researchers to present a bibliometric profile of the journals in which they publish, the citations to their research outputs, and the key research topics discussed in the publications. Framing this analysis, the study explored the relationship between the two universities’ publications and their ‘fit’ with the environmental sciences field as defined by the Australian research assessment model, Excellence in Research for Australia (ERA). The Scopus database retrieved more records than Web of Science, although only minor differences were seen in the journals in which researchers published most frequently and the most highly cited articles. Strong growth in publications is evident in the 12 year period, but the journals in which the researchers publish most frequently differ from the journals in which the most highly cited articles are published. Many of the articles by CDU and JCU affiliated researchers are published in journals outside of the environmental sciences category as defined by Scopus and Web of Science categories and the ERA, however, the research conducted at each university aligns closely with that institution’s research priorities.

Keywords: Analysis, Assessment, Australia, Australian, Bibliometric, Bibliometric Analysis, Charles Darwin University, Citations, Context, Data, Database, Environmental, Environmental Sciences, Era, Excellence, Excellence in Research For Australia, Exercise, Field, Fields of Research Codes, Google Scholar, Growth, Highly Cited, Highly-Cited, James Cook University, Journals, Minor, Model, Northern Australia, Publications, Records, Research, Research Assessment, Research Assessment Exercise, Research Outputs, Research Priorities, Science, Sciences, Scopus, Scopus Database, Universities, University, Web of Science

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Full Text: [2014\Scientometrics98, 283.pdf](2014/Scientometrics98,%20283.pdf)

Abstract: This paper analyzes the positions of institutions from the private domain in bibliometric rankings of as many as 27,000 research institutions and highlights factors that are crucial for a proper interpretation of such positions. It was found that among the institutions with the largest output in terms of published research articles, private firms are underrepresented, whereas in the top quartile of institutions with the largest citation impact firms are overrepresented. A firm’s publication output is not a good indicator of its R&D investment: big firms in Pharmaceutics are both heavy investors in R&D and frequent publishers of scientific articles, whereas in Automobiles firms tend to invest heavily in R&D but their publication output is low. This is ascribed to the fact that the former need a validation of their results by the scientific community, while the latter do less so. Private institutions generating the largest citation impact tend to collaborate with the best public research institutions. This reflects the crucial importance of publicly funded research for the private sector.

Keywords: Bibliometric, Bibliometric Rankings, Citation, Citation Analysis, Citation Impact, Community, Drug Discovery, Firms R&D Investment, Firms Research Performance, Impact, Indicator, Institutions, Institutions Rankings, Pharmaceutics, Private Sector, Public, Publication, R&D, Rankings, Research, Research Collaboration, Research Institutions, Science, Scientific Community, Sector, Universities, Validation

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Full Text: [2014\Scientometrics98, 299.pdf](2014/Scientometrics98,%20299.pdf)

Abstract: in addition to the factor of impact and other bibliometric indices, generation of a net profit year on year plays a central role in measuring overall journal publishing performance. However, some business models do not allow the academic journals continue to thrive since they are not financially sustainable. It raises a number of questions which have to be answered: how does the journal’s wealth grow given a particular allocation strategy of journal resources? What is the optimal allocating strategy of journal resources that maximizes the growth rate of journal’s wealth? What is the value of the side information for the selection of high-quality manuscripts? And, what is the effective growth rate of journal’s wealth if there exists dependence among successive selections of high quality manuscripts? This paper proves that information theoretic quantities like entropy and mutual information arise as the answers to these fundamental questions in the selection of high-quality manuscripts and allocation of journal’s wealth. Based on the uncovered relationships between the growth rate of journal’s wealth and the selection of high-quality manuscripts, we propose a number of basic guidelines for improving the journal publishing performance (e.g., match probabilities of high quality when placing the allocations of journal resources among the submitted manuscripts and focus on management practices that promote selection processes with less uncertainty of the outcome).

Keywords: Allocation, Bibliometric, Business, Entropy, Generation, Growth, Growth Rate, Guidelines, High-Quality Manuscripts, Impact, Indices, Information, Journal, Journal’s Wealth, Journals, Low Entropy, Management, Management Practices, Models, Mutual Information, Outcome, Performance, Practices, Profit, Publishing, Quality, Resources, Role, Selection, Selection Process, Side Information, Strategy, Sustainable, Uncertainty, Value, Wealth

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Full Text: [2014\Scientometrics98, 315.pdf](2014/Scientometrics98,%20315.pdf)

Abstract: the main goal of this research is to analyze the web structure and performance of units and services belonging to U.S. academic libraries in order to check their suitability for webometric studies. Our objectives include studying their possible correlation with economic data and assessing their use for complementary evaluation purposes. We conducted a survey of library homepages, institutional repositories, digital collections, and online catalogs (a total of 374 URLs) belonging to the 100 U.S. universities with the highest total expenditures in academic libraries according to data provided by the National Center for Education Statistics. Several data points were taken and analyzed, including web variables (page count, external links, and visits) and economic variables (total expenditures, expenditures on printed and electronic books, and physical visits). The results indicate that the variety of URL syntaxes is wide, diverse and complex, which produces a misrepresentation of academic libraries’ web resources and reduces the accuracy of web analysis. On the other hand, institutional and web data indicators are not highly correlated. Better results are obtained by correlating total library expenditures with URL mentions measured by Google (r = 0.546) and visits measured by Compete (r = 0.573), respectively. Because correlation values obtained are not highly significant, we estimate such correlations will increase if users can avoid linkage problems (due to the complexity of URLs) and gain direct access to log files (for more accurate data about visits).

Keywords: Academic Libraries, Access, Accuracy, Analysis, Assessing, Complementary, Complexity, Correlation, Correlations, Counts, Data, Digital Collections, Economic, Economic Variables, Education, Evaluation, Expenditures, Google, Impact Factors, Indicators, Institutions, Linkage, Online, Online Catalogs, Performance, Physical, Repositories, Repositories, Research, Resources, Services, Sites, Statistics, Structure, Survey, Understanding, United States, Universities, Url, Us, Web, Web-Based Indicators, Web-Resources, Webometrics

? Jia, X.Y., Tan, X.F. and Zhang, Y.H. (2014), Replication of the methods section in biosciences papers: Is it plagiarism? *Scientometrics*, **98** (1), 337-345.

Full Text: [2014\Scientometrics98, 337.pdf](2014/Scientometrics98,%20337.pdf)

Abstract: To find out whether replication of methods section in biosciences papers is a kind of plagiarism, the authors firstly surveyed the behavior of authors when writing the methods section in their published papers. Then the descriptions of one well-established method in randomly selected papers published in eight top journals were analyzed using CrossCheck to identify the extent of duplication. Finally, suggestions on preparing the methods sections were given. The survey results show that an author may employ different approaches to writing the methods section within a paper, repeating published methods is more often than give citation only or rewrite complete using one’s own words. Authors are more likely to repeat the description of a method than simply to provide a citation. From the samples of the eight leading journals, plagiarize is very rare in such journals; Learning from Science, attachment may be a considerable choice for papers with common methods.

Keywords: Authors, Behavior, Choice, Citation, Complete, Duplication Methods, Journals, Methods, Papers, Publication, Publication Ethics, Replication, Science, Survey

? Taskin, Z. and Al, U. (2014), Standardization problem of author affiliations in citation indexes. *Scientometrics*, **98** (1), 347-368.

Full Text: [2014\Scientometrics98, 347.pdf](2014/Scientometrics98,%20347.pdf)

Abstract: Academic effectiveness of universities is measured with the number of publications and citations. However, accessing all the publications of a university reveals a challenge related to the mistakes and standardization problems in citation indexes. The main aim of this study is to seek a solution for the unstandardized addresses and publication loss of universities with regard to this problem. To achieve this, all Turkey-addressed publications published between 1928 and 2009 were analyzed and evaluated deeply. The results show that the main mistakes are based on character or spelling, indexing and translation errors. Mentioned errors effect international visibility of universities negatively, make bibliometric studies based on affiliations unreliable and reveal incorrect university rankings. To inhibit these negative effects, an algorithm was created with finite state technique by using Nooj Transducer. Frequently used 47 different affiliation variations for Hacettepe University apart from “Hacettepe Univ” and “Univ Hacettepe” were determined by the help of finite state grammar graphs. in conclusion, this study presents some reasons of the inconsistencies for university rankings. It is suggested that, mistakes and standardization issues should be considered by librarians, authors, editors, policy makers and managers to be able to solve these problems.

Keywords: Academic, Address Unification, Affiliation, Algorithm, Authors, Bibliometric, Bibliometric Studies, Challenge, Citation, Citation Indexes, Citations, Data Accuracy, Data Unification, Databases, Effectiveness, Effects, Errors, Finite State Technique, Finite-State Transducers, Indexing, Information-Retrieval, International, Issues, Nooj, Policy, Publication, Publications, Rankings, Research Evaluation, Solution, Standardization, Standardization Problem, State, Translation, Universities, University, University Rankings, Visibility

? Michels, C. and Schmoch, U. (2014), Impact of bibliometric studies on the publication behaviour of authors. *Scientometrics*, **98** (1), 369-385.

Full Text: [2014\Scientometrics98, 369.pdf](2014/Scientometrics98,%20369.pdf)

Abstract: It has been widely discussed how individuals change the way they act and react in studies just because they are under observation. in this paper, we try to analyse how this so-called Hawthorne effect applies to researchers that are the subject of bibliometric investigations. This encompasses individual assessments as well as international performance comparisons. We test various bibliometric indicators for notable changes in the last decade from a world-wide perspective and deduce explanations for changes from the observations. We then concentrate on the behaviour of German authors in particular, to show national trends. The German publication behaviour is evaluated in regard to citation rates and collaborations in publications and size, publisher country and impact of the journals chosen for publication. We can conclude that authors adapt their publication behaviour to aim for journals that are more internationally known and have a US publisher. Also, a trend from more specialized journals to journals with a broader scope can be observed that raises the question whether the implicit penalization of specialized fields in the bibliometrics leads to undesired shifts in conducted research.

Keywords: Assessments, Author Behaviour, Authors, Behaviour, Bibliometric, Bibliometric Indicators, Bibliometric Studies, Bibliometrics, Changes, Citation, Citation Rates, Collaborations, Concentrate, Consequences, Country, Hawthorne Effect, Impact, Indicators, International, International Comparisons, Investigations, Journals, Language, Macro, National Studies, Observation, Observations, Performance, Publication, Publications, Publisher, Rates, Research, Research Evaluation, Scope, Size, Trend, Trends, Us

? Kumar, S. and Jan, J.M. (2014), Research collaboration networks of two OIC nations: Comparative study between Turkey and Malaysia in the field of ‘Energy Fuels’, 2009-2011. *Scientometrics*, **98** (1), 387-414.

Full Text: [2014\Scientometrics98, 387.pdf](2014/Scientometrics98,%20387.pdf)

Abstract: With the world in the midst of an energy crisis, recent research has placed considerable emphasis on harnessing renewable and sustainable energy while efficiently using fossil fuels. Researchers create and sustain academic societies as a result of social interactions. This study takes a social network perspective to understand researchers’ associations using two Organisation of Islamic Co-operation nations, Turkey and Malaysia, in the fast-developing field of ‘Energy Fuels’. The study found both similarities and differences in the scholarly networks of these two countries. The mean distance between the authors in the Turkey and Malaysia networks was 8.4 and 6.5, respectively, confirming the small world nature of these networks. The popularity, position, and prestige of the authors in the network, as determined through centrality measures, had a statistically significant effect on research performance. These measures, however, were far more correlated with the research performance of the authors in the Malaysia network than in the Turkey network. PageRank centrality was found to be the most efficient topological measure when it came to correlation with research performance. We used authors’ ‘degree’ to reach to the ‘core’ (‘Deg-Core’) of the network (in contrast to the K-Core method), which was found to capture more productive authors. A method to detect academic communities of productive authors by extracting motifs (large cliques) from the network is suggested. Finally, we visualize the cognitive structure of both countries using a 2-mode network representing research focus areas (RFAs) and prominent authors working in these RFAs.

Keywords: 2-Mode Network, Authors, Centrality, Co-Authorship Networks, Co-Authorship Networks, Co-Operation, Collaboration, Collaboration Networks, Comparative Study, Correlation, Crisis, Energy, Energy Fuels, Evolution, Field, Fossil, Fossil Fuels, Fuels, Information-Science, K-Core, Knowledge, Library, Malaysia, Management, Measure, Measures, Motif, Nations, Network, Networks, Nodexl, OIC, Pagerank, Patterns, Performance, Recent, Research, Research Collaboration, Research Performance, Researchers, Scientific Collaboration, Small, Social, Social Network, Structure, Sustainable, Turkey, World

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Full Text: [2014\Scientometrics98, 415.pdf](2014/Scientometrics98,%20415.pdf)

Abstract: Know and compare the Brazilian scientific production of researchers that did full PhD in Brazil or abroad may be important to evaluate the development of science in the country. in this context, the current study was planned to verify the evolution of scientific production of researchers that concluded PhD in Brazil or abroad between 1997 and 2002. The evaluation included specifically the scientific production of PhDs in the areas of biochemistry, physiology and pharmacology during the period of 9 years after the PhD conclusion. The data were obtained from the database of CAPES (Foundation for Higher Education Development in Brazil), CNPq (National Council of Technological and Scientific Development), Lattes, Web of Science (Institute for Scientific Information (ISI) and Scival-Scopus). in terms of quantity, researchers that did full PhD in Brazil published more articles than the researchers that did it abroad. However, articles from researchers that did the PhD in Brazil were published in journals with lower impact factor and received less citation than the articles published by researchers that did PhD abroad. The results indicate that the qualitative performance of researchers that did PhD abroad was better than those who did PhD in Brazil. Consequently, the policies of Brazilian government need to be devoted to enhance the relevance of Brazilian articles in terms of scientific quality and international insertion.

Keywords: Biochemistry, Biological, Biological Sciences, Brazil, Brazilian Doctorate Brazil, Abroad, Brazilian Scientific Production, Citation, Comparative Study, Context, Country, Data, Database, Development, Education, Evaluation, Evolution, Impact, Impact Factor, Information, Institute For Scientific Information, International, Isi, Journals, Modalities, Performance, Pharmacology, Phd, Physiology, Policies, Qualitative, Quality, Relevance, Science, Sciences, Scientific Production, Web of Science

? Wu, C.Y. (2014), Comparisons of technological innovation capabilities in the solar photovoltaic industries of Taiwan, China, and Korea. *Scientometrics*, **98** (1), 429-446.

Full Text: [2014\Scientometrics98, 429.pdf](2014/Scientometrics98,%20429.pdf)

Abstract: This paper investigates the technological innovation capabilities of the three Asian latecomers-namely Taiwan, China, and Korea-in the emergent solar photovoltaic industry. For this study, I deploy a new dataset of 75,540 solar photovoltaic patents taken out by Taiwan, China and Korea over the period of 31 years (1978-2008) and analyse the evolving technological innovation capabilities revealed in these patents using a set of four technology platforms that I constructed. This study demonstrates the patent portfolios of the three latecomers and explores what extent have the Taiwanese, Chinese, and Korean followers developed their technological innovation capabilities so as to surpass the US, German, and Japan and acquire the leading production positions; and how the variations of technological innovation capabilities among the major producers influence their business activities in the global solar photovoltaic industry. The results show the various strategies adopted by Taiwan, China, and Korea to develop their solar photovoltaic industries, reflect their different national innovation systems involved, and response to the current trends of technology development in the global solar photovoltaic industry.

Keywords: Asia, Asian, Business, Catch-Up, Catch-Up, China, Chinese, Constructed, Determinants, Development, Firms, Global, Influence, Innovation, Innovation Capability, Japan, Knowledge Flows, Korea, National Innovation Systems, Patent, Patent Data, Patents, Performance, Photovoltaic, Photovoltaic (PV), Productivity, Response, Solar, Strategies, Systems, Taiwan, Technological Innovation, Technology, Technology Platform, Trends, US, US Semiconductor Industry

? Alvarez, P., Boulaiz, H., Velez, C., Rodriguez-Serrano, F., Ortiz, R., Melguizo, C., Carrillo, E., Martinez-Amat, A. and Prados, J. (2014), Qualitative and quantitative analyses of anatomists’ research: Evaluation of multidisciplinarity and trends in scientific production. *Scientometrics*, **98** (1), 447-456.

Full Text: [2014\Scientometrics98, 447.pdf](2014/Scientometrics98,%20447.pdf)

Abstract: Our aim was to evaluate the impact of anatomy as a multidisciplinary area and to identify trends in research by anatomists over time. Data from three main sources were analyzed: SCImago Journal & Country Rank (SJR), using the number of total documents as indicator; MEDLINE (PubMed) database (1898 through October 2012), using the keyword “anatomy” in the “affiliation” field; and the Journal Citation Report (JCR), gathering impact factor and quartile data. The number of publications by anatomists increased between 1898 and 1941, followed by a reduction until 1961 and then by a marked rise to reach 36,686 between 2002 and 2012. After 1941, anatomists began to publish in journals from JCR categories other than “Anatomy & Morphology”, especially after 1962. Between 2007 and 2012, only 22.23 % of articles by anatomists in JCR-indexed journals were in the “Anatomy & Morphology” area and 77.77 % in journals from other categories; 58 % of their articles were in journals in the first and second quartiles. The contribution of anatomists to scientific knowledge is high quality and considerably greater than indicated by the SJR database. This input is especially relevant in the Neurosciences, Cell Biology, and Biology categories. in addition, more than two-thirds of manuscripts by anatomists appear in JCR-ranked publications, and more than half in the top two quartiles of the impact factor ranking. Our results show that the scientific production of anatomists has improved the quantity and quality of multi-disciplinary scientific activity in different knowledge areas.

Keywords: Activity, Analyses, Anatomists, Anatomy, Biology, Citation, Country, Data, Database, Evaluation, Field, First, Impact, Impact Factor, Indicator, Inflation, Jcr, Journal, Journal Citation Report, Journal Impact Factor, Journals, Knowledge, Medline, Multidisciplinarity, Multidisciplinary, Multidisciplinary Area, Publications, Pubmed, Quality, Quality Of, Ranking, Reduction, Research, Scientific Production, Scimago, SJR, Sources, Trends, Trends in Scientific Production

? Sotudeh, H. and Khoshian, N. (2014), Gender differences in science: the case of scientific productivity in Nano Science & Technology during 2005-2007. *Scientometrics*, **98** (1), 457-472.

Full Text: [2014\Scientometrics98, 457.pdf](2014/Scientometrics98,%20457.pdf)

Abstract: Although, women’s contribution to science is crucial to social development, gender difference has been for a long time affecting the quantity and quality of scholarly activity. in spite of some improvements, women are still suffering from gender gap and biases in science world. Using a scientometric method with a comparative approach, the present communication aims to study women performance in Nano Science & Technology in terms of their scientific productivity and impact and to contrast them to their male counterparts. The significance of the study relies on the importance of a balanced development of human society in general and in different scientific milieus in specific. According to the research results, although female Nano-researchers are scarce in number, they equally perform in terms of scientific productions and impacts. That may imply gender egalitarianism in the field.

Keywords: Activity, Approach, Communication, Development, Female, Field, Gender, Gender Differences, General, Human, Impact, Impact, Impacts, Journals, Male, Nano, Nano Science, Nano Technology, Nanoscience, Nanotechnology, Non-Inventing Peers, Patterns, Performance, Productivity, Quality, Quality Of, Research, Research Collaboration, Research Results, Science, Scientific Productivity, Scientometric, Sex-Differences, Significance, Social, Social Origin, Society, Suffering, Technology, Women, World

? Meyer, M., Libaers, D., Thijs, B., Grant, K., Glänzel, W. and Debackere, K. (2014), Origin and emergence of entrepreneurship as a research field. *Scientometrics*, **98** (1), 473-485.

Full Text: [2014\Scientometrics98, 473.pdf](2014/Scientometrics98,%20473.pdf)

Abstract: This paper seeks to map out the emergence and evolution of entrepreneurship as an independent field in the social science literature from the early 1990s to 2009. Our analysis indicates that entrepreneurship has grown steadily during the 1990s but has truly emerged as a legitimate academic discipline in the latter part of the 2000s. The field has been dominated by researchers from Anglo-Saxon countries over the past 20 years, with particularly strong representations from the US, UK, and Canada. The results from our structural analysis, which is based on a core document approach, point to five large knowledge clusters and further 16 sub-clusters. We characterize the clusters from their cognitive structure and assess the strength of the relationships between these clusters. in addition, a list of most cited articles is presented and discussed.

Keywords: Academic Discipline, Analysis, Approach, Canada, Cocitation, Core Document Approach, Documents, Emerging Discipline, Entrepreneurship, Evolution, Field, Knowledge, Literature, Most Cited Articles, Research, Science, Social, Strength, Structure, UK, US

? Bornmann, L. and Marx, W. (2014), How to evaluate individual researchers working in the natural and life sciences meaningfully? A proposal of methods based on percentiles of citations. *Scientometrics*, **98** (1), 487-509.

Full Text: [2014\Scientometrics98, 487.pdf](2014/Scientometrics98,%20487.pdf)

Abstract: Although bibliometrics has been a separate research field for many years, there is still no uniformity in the way bibliometric analyses are applied to individual researchers. Therefore, this study aims to set up proposals how to evaluate individual researchers working in the natural and life sciences. 2005 saw the introduction of the h index, which gives information about a researcher’s productivity and the impact of his or her publications in a single number (h is the number of publications with at least h citations); however, it is not possible to cover the multidimensional complexity of research performance and to undertake inter-personal comparisons with this number. This study therefore includes recommendations for a set of indicators to be used for evaluating researchers. Our proposals relate to the selection of data on which an evaluation is based, the analysis of the data and the presentation of the results.

Keywords: Analyses, Analysis, Bibliometric, Bibliometric Analyses, Bibliometric Indicators, Bibliometrics, Citations, Complexity, Data, Evaluation, Field, Google Scholar, h Index, h-Index, Impact, Index, Indicators, Information, Information-Science, Life, Life Sciences, Methods, Multidimensional, Natural, Percentiles, Performance, Presentation, Productivity, Publication, Publications, Quality, Recommendations, Research, Research Performance, Researchers, Sciences, Scientific Excellence, Selection, Universities

? Niu, B.B., Hong, S., Yuan, J.F., Peng, S., Wang, Z. and Zhang, X. (2014), Global trends in sediment-related research in earth science during 1992-2011: A bibliometric analysis. *Scientometrics*, **98** (1), 511-529.

Full Text: [2014\Scientometrics98, 511.pdf](2014/Scientometrics98,%20511.pdf)

Abstract: An effective bibliometric analysis based on the Science Citation Index-Expanded database was conducted to evaluate earth science sediment-related research from different perspectives from 1992 to 2011. The geographical influences of the authors were subsequently visualized. Sediment-related research experienced notable growth in the past two decades. Multidisciplinary geosciences and environmental sciences were the two major categories, and Environmental Science and Technology was the most active journal. Damst, JSS and Schouten S were the two most prolific authors with the most high-quality articles and the greatest geographic influences. The major spatial clusters of authors overlapped quite well with regions with high economic growth in the USA, Western Europe, and Eastern Asia. The USA was the largest contributor in global sediment research with the most independent and collaborative papers, and the dominance of the USA was also confirmed in the national collaboration network. National academic output was positively associated with its economic capability. The Chinese Academy of Sciences, the US Geological Survey and the Russian Academy of Sciences were the three major contributing institutions. A keywords analysis determined that “evolution”, “water”, “soil(s)”, and “model” were consistent hotspots in sediment research. Several keywords such as “organic-matter”, “Holocene”, “dynamics”, “erosion”, “sediment transport”, “climate”, and “heavy-metal” received dramatically increased attention during the study period. Through co-word analysis, significant differences were observed between environmental and multidisciplinary geosciences in terms of the most frequently used keywords, and the prevalent research topic patterns were ascertained.

Keywords: Analysis, Asia, Attention, Authors, Bibliometric, Bibliometric Analysis, Bibliometrics, Chinese, Citation, Co-Word, Co-Word Analysis, Co-Word Analysis, Collaboration, Contaminated Sediments, Database, Eastern Asia, Economic, Environmental, Europe, Evolution, Geographical Impact Factor (GIF), Geosciences, Global, Growth, Holocene Climate-Change, Institutions, Journal, Keywords Analysis, Model, Multidisciplinary, Network, Papers, Remediation, Research, SCI-Expanded, Science, Science Citation Index Expanded, Science Citation Index-Expanded, Sciences, Sediment, Surface Sediments, Technology, Topic, Toxicity, Transport, Trends, US, USA

? Sooryamoorthy, R. (2014), Publication productivity and collaboration of researchers in South Africa: new empirical evidence. *Scientometrics*, **98** (1), 531-545.

Full Text: [2014\Scientometrics98, 531.pdf](2014/Scientometrics98,%20531.pdf)

Abstract: Apart from a few bibliometrical studies the South African scientific system is a scantly researched area and asking for more empirical evidence. This empirical study of academics and researchers (n = 204) from a selected province of South Africa examines the interrelationship between publication productivity and collaboration, and the sectoral differences between higher education institutions and research institutes. The study highlights the specific context of the scientific system in South Africa with its characteristics features of productivity and collaboration and shows how they are structurally facilitated and hindered. Being a prominent contributor to the development of science in Africa the study offers some interesting findings.

Keywords: Academics, Africa, Age, Characteristics, Collaboration, Context, Development, Education, Evidence, Higher Education, Impact, Institutions, International Collaboration, Internet, Patterns, Productivity, Publication, Publication Productivity, Research, Science, Scientific Productivity, Sectoral Differences, South Africa, South African Science, Teams

? Adams, J., Gurney, K., Hook, D. and Leydesdorff, L. (2014), International collaboration clusters in Africa. *Scientometrics*, **98** (1), 547-556.

Full Text: [2014\Scientometrics98, 547.pdf](2014/Scientometrics98,%20547.pdf)

Abstract: Recent discussion about the increase in international research collaboration suggests a comprehensive global network centred around a group of core countries and driven by generic socio-economic factors where the global system influences all national and institutional outcomes. in counterpoint, we demonstrate that the collaboration pattern for countries in Africa is far from universal. Instead, it exhibits layers of internal clusters and external links that are explained not by monotypic global influences but by regional geography and, perhaps even more strongly, by history, culture and language. Analysis of these bottom-up, subjective, human factors is required in order to provide the fuller explanation useful for policy and management purposes.

Keywords: Africa, Analysis, Collaboration, Cultural Factors, Culture, Explanation, Geography, Global, History, Human, Human Factors, International, International Collaboration, Language, Management, Network, Outcomes, Pattern, Policy, Recent, Regional, Regional Factors, Research, Research Collaboration, Science, Socio-Economic Factors, Socioeconomic Factors, Visualisation

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Full Text: [2014\Scientometrics98, 557.pdf](2014/Scientometrics98,%20557.pdf)

Abstract: Writing academic books is one of the core expressions of academic research. in the process of writing, the author cites many types of publications such as journals, journal articles, reports, web sources and books. Collecting and analyzing these citations in selected academic books, leads to the creation of book citation indexes. Based on this concept and design, the Chinese book citation index (CBkCI) is produced. The value of the CBkCI lies not only in filling the domestic vacuum in book citation, but also in promoting the quality of academic book publishing, and in contributing to a better library collection development. More importantly it helps to lay a solid foundation in the area of academic evaluation.

Keywords: Academic Collection Publications, Cbkci, Chinese, Chinese Academic Books, Citation, Citation Database, Citation Index, Citation Indexes, Citations, Collection, Concept, Database, Design, Development, Evaluation, Humanities and Social Sciences, Index, Information, Journal, Journal Articles, Journals, Publications, Publishing, Quality, Quality Of, Research, Significance, Sources, Vacuum, Value, Web, Writing

? Harzing, A.W. (2014), A longitudinal study of Google Scholar coverage between 2012 and 2013. *Scientometrics*, **98** (1), 565-575.

Full Text: [2014\Scientometrics98, 565.pdf](2014/Scientometrics98,%20565.pdf)

Abstract: Harzing (Scientometrics, 2013) showed that between April 2011 and January 2012, Google Scholar has very significantly expanded its coverage in Chemistry and Physics, with a more modest expansion for Medicine and a natural increase in citations only for Economics. However, we do not yet know whether this expansion of coverage was temporary or permanent, nor whether a further expansion of coverage has occurred. It is these questions we set out to respond in this research note. We use a sample of 20 Nobelists in Chemistry, Economics, Medicine and Physics and track their h-index, g-index and total citations in Google Scholar on a monthly basis. Our data suggest that-after a period of significant expansion for Chemistry and Physics-Google Scholar coverage is now increasing at a stable rate. Google Scholar also appears to provide comprehensive coverage for the four disciplines we studied. The increased stability and coverage might make Google Scholar much more suitable for research evaluation and bibliometric research purposes than it has been in the past.

Keywords: Bibliometric, Bibliometric Research, Chemistry, Citations, Coverage, Data, Disciplines, Economics, Evaluation, G Index, G-Index, Google, Google Scholar, h Index, h-Index, Index, Longitudinal, Medicine, Natural, Permanent, Physics, Research, Research Evaluation, Scientometrics, Social Sciences, Stability, Temporary, Web of Science

? Machado, J.A.T., Galhano, A.M.S.F. and Trujillo, J.J. (2014), On development of fractional calculus during the last fifty years. *Scientometrics*, **98** (1), 577-582.

Full Text: [2014\Scientometrics98, 577.pdf](2014/Scientometrics98,%20577.pdf)

Abstract: Fractional calculus generalizes integer order derivatives and integrals. During the last half century a considerable progress took place in this scientific area. This paper addresses the evolution and establishes an assertive measure of the research development.

Keywords: Development, Evolution, Fractional Calculus, Measure, Progress, Research, Science Metrics, Scientific Evolution

? Smyth, R. and Mishra, V. (2014), Academic inbreeding and research productivity and impact in Australian law schools. *Scientometrics*, **98** (1), 583-618.

Full Text: [2014\Scientometrics98, 583.pdf](2014/Scientometrics98,%20583.pdf)

Abstract: This study compares the research productivity and impact of inbred and non-inbred faculty employed at Australian law schools. The sample consists of 429 academics, employed at 21 law schools. To measure research productivity and impact we use articles published in top law journals, defined in six different ways, as well as total citations and two different citation indices. We report results including, and excluding, publications in the academic’s home law review. We find evidence that silver-corded faculty outperform other faculty on one of the measures of publications in top journals, once the endogeneity of academic seniority, grant history and the status of the law school at which the individual is employed is addressed, but this finding is not robust across alternative measures of articles published in the top journals. We find that there is no statistically significant difference between the research productivity and impact of inbred and non-inbred faculty. This finding is robust to a range of different ways of measuring research productivity and impact and alternative econometric approaches, including using two-stage least squares to address the endogeneity of academic seniority, grant history and the status of the law school at which the legal academic is employed.

Keywords: Academic, Academic Inbreeding, Academics, Alternative, Australia, Australian, Citation, Citations, Evidence, Faculty, History, Impact, Index, Indices, Journals, Law, Law Schools, Legal, Measure, Measures, Performance, Productivity, Publications, Ranking, Research, Research Output, Research Productivity, Review, Universities, Work

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Full Text: [2014\Scientometrics98, 619.pdf](2014/Scientometrics98,%20619.pdf)

Abstract: Interdisciplinarity is as trendy as it is difficult to define. Instead of trying to capture a multidimensional object with a single indicator, we propose six indicators, combining three different operationalizations of a discipline, two levels (article or laboratory) of integration of these disciplines and two measures of interdisciplinary diversity. This leads to a more meaningful characterization of the interdisciplinarity of laboratories’ publication practices. Thanks to a statistical analysis of these indicators on 600 CNRS laboratories, we suggest that, besides an average value of interdisciplinarity, different laboratories can be mainly distinguished by the “distance” between the disciplines in which they publish and by the scale at which interdisciplinary integration is achieved (article or laboratory).

Keywords: Analysis, Characterization, CNRS, Combining, Disciplines, Diversity, Indicator, Indicators, Integration, Interdisciplinarity, Interdisciplinary, Laboratory, Measures, Multidimensional, Practices, Publication, Scale, Single Indicator, Statistical Analysis, Value

? Yeo, W., Kim, S., Lee, J.M. and Kang, J. (2014), Aggregative and stochastic model of main path identification: A case study on graphene. *Scientometrics*, **98** (1), 633-655.

Full Text: [2014\Scientometrics98, 633.pdf](2014/Scientometrics98,%20633.pdf)

Abstract: This paper suggests a new method to search main path, as a knowledge trajectory, in the citation network. To enhance the performance and remedy the problems suggested by other researchers for main path analysis (Hummon and Doreian, Social Networks 11(1): 39-63, 1989), we applied two techniques, the aggregative approach and the stochastic approach. The first technique is used to offer improvement of link count methods, such as SPC, SPLC, SPNP, and NPPC, which have a potential problem of making a mistaken picture since they calculate link weights based on a individual topology of a citation link; the other technique, the second-order Markov chains, is used for path dependent search to improve the Hummon and Doreian’s priority first search method. The case study on graphene that tested the performance of our new method showed promising results, assuring us that our new method can be an improved alternative of main path analysis. Our method’s beneficial effects are summed up in eight aspects: (1) path dependent search, (2) basic research search rather than applied research, (3) path merge and split, (4) multiple main paths, (5) backward search for knowledge origin identification, (6) robustness for indiscriminately selected citations, (7) availability in an acyclic network, (8) completely automated search.

Keywords: Alternative, Analysis, Applied Research, Approach, Availability, Basic Research, Case Study, Citation, Citation Network, Citations, Effects, Field, First, Graphene, Historiography, Identification, Improvement, Knowledge, Main Path Analysis, Markov Chains, Markov Model, Methods, Model, Network, Networks, Origin, Path Analysis, Performance, Potential, Quantitative Method, Research, Robustness, Second Order, Second-Order, Second-Order Markov Chains, Stochastic, Stochastic Model, Techniques, Trajectory

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Full Text: [2014\Scientometrics98, 657.pdf](2014/Scientometrics98,%20657.pdf)

Abstract: We have studied the effects of performance-based research funding introduced to the Czech (CZ) R&D system in 2008 on outputs of R&D results. We have analyzed annual changes in number of various types of publications and applications including patents before and after this change. The growth-rate of almost all types of results has accelerated in 2005 or 2006 and the increase continued till 2010. The growth of result quantity in the CZ has been faster than in seven other European countries selected for comparison. Because the accelerated growth has started already before 2008, implementation of the performance-based funding could not have been its cause. Likely cause of the growth could be either the evaluation of R&D institutions introduced in 2004 itself and/or growth of public R&D funding in the past decade. Because the increase of the citation impact of publications lagged behind the increase of their quantity, we conclude that the evaluation is not based on optimal indicators.

Keywords: Bibliometrics, Changes, Citation, Citation Analysis, Citation Impact, Comparison, Czech Republic, Effects, Evaluation, Funding, Growth, Growth Rate, Impact, Implementation, Indicators, Institutions, Patent Output, Patents, Performance-Based Research Funding, Public, Publications, R&D, R&D Results Output, Research, Research Funding, Till

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Full Text: [2014\Scientometrics98, 683.pdf](2014/Scientometrics98,%20683.pdf)

Abstract: International collaboration has played an important role in the development of nanotechnology. Patents encompass valuable technological information and collaborative efforts. Thus, this paper examines international collaboration development in nanotechnology using patent network analysis. The results show that the number of international collaboration nanotechnology patents has increased steadily and the proportion of them of total nanotechnology patents has likewise exhibited an upward trend. USA has always been the most influential participant with largest number of international collaboration patents. Asian countries/regions have shown an obvious increase in the number of international collaboration patents. By contrast, there have shown a generally decline in European countries. More and more countries have become actively engaged in international collaboration in nanotechnology with increasingly closer relationships. Two styles of international collaboration exit: while USA, Germany, UK and Japan collaborate with a wide range of countries/regions; Spain, Israel, Russia, Singapore and Taiwan are more selective in their collaboration partners. Though International collaboration has yet to find global significance in terms of patent citation impacts, it has nevertheless been incremental in improving patent citation impacts for most of the top 20 countries/regions since 2004.

Keywords: Analysis, Asian, China, Citation, Collaboration, Development, Field, Germany, Global, Impacts, Information, Innovation, Interdisciplinarity, International, International Collaboration, Israel, Japan, Nanoscience, Nanotechnology, Network, Network Analysis, Patent, Patents, Patterns, Publications, Role, Russia, Science, Significance, Singapore, Spain, Taiwan, Technology, Trend, UK, US Scientific Collaboration, USA

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Full Text: [2014\Scientometrics98, 703.pdf](2014/Scientometrics98,%20703.pdf)

Abstract: This paper examines impact of gender both on publication productivity and on patterns of scientific collaborations in social sciences in Turkey. The research is based on bibliographic data on national level publications in Turkey. It consists of 7,835 papers written by 6,738 scientists. The findings suggest that (1) there are gender differences at publication productivity, participation, presence and contribution; that (2) there are significantly different tendencies at keeping established co-authorship ties for inter-gender and intra-gender pairs; that (3) there are significant regularities exhibited by coauthor pairs based on each partner author’s publication productivity and findings further show that (4) regularities are different for inter-gender and intra-gender co-authorships. This study contributes to literature by exemplifying an integrated approach to better examine role of gender in scientific collaborations. in addition to descriptive social network analysis methods, it exploits and adopts parametric models from the literature: (1) Social Gestalt theory, a model based on bi-variate distributions of co-author pairs’ frequencies; (2) Lotka’s power law distribution on publication productivity of single authors; (3) Power law distributions of co-author pairs’ frequencies.

Keywords: Analysis, Approach, Authors, Bibliographic, Co-Author, Co-Authorship, Co-Authorship Networks, Coauthorship, Collaboration in Sciences, Collaborations, Data, Distribution, Gender, Gender Differences, Gestalt Theory, Impact, Interpersonal Attraction, Law, Literature, Methods, Model, Models, Network, Network Analysis, Papers, Participation, Partner, Power, Power Law, Productivity, Publication, Publication Productivity, Publications, Research, Research Collaboration, Role, Sciences, Scientists, Social, Social Gestalt Model, Social Network Analysis, Social Sciences, Theory, Turkey

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Full Text: [2014\Scientometrics98, 725.pdf](2014/Scientometrics98,%20725.pdf)

Abstract: the model proposed by Burrell (Information Processing and Management 28:637-645, 1992, Journal of Informetrics 1:16-25, 2007a) to describe the way that an individual author’s publication/citation career develops in time is investigated further, the aim being to describe in more detail the form of the citation distribution and the way it evolves over time. Both relative and actual frequency distributions are considered. Theoretical aspects are developed analytically and graphically and then illustrated using small empirical data sets relating to some well-known informetrics scholars. Perhaps surprisingly, it is found that the distribution may well be approximated in some cases by a simple geometric distribution.

Keywords: Citation, Citation Distribution, Data, Distribution, Fields, Generalized Waring Process, Geometric Distribution, h-Index, Hirsch-Index, Information, Informetric Process, Informetrics, Journal, Lotkaian Informetrics, Management, Mixed Poisson Process, Model, Pareto Distribution, Practice, Price Medallists, Small, Stochastic-Model, Theory, Thoughts, Uncitedness

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Full Text: [2014\Scientometrics98, 743.pdf](2014/Scientometrics98,%20743.pdf)

Abstract: There is a wealth of research on technological learning in developing countries, but few scholars have clearly addressed the issue of learning time in an empirical way. This paper aims to fill this void by presenting an empirical investigation of the time needed by Chinese firms to learn from the technologies that they have in-licensed. Furthermore, we analyzed in detail the antecedents leading to an acceleration or deceleration of the learning process among Chinese licensees. The results of an event history analysis indicate that recipient firms take on average 5.8 years to learn from their in-licensed technologies. The absorptive capacity and firm age of the licensees, the technology licensing scale, the age of the licensed technology, and the desorptive capability of the licensor firm all play a role in shortening the learning time.

Keywords: Absorptive Capacity, Acquisitions, Age, Analysis, Capacity, China, Chinese, Citations, Combinative Capabilities, Competitive Advantage, Developing, Developing Countries, Event History Analysis, Evidence, History, Industrializing Countries, Innovation, Innovation Speed, Investigation, Knowledge Transfer, Latecomer Firms, Learning, Licensing, Patent, Patent Citations, Research, Research-And-Development, Role, Scale, Semiconductor Industry, Technological Learning, Technologies, Technology, Technology License, Technology-Transfer, Wealth

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Full Text: [2014\Scientometrics98, 763.pdf](2014/Scientometrics98,%20763.pdf)

Keywords: Evaluation, Impact, Impact Factor, Journal, Periodicals

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Full Text: [2014\Scientometrics98, 764.pdf](2014/Scientometrics98,%20764.pdf)

Keywords: Ranking, Science

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Full Text: [2014\Scientometrics98, 767.pdf](2014/Scientometrics98,%20767.pdf)

Keywords: Bibliometric, Research, Solid Waste, Trends, Waste

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Full Text: [2014\Scientometrics98, 775.pdf](2014/Scientometrics98,%20775.pdf)

Keywords: Analysis, Publications, Research

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Full Text: [2014\Scientometrics98, 777.pdf](2014/Scientometrics98,%20777.pdf)

Abstract: Many nations are adopting higher education strategies that emphasize the development of elite universities able to compete at the international level in the attraction of skills and resources. Elite universities pursue excellence in all their disciplines and fields of action. The impression is that this does not occur in “non-competitive” education systems, and that instead, within single universities excellent disciplines will coexist with mediocre ones. To test this, the authors measure research productivity in the hard sciences for all Italian universities over the period 2004-2008 at the levels of the institution, their individual disciplines and fields within them. The results show that the distribution of excellent disciplines is not concentrated in a few universities: top universities show disciplines and fields that are often mediocre, while generally mediocre universities will often include top disciplines.

Keywords: Authors, Development, Disciplines, Distribution, Education, Higher Education, International, Italian Universities, Measure, Nations, Performance, Productivity, Research, Research Performance, Research Productivity, Resources, Sciences, Systems, Universities

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Full Text: [2014\Scientometrics98, 797.pdf](2014/Scientometrics98,%20797.pdf)

Abstract: Individuals and organisations producing information or knowledge for others sometimes need to be able to provide evidence of the value of their work in the same way that scientists may use journal impact factors and citations to indicate the value of their papers. There are many cases, however, when organisations are charged with producing reports but have no real way of measuring their impact, including when they are distributed free, do not attract academic citations and their sales cannot be tracked. Here, the web impact report (WIRe) is proposed as a novel solution for this problem. A WIRe consists of a range of web-derived statistics about the frequency and geographic location of online mentions of an organisation’s reports. WIRe data is typically derived from commercial search engines. This article defines the component parts of a WIRe and describes how to collect and analyse the necessary data. The process is illustrated with a comparison of the web impact of the reports of a large UK organisation. Although a formal evaluation was not conducted, the results suggest that WIRes can indicate different levels of web impact between reports and can reveal the type of online impact that the reports have.

Keywords: Citation, Citations, Comparison, Data, Distributed, Evaluation, Evidence, Impact, Impact Factors, Information, Journal, Journal Impact, Journal Impact Factors, Knowledge, Literature, Location, Online, Papers, Scientists, Solution, Statistics, UK, Value, Web, Work

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Full Text: [2014\Scientometrics98, 807.pdf](2014/Scientometrics98,%20807.pdf)

Abstract: Even if integrative and complementary medicine (ICM) is a growing scientific field, it is also a highly contested area in terms of scientific legitimacy. The aim of this article is to analyze the reception of ICM research in scientific journals. Is this kind of research acknowledged outside the ICM context, for example, in general or specialized medicine? What is the impact of ICM research? and Is it possible to identify any shift in content, from the original ICM research to the documents where it is acknowledged? the material consisted of two sets: documents published in 12 ICM journals in 2007; and all documents citing these documents during the years 2007-2012. These sets were analyzed with help from citation and co-word analysis. When analyzing the citation pattern, it was clear that a majority of the cited documents were acknowledged in journals and documents that could be related to research areas outside the ICM context, such as pharmacology & pharmacy and plant science-even if the most frequent singular journals and subject categories were connected to ICM. However, after analyzing the content of cited and citing documents, it was striking how similar the content was. It was also evident that much of this research was related to basic preclinical research, in fields such as cell biology, plant pharmacology, and animal experiments.

Keywords: Analysis, Animal Experiments, Biology, Citation, Co-Word, Co-Word Analysis, Complementary, Complementary Medicine, Context, Experiments, Field, General, Impact, Integrative, Journals, Legitimacy, Medicine, Pattern, Pharmacology, Pharmacy, Plant, Research, Scientific Journals

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Full Text: [2014\Scientometrics98, 823.pdf](2014/Scientometrics98,%20823.pdf)

Abstract: This paper studies disciplinary differences in citation impacts of different types of co-publishing. The citation impacts of international, domestic inter-organizational and domestic intra-organizational co-publications, and single-authored publications, are compared. In particular, we examine the extent to which the number of authors explains the potential differences in citation impacts when compared to the influence of different types of international and domestic collaborations. The analysis is based on Finland’s publications in Thomson Reuters Web of Science database in 1990-2008. Finland is a small country, thus, it has fewer opportunities to find collaborators inside own country when compared to larger countries. Finland’s science policy has underlined internationalization and research collaboration as key means to increase the quality and impact of Finnish research. This study indicates that both international and domestic co-publishing have steadily increased during the past two decades in all disciplinary groups. International co-publications gain on average more citations than domestic co-publications. In natural sciences and engineering, co-authorship explains only a small proportion of variability in publications’ citation rates. When the effect of the number of authors is taken into account there are no big differences in citation impacts between international and domestic co-publications. However, international co-publications by ten authors or more gather significantly more citations than other publications. In humanities, the difference in citation impacts between co-authored publications in relation to single-authored publications is significant. However, international co-publications are not on average more highly cited in relation to domestic co-publications in humanities.

Keywords: Analysis, Authors, Citation, Citation Impact, Citation Rates, Citations, Co-Authorship, Coauthorship, Collaboration, Collaborations, Country, Database, Disciplines, Engineering, Finland, Groups, Highly Cited, Highly-Cited, Humanities, Impact, Impacts, Influence, International, Internationalization, Natural, Natural Sciences, Policy, Potential, Publications, Quality, Rates, Research, Research Collaboration, Science, Science Policy, Sciences, Small, Thomson Reuters, Thomson-Reuters, Variability, Web of Science

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Full Text: [2014\Scientometrics98, 841.pdf](2014/Scientometrics98,%20841.pdf)

Abstract: Both citations to an academic work and post-publication reviews of it are indicators that the work has had some impact on the research community. The Thomson Reuters evaluation and selection process for web of knowledge journals includes citation analysis but this is not systematically practised for evaluation of books for the book citation index (BKCI) due to the inconsistent methods of citing books, the volume of books and the variants of the titles, especially in non-English language. Despite the fact that correlations between citations to a book and the number of corresponding book reviews differ from research area to research area and are overall weak or non-existent, this study confirms that books with book reviews do not remain uncited and accrue a remarkable mean number of citations. Therefore, book reviews can be considered a suitable selection criterion for BKCIs. The approach suggested in this study is feasible and allows easy detection of corresponding books via its book reviews, which is particularly true for research areas where books play a more important role such as the social sciences, the arts and humanities.

Keywords: Analysis, Approach, Book Reviews, Citation, Citation Analysis, Citation Index, Citation Indexes, Citations, Community, Correlations, Evaluation, Humanities, Impact, Index, Indicators, Journals, Knowledge, Language, Methods, Power, Research, Reviews, Role, Sciences, Selection, Social, Social Sciences, Thomson Reuters, Thomson-Reuters, Volume, Web, Work

? Park, H. and Yoon, J. (2014), Assessing coreness and intermediarity of technology sectors using patent co-classification analysis: the case of Korean national R&D. *Scientometrics*, **98** (2), 853-890.

Full Text: [2014\Scientometrics98, 853.pdf](2014/Scientometrics98,%20853.pdf)

Abstract: Rapid technological advancements and increasing research and development (R&D) costs are making it necessary for national R&D plans to identify the coreness and intermediarity of technologies in selecting projects and allocating budgets. Studies on the coreness or intermediarity of technology sectors have used patent citations, but there are limitations to dealing with patent data. The limitations arise from the most current patents and patents that do not require citations, e.g. Korean patents. Further, few or no studies have simultaneously considered both coreness and intermediarity. Therefore, we propose a patent co-classification based method to measure coreness and intermediarity of technology sectors by incorporating the analytic network process and the social network analysis. Using IPC co-classifications of patents as technological knowledge flows, this method constructs a network of directed knowledge flows among technology sectors and measures the long-term importance and the intermediating potential of each technology sector, despite the limitations of patent-based analyses. Considering both coreness and intermediarity, this method can provide more detailed and essential knowledge for decision making in planning national R&D. We demonstrated this method using Korean national R&D patents from 2008 to 2011. We expect that this method will help in planning national R&D in a rapidly evolving technological environment.

Keywords: Analyses, Analysis, Citations, Costs, Data, Decision, Decision Making, Decision-Making, Development, Environment, Knowledge, Long Term, Long-Term, Measure, Measures, Network, Network Analysis, Patent, Patent Citations, Patents, Planning, Potential, R&D, Research, Research and Development, Sector, Social, Social Network Analysis, Technological Knowledge, Technologies, Technology

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Full Text: [2014\Scientometrics98, 891.pdf](2014/Scientometrics98,%20891.pdf)

Abstract: Many governments have placed priority on excellence in higher education as part of their policy agendas. Processes for recruitment and career advancement in universities thus have a critical role. The efficiency of faculty selection processes can be evaluated by comparing the subsequent performance of competition winners against that of the losers and the pre-existing staff of equal academic rank. Our study presents an empirical analysis concerning the recruitment procedures for associate professors in the Italian university system. The results of a bibliometric analysis of the hard science areas reveal that new associate professors are on average more productive than the incumbents. However a number of crucial concerns emerge, in particular concerning occurrence of non-winner candidates that are more productive than the winners over the subsequent triennium, and cases of winners that are completely unproductive. Beyond the implications for the Italian case, the analysis offers considerations for all decision-makers regarding the ex post evaluation of the efficiency of the recruitment process and the desirability of providing selection committees with bibliometric indicators in support of evaluation (i.e. informed peer review).

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Competition, Education, Efficiency, Evaluation, Ex Post Evaluation, Faculty, Higher Education, Indicators, Peer Review, Peer-Review, Performance, Policy, Procedures, Professors, Rank, Recruitment, Review, Role, Science, Scientific Performance, Selection, Support, Universities, University

? Liu, X.Z. and Fang, H. (2014), Scientific group leaders’ authorship preferences: an empirical investigation. *Scientometrics*, **98** (2), 909-925.

Full Text: [2014\Scientometrics98, 909.pdf](2014/Scientometrics98,%20909.pdf)

Abstract: Leaders are important for scientific groups. Authors of a research paper whose names are listed in the byline first, last, or as the corresponding author are often considered particularly important to that paper. The authorship preferences of scientific group leaders are examined for seven research fields and 11 geographic locations. There are some similarities and differences among research fields and geographic locations in listing group leaders. In the fields of “Mathematics” and “Physics, Particles & Fields”, although the custom is for papers to list authors alphabetically, scientific group leaders from Egypt and Shanghai typically list their names first or last in the byline, the same as group leaders in other research fields. Opposite to the group leaders from other locations, leaders from Egypt often appear as the first authors. Scientific group leaders who are listed first in the byline typically also serve as the corresponding authors. For group leaders who are listed last in the byline, the proportion also serving as corresponding authors changes significantly. Accordingly, the proportion of papers in which group leaders are corresponding authors varies considerably among different research fields and geographic locations. The meaning of authorship for research group leaders is discussed in the end from the perspective of their roles in paper production.

Keywords: Authors, Authorship, Changes, Egypt, First, Groups, Investigation, Papers, Research, Shanghai

? Parinov, S. and Kogalovsky, M. (2014), Semantic linkages in research information systems as a new data source for scientometric studies. *Scientometrics*, **98** (2), 927-943.

Full Text: [2014\Scientometrics98, 927.pdf](2014/Scientometrics98,%20927.pdf)

Abstract: A growing number of research information systems use a semantic linkage technique to represent in explicit mode information about relationships between elements of its content. This practice is coming nowadays to a maturity when already existed data on semantically linked research objects and expressed by this scientific relationships can be recognized as a new data source for scientometric studies. Recent activities to provide scientists with tools for expressing in a form of semantic linkages their knowledge, hypotheses and opinions about relationships between available information objects also support this trend. The study presents one of such activities performed within the Socionet research information system with a special focus on (a) taxonomy of scientific relationships, which can exist between research objects, especially between research outputs; and (b) a semantic segment of a research e-infrastructure that includes a semantic interoperability support, a monitoring of changes in linkages and linked objects, notifications and a new model of scientific communication, and at last-scientometric indicators built by processing of semantic linkages data. Based on knowledge what is a semantic linkage data and how it is stored in a research information system we propose an abstract computing model of a new data source. This model helps with better understanding what new indicators can be designed for scientometric studies. Using current semantic linkages data collected in Socionet we present some statistical experiments, including examples of indicators based on two data sets: (a) what objects are linked and (b) what scientific relationships (semantics) are expressed by the linkages.

Keywords: Changes, Communication, Data, Experiments, Indicators, Information, Information Systems, Knowledge, Linkage, Mode, Model, Monitoring, Opinions, Practice, Recent, Research, Research Outputs, Scientific Communication, Scientists, Scientometric, Semantics, Source, Support, Systems, Taxonomy, Trend, Understanding

? Zhang, G.P., Guan, J.C. and Liu, X.L. (2014), The impact of small world on patent productivity in China. *Scientometrics*, **98** (2), 945-960.

Full Text: [2014\Scientometrics98, 945.pdf](2014/Scientometrics98,%20945.pdf)

Abstract: Based on the patent co-authorship data from State Intellectual Property Office of China, this paper examines the evolution of small world network and its impact on patent productivity in China. Compared with the western countries, the small-world phenomenon of the innovation network in China is becoming more obvious. Empirical result shows that the small world network may only have significant impact on patent productivity in those patent productive provinces, e.g., Beijing and Guangdong that filed larger number of patents. Although the collaborations in the network are more endurable in China than ones in western countries, it may be less efficient in transmitting knowledge because of large ratio of administration oriented state owned enterprises (SOEs). With larger ratio of SOEs, the small world network has longer path length and knowledge thus flows less efficiently in Beijing than in Guangdong. The policy implication of the findings lies in that the Chinese government should let the market rather than the administration determine the collaboration of technological innovation, in order to encourage innovation and establish an effective small world network for speeding up flow of knowledge among different type of firms during the innovative process.

Keywords: Administration, China, Chinese, Co-Authorship, Coauthorship, Collaboration, Collaborations, Data, Enterprises, Evolution, Flow, Impact, Innovation, Knowledge, Length, Market, Network, Patent, Patents, Policy, Productivity, Property, Small, State, Technological Innovation, World

? Michayluk, D. and Zurbruegg, R. (2014), Do lead articles signal higher quality in the digital age? Evidence from finance journals. *Scientometrics*, **98** (2), 961-973.

Full Text: [2014\Scientometrics98, 961.pdf](2014/Scientometrics98,%20961.pdf)

Abstract: Citations are regarded as measures of quality yet citation rates vary widely within each of the top finance journals. Since article ordering is at the discretion of editors, lead articles can be interpreted as signals of quality that academics can use to allocate their attention and assert the value of their publications. Advances in electronic journal access allow researchers to directly access articles, suggesting article ordering may be less relevant today. We confirm the past importance of lead articles by examining citation rates from published papers as well as the wider source of papers that are listed in Google Scholar. Our findings also confirm using Google Scholar as a citation source provides congruent results to using citations from articles published in ISI-listed journals, with the additional benefit of it potentially being more timely since it includes wider citation sources, inclusive of working and conference papers.

Keywords: Academics, Access, Age, Attention, Citation, Citation Rates, Citations, Evidence, Google, Google Scholar, Journal, Journals, Lead, Measures, Papers, Publications, Quality, Rates, Source, Sources, Value

? Kim, E., Cho, Y. and Kim, W. (2014), Dynamic patterns of technological convergence in printed electronics technologies: Patent citation network. *Scientometrics*, **98** (2), 975-998.

Full Text: [2014\Scientometrics98, 975.pdf](2014/Scientometrics98,%20975.pdf)

Abstract: the importance of the convergent approach to technology development has increased recently. Therefore, understanding the characteristics of technology convergence, which refers to the combination of two or more technological elements in order to create a new system with new functions, is an important issue not only for researchers in technology development, but also for company directors for their successful management of product competitiveness. Therefore, in order to investigate the patterns and the mechanism of technological convergence, we examine the printed electronics technology which has typical characteristics of technology convergence. Based on the printed electronics-related patents registered between 1976 and 2012, we perform network analysis of the technology components in order to identify key technologies which played a central role among the groups of convergence technologies and to examine their dynamic role corresponding to the development of technology convergence. The results show that control technologies which control the role of other technologies over the technology convergence process play significant role. The centrality value is highest in the case of control technology, and devices related technologies have the largest number of patents quantitatively, thereby confirming the results. In addition, the trajectory analysis of the centrality value reveals a co-evolution pattern in technology convergence.

Keywords: Analysis, Approach, Characteristics, Citation, Citation Network, Competitiveness, Control, Control Technology, Development, Dynamic, Functions, Groups, Management, Mechanism, Network, Network Analysis, Patent, Patents, Pattern, Role, Technologies, Technology, Trajectory, Understanding, Value

? Kim, M.J. (2014), A bibliometric analysis of publications by the School of Biological Sciences, Seoul National University, South Korea. *Scientometrics*, **98** (2), 999-1019.

Full Text: [2014\Scientometrics98, 999.pdf](2014/Scientometrics98,%20999.pdf)

Abstract: This study presents an in-depth survey of research and citation performance of the School of Biological Sciences (SBS) 39-member faculty at Seoul National University (SNU), The most prestigious university in South Korea, for the years 2004-2009. Thirty-nine faculty members published a total of 640 publications during the period, representing an average of 16.4 publications per scientist. Among the 640 publications, 521 (81.4 %) were cited 9,204 times, an average of 14.4 citations per publication. More publications co-authored by the SBS faculty with foreign researchers (mostly from the U.S.A.) were published in mainstream journals than publications by three other co-authorship types. Accordingly, publications by international co-authorships received more citations compared to citation levels of three other co-authorship types in terms of the average citations per publication. The study has found a concentration effect, whereby quite a small number of publications received approximately one-third of the citation performance generated by the SBS faculty at SNU. The results demonstrate that the citation performance of the SBS at SNU can be influenced considerably by the presence and productivity of ‘star’ scientists.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Citation, Citations, Co-Authorship, Coauthorship, Concentration, Faculty, International, Journals, Korea, Performance, Productivity, Publication, Publications, Research, Sciences, Scientists, Small, South Korea, Survey, University

? Zhai, L., Yan, X.B. and Zhu, B. (2014), The H-l -index: improvement of h-index based on quality of citing papers. *Scientometrics*, **98** (2), 1021-1031.

Full Text: [2014\Scientometrics98, 1021.pdf](2014/Scientometrics98,%201021.pdf)

Abstract: This paper proposes h(l) -index as an improvement of the h-index, a popular measurement for the research quality of academic researchers. Although the h-index integrates the number of publications and the academic impact of each publication to evaluate the productivity of a researcher, it assumes that all papers that cite an academic article contribute equally to the academic impact of this article. This assumption, of course, could not be true in most times. The citation from a well-cited paper certainly brings more attention to the article than the citation from a paper that people do not pay attention to. It therefore becomes important to integrate the impact of papers that cite a researcher’s work into the evaluation of the productivity of the researcher. Constructing a citation network among academic papers, this paper therefore proposes h(l) -index that integrating the h-index with the concept of lobby index, a measures that has been used to evaluate the impact of a node in a complex network based on the impact of other nodes that the focal node has direct link with. This paper also explores the characteristics of the proposed h (l) -index by comparing it with citations, h-index and its variant g-index.

Keywords: Attention, Characteristics, Citation, Citation Network, Citations, Concept, Course, Evaluation, g Index, g-Index, h Index, h-Index, Impact, Improvement, Index, Measurement, Measures, Network, Papers, Productivity, Publication, Publications, Quality, Quality Of, Research, Research Quality, Work

? Koler-Povh, T., Juznic, P. and Turk, G. (2014), Impact of open access on citation of scholarly publications in the field of civil engineering. *Scientometrics*, **98** (2), 1033-1045.

Full Text: [2014\Scientometrics98, 1033.pdf](2014/Scientometrics98,%201033.pdf)

Abstract: the development of science is accompanied by growth of scholarly publications, primarily in the form of articles in peer-reviewed journals. Scientific work is often evaluated through the number of scientific publications in international journals and their citations. This article discusses the impact of open access (OA) on the number of citations for an institution from the field of civil engineering. We analyzed articles, published in 2007 in 14 international journals with impact factor, which are included in the Journal Citation Reports subject category “Civil Engineering”. The influence of open access on the number of citations was analyzed. The aim of our research was to determine if open access articles from the field of civil engineering receive more citations than non-open access articles. Based on the value of impact factor and ranking in quartiles, we also looked at the influence of the rank of journals on the number of citations, separately for OA and Non OA articles, in databases Web of Science (WOS), Scopus and Google Scholar. For 2,026 studied articles we found out that 22 % of them were published as OA articles. They received 29 % of all citations in the observed period. We can conclude by the significance level 5 % or less that in the databases WOS and Scopus the articles from top ranked journals (first quartile) achieved more citations than Non OA articles. This argument can be confirmed for some other journals from second quartile as well, while for the journals ranked into the third quartile it can’t be confirmed. This could be confirmed only partly for journals from the second quartile, and would not be confirmed for journals ranked into the third quartile. This shows that open access is not a sufficient condition for citation, but increases the number of citations for articles published in journals with high impact.

Keywords: Access, Citation, Citations, Civil Engineering, Databases, Development, Engineering, Field, First, Google, Google Scholar, Growth, Impact, Impact Factor, Influence, International, Journal, Journal Citation Reports, Journals, Non, Open, Open Access, Peer Reviewed Journals, Peer-Reviewed, Publications, Rank, Ranking, Research, Science, Scientific Publications, Scopus, Significance, Value, Web of Science, Work, Wos

? Bougrine, H. (2014), Subfield effects on the core of coauthors. *Scientometrics*, **98** (2), 1047-1064.

Full Text: [2014\Scientometrics98, 1047.pdf](2014/Scientometrics98,%201047.pdf)

Abstract: It is examined whether the number (J) of (joint) publications of a “main scientist” with her/his coauthors ranked according to rank (r) importance, i.e. J proportional to 1/r, as found by Ausloos (Scientometrics 95:895-909, 2013) still holds for subfields, i.e. when the “main scientist” has worked on different, sometimes overlapping, subfields. Two cases are studied. It is shown that the law holds for large subfields. As shown, in an Appendix, is also useful to combine small topics into large ones for better statistics. It is observed that the sub-cores are much smaller than the overall coauthor core measure. Nevertheless, the smallness of the core and sub-cores may imply further considerations for the evaluation of team research purposes and activities.

Keywords: Effects, Evaluation, Law, Measure, Overlapping, Publications, Rank, Research, Scientometrics, Small, Statistics

? Wang, Y.D. and Li-Ying, J. (2014), How do the BRIC countries play their roles in the global innovation arena? A study based on USPTO patents during 1990-2009. *Scientometrics*, **98** (2), 1065-1083.

Full Text: [2014\Scientometrics98, 1065.pdf](2014/Scientometrics98,%201065.pdf)

Abstract: This paper proposes a new taxonomy for the internationalization patterns of innovation of the BRIC countries within the global innovation landscape during the period 1990-2009. Based on the BRICs’ patents granted by the USPTO, we find (1) the BRICs gradually increased their roles in the global innovation arena with various degrees of internationalization; (2) the domestic-dominant pattern has widely countered the foreign dominance of innovation, while the collaborative multi-dominant pattern has increased; (3) a divergence of the BRICs’ global innovation output growth emerged, while their internationalization pattern portfolios evolved towards greater similarity; and (4) China has differentiated itself by increasing its global innovation influence.

Keywords: BRIC Countries, BRICs, China, Global, Growth, Influence, Innovation, Internationalization, Landscape, Patents, Pattern, Similarity, Taxonomy

? Huang, M.H., Chen, S.H., Lin, C.Y. and Chen, D.Z. (2014), Exploring temporal relationships between scientific and technical fronts: A case of biotechnology field. *Scientometrics*, **98** (2), 1085-1100.

Full Text: [2014\Scientometrics98, 1085.pdf](2014/Scientometrics98,%201085.pdf)

Abstract: Biotechnology is an expanding interdisciplinary field in which the interactions of science and technology (S&T) are more and more intensified. Question raised regarding the dynamic interactions between S&T encourages us to propose a series of methodologies for examination. Using high-impact publications and patents as the proxy measures, two document sets are transformed into the scientific and technical front trajectories respectively, and then each subject is categorized into either basic science, or applied technology, or co-existence. The results show that, in the biotechnology field, subjects of embryonic or mesenchymal stem cells, RNA interference, microRNA, and microbial fuel cell are in the basic science phase; those of plant breeding, seed diversity, and taste receptors have been applied to practice. There also exists interactions between S&T in the subjects of disease treatment and gene analysis platform, in which the behavior of technology precedes science, science precedes technology, or synchronous development can be observed.

Keywords: Analysis, Behavior, Biotechnology, Development, Disease, Diversity, Dynamic, Embryonic, Examination, Field, Fuel Cell, Gene, Interdisciplinary, Measures, Mesenchymal Stem Cells, Methodologies, Microbial, Microrna, Patents, Plant, Practice, Publications, RNA, Science, Science and Technology, Stem Cells, Technology, Temporal, Treatment

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Full Text: [2014\Scientometrics98, 1101.pdf](2014/Scientometrics98,%201101.pdf)

Abstract: Papers that have received 1,000 or more citations, referred to as champion works here, pertaining to China and India have been studied. China had its first champion work 4 years after India had its in 1983. While India was ahead of China in the initial years, China increased its tally of champion works during 2001-2010 and has raced ahead of India during that decade. All the champion works of both the countries have been published in foreign journals except for the one Indian paper that has been published in an Indian journal. Most champion works of India have been in physics whereas it has been in biological/biomedical sciences for China. USA, Japan, Germany, England and France are some of the leading countries that India and China have collaborated with for their champion works. Leading institutions of both countries are also listed.

Keywords: Bibliometric, Characteristics, China, Citations, England, First, France, Germany, India, Institutions, Japan, Journal, Journals, Sciences, USA, Work

? Campanario, J.M. and Cabos, W. (2014), The effect of additional citations in the stability of Journal Citation Report categories. *Scientometrics*, **98** (2), 1113-1130.

Full Text: [2014\Scientometrics98, 1113.pdf](2014/Scientometrics98,%201113.pdf)

Abstract: We use a new approach to study the ranking of journals in JCR categories. The objectives of this study were to empirically evaluate the effect of increases in citations on the computation of the journal impact factor (JIF) for a large set of journals as measured by changes in JIF, and to ascertain the influence of additional citations on the rank order of journals according their new JIFs within JCR groups. To do so, modified JIFs were computed by adding additional citations to the number used by Thomson-Reuters to compute the JIF of journals listed in the JCR for 2008. We considered the effect on rank order of a given journal of adding 1, 2, 3 or more citations to the number used to compute the JIF, keeping everything else equal (i.e., without changing the JIF of other journals in a given group). The effect of additional citations on the internal structure of rankings in JCR groups increased with the number of citations added. In about one third of JCR groups, about half the journals changed their rank order when 1-5 citations were added. However, in general the rank order tended to be relatively stable after small increases in citations.

Keywords: Approach, Changes, Citation, Citations, Computation, General, Groups, Impact, Impact Factor, Influence, JCR, Journal, Journal Citation Report, Journal Impact, Journal Impact Factor, Journals, Modified, Rank, Ranking, Rankings, Small, Stability, Structure, Thomson Reuters, Thomson-Reuters

? Sud, P. and Thelwall, M. (2014), Evaluating altmetrics. *Scientometrics*, **98** (2), 1131-1143.

Full Text: [2014\Scientometrics98, 1131.pdf](2014/Scientometrics98,%201131.pdf)

Abstract: the rise of the social web and its uptake by scholars has led to the creation of altmetrics, which are social web metrics for academic publications. These new metrics can, in theory, be used in an evaluative role, to give early estimates of the impact of publications or to give estimates of non-traditional types of impact. They can also be used as an information seeking aid: to help draw a digital library user’s attention to papers that have attracted social web mentions. If altmetrics are to be trusted then they must be evaluated to see if the claims made about them are reasonable. Drawing upon previous citation analysis debates and web citation analysis research, this article discusses altmetric evaluation strategies, including correlation tests, content analyses, interviews and pragmatic analyses. It recommends that a range of methods are needed for altmetric evaluations, that the methods should focus on identifying the relative strengths of influences on altmetric creation, and that such evaluations should be prioritised in a logical order.

Keywords: Analyses, Analysis, Attention, Citation, Citation Analysis, Correlation, Estimates, Evaluation, Impact, Information, Interviews, Methods, Metrics, Papers, Publications, Research, Role, Social, Theory, Uptake, Web

? Chen, Y.S., Shih, C.Y. and Chang, C.H. (2014), Explore the new relationship between patents and market value: A panel smooth transition regression (PSTR) approach. *Scientometrics*, **98** (2), 1145-1159.

Full Text: [2014\Scientometrics98, 1145.pdf](2014/Scientometrics98,%201145.pdf)

Abstract: This paper is the first research applying the new approach, panel smooth transition regression (PSTR) model, in the field of patent analysis. This study uses PSTR model to verify whether there is a single threshold effect of Herfindahl-Hirschman Index of patents (HHI of patents) on the relationship between patents and market value in the American pharmaceutical industry. The results demonstrate that HHI of patents moderates the relationship between market value and patent performance, patent counts/assets and patent citations/assets. When HHI of patents is less than or equal to the threshold value, 0.3220, the positive relationship between patent performance and market value is lower. Once HHI of patents is more than the threshold value, 0.3220, the positive relationship between patent performance and market value is higher. This study points out that the second regime is optimal because the extent of the positive relationship between patent performance and market value is higher.

Keywords: Analysis, Approach, Field, First, Market, Model, Patent, Patent Analysis, Patents, Performance, Pharmaceutical Industry, Regression, Research, Threshold, Value

? Hartley, J. and Cabanac, G. (2014), Do men and women differ in their use of tables and graphs in academic publications? *Scientometrics*, **98** (2), 1161-1172.

Full Text: [2014\Scientometrics98, 1161.pdf](2014/Scientometrics98,%201161.pdf)

Abstract: In psychological research there is huge literature on differences between the sexes. Typically it used to be thought that women were more verbally and men more spatially oriented. These differences now seem to be waning. In this article we present three studies on sex differences in the use of tables and graphs in academic articles. These studies are based on data mining from approximately 2,000 articles published in over 200 peer-reviewed journals in the sciences and social sciences. In Study 1 we found that, in the sciences, men used 26 % more graphs and figures than women, but that there were no significant differences between them in their use of tables. In Study 2 we found no significant differences between men and women in their use of graphs and figures or tables in social science articles. In Study 3 we found no significant differences between men and women in their use of what we termed ‘data’ and ‘text’ tables in social science articles. It is possible that these findings indicate that academic writing is now becoming a genre that is equally undertaken by men and women.

Keywords: Data, Data Mining, Data-Mining, Journals, Literature, Men, Mining, Peer Reviewed Journals, Peer-Reviewed, Psychological, Publications, Research, Science, Sciences, Sex, Sex Differences, Social, Social Sciences, Women

? Plotnikova, T. and Rake, B. (2014), Collaboration in pharmaceutical research: Exploration of country-level determinants. *Scientometrics*, **98** (2), 1173-1202.

Full Text: [2014\Scientometrics98, 1173.pdf](2014/Scientometrics98,%201173.pdf)

Abstract: In this paper we focus on proximity as one of the main determinants of international collaboration in pharmaceutical research. We use various count data specifications of the gravity model to estimate the intensity of collaboration between pairs of countries as explained by the geographical, cognitive, institutional, social, and cultural dimensions of proximity. Our results suggest that geographical distance has a significant negative relation to the collaboration intensity between countries. The amount of previous collaborations, as a proxy for social proximity, is positively related to the number of cross-country collaborations. We do not find robust significant associations between cognitive proximity or institutional proximity with the intensity of international research collaboration. Our findings for cultural proximity do not allow of unambiguous conclusions concerning their influence on the collaboration intensity between countries.

Keywords: Collaboration, Collaborations, Cultural, Data, Influence, Intensity, International, International Collaboration, Model, Research, Research Collaboration, Social

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Full Text: [2014\Scientometrics98, 1203.pdf](2014/Scientometrics98,%201203.pdf)

Abstract: Aquatic ecosystems are ecologically important, but continuously threatened by a growing number of human induced changes. This study evaluates the research trends of “aquatic ecosystem” between 1992 and 2011 in journals of all subject categories of the science citation index and social sciences citation index. The analyzed parameters include publication output, cited publication, document type, language, distributions of journal, author, country and institutes, and analysis of author keywords and keywords plus. The results showed that over the past two decades, there was a consistent growth in publication output with involvement of increasing number of countries and institutions, and North America was still the leading region in the subject. Classification of the top 30 author keywords indicated that more research attentions were paid to the study on aquatic organism, water environment and aquatic ecosystem condition. Aquatic ecosystem, water quality, and fish were the top three most frequently used author keywords. In addition, owing to its significant impact on aquatic ecosystems, climate change has been placed crucial emphasis recently. Aquatic ecosystem research trend was shifting from water environment to aquatic ecosystem wide issues.

Keywords: Analysis, Aquatic, Aquatic Ecosystem, Aquatic Ecosystems, Changes, Citation, Citation Index, Classification, Climate, Climate Change, Country, Ecosystem, Ecosystems, Environment, Fish, Global Trend, Growth, Human, Impact, Index, Induced, Institutions, Issues, Journal, Journals, Language, North, North America, Publication, Quality, Region, Research, Research Trend, Research Trends, Science, Science Citation Index, Sciences, Social, Social Sciences, Threatened, Trend, Trends, Water, Water Environment, Water Quality, Water-Quality

? Niu, F.G. and Qiu, J.P. (2014), Network structure, distribution and the growth of Chinese international research collaboration. *Scientometrics*, **98** (2), 1221-1233.

Full Text: [2014\Scientometrics98, 1221.pdf](2014/Scientometrics98,%201221.pdf)

Abstract: the paper studied 211,946 articles indexed in Thomson Reuters’s Web of Science from January 1st 2002 to December 31st 2011, in order to describe the growth and distribution of Chinese international research collaboration (IRC), from the perspective of amount, authors, countries, discipline fields and journals. By applying bibliometric and social network methods, this study provided the collaboration network of countries and fields. The main results were as follow: the number of article increased faster comparing with the stable growth in average annual of IRC degree; the articles collaborated with SAC are 80 % more than all IRC’s; as to the fields, collaboration in Social science is at disadvantage, while the largest field is physics and the fastest field is molecular biology and genetics; mathematics, physics, multidisciplinary and space science had more in fluencies than others in corresponding respective journals; as to the network, USA, as the largest and most important partner, had 30 % IRC articles, and collaborated with China in all 22 ESI fields.

Keywords: Authors, Bibliometric, Biology, Biology and Genetics, China, Chinese, Collaboration, Distribution, ESI, Field, Genetics, Growth, International, Journals, Methods, Molecular Biology, Multidisciplinary, Network, Network Structure, Partner, Research, Research Collaboration, Science, Social, Social Science, Structure, USA, Web of Science

? Pinto, M., Quesada, D.G. and Granell, X. (2014), Dissemination of information and visibility of the European Higher Education Area through the websites of Spanish universities: A longitudinal metric analysis, 2007-2012. *Scientometrics*, **98** (2), 1235-1255.

Full Text: [2014\Scientometrics98, 1235.pdf](2014/Scientometrics98,%201235.pdf)

Abstract: This paper draws on the findings from previous research work to present the UNIWEEES tool, designed to evaluate the quality of university websites that provide information about the European Higher Education Area (EHEA), already a reality, and the way they disseminate this information. This tool includes seven criteria (visibility, authority, updatedness, accessibility, dissemination of information, quality assessment, and navigability), further divided into 29 subcriteria that include 60 indicators. A peer-to-peer expert unified evaluation methodology was followed. Findings are presented here, focusing on the strengths and weaknesses of the information provided about the EHEA by the websites of Spanish universities and their dissemination strategies, in particular through their evolution along the last 5 years. Conclusions highlight a number of best practices identified and provide some guidelines to improve the evaluated aspects and dimensions, thus strengthening the role played by the university websites as quality information sources for the scholar community and the society.

Keywords: Analysis, Assessment, Community, Criteria, Dissemination, Education, Evaluation, Evolution, Guidelines, Indicators, Information, Longitudinal, Methodology, Practices, Quality, Quality Of, Research, Research Work, Role, Society, Sources, Spanish Universities, Universities, University, Visibility, Websites, Work

? Franses, P.H. (2014), Trends in three decades of rankings of Dutch economists. *Scientometrics*, **98** (2), 1257-1268.

Full Text: [2014\Scientometrics98, 1257.pdf](2014/Scientometrics98,%201257.pdf)

Abstract: This paper analyzes more than 30 years of rankings of the best 40 Dutch economists, and examines if performance in terms of weighted publications increased. One of the findings is that over time the differences between top-performers and those lower on the charts decrease, but also that the group of top-performers is small and persistent over the years. Further, the average scores of ranked economists also increase over time. At the same time, new entries usually decrease in the subsequent years. Finally, after 20 years the charts contain 95 % new names and, in general, inclusion in the rankings usually lasts only for about 5 years.

Keywords: Dutch, General, Performance, Publications, Rankings, Small, Trends

? Hu, Y., Sun, J., Li, W.M. and Pan, Y.L. (2014), A scientometric study of global electric vehicle research. *Scientometrics*, **98** (2), 1269-1282.

Full Text: [2014\Scientometrics98, 1269.pdf](2014/Scientometrics98,%201269.pdf)

Abstract: A scientometric analysis was applied in this work to evaluate the status and trends of electric vehicle papers published between 1993 and 2012 in any journal of all the subject categories of the Web of Science. Electric vehicle was used as a keyword to search parts of titles, abstracts, or keywords. Publication trends were analyzed by the retrieved results in publication outputs, subject categories and publication pattern, international productivity. The document co-citation analysis was done in CitespaceII to find out the intellectual base and research fronts of electric vehicle. The articles about electric vehicle increased fast in the last 20 years. 11 document types were found in all electric vehicle-related papers and proceedings paper was the most frequently used document type. Language analysis showed that English was the most dominating language. “Engineering electrical electronic”, “Energy fuels” and “Transportation science technology” were the top three most popular subject categories. Journal of Power Sources, IEEE Transaction on Vehicular Technology and IEEE Transaction on Industrial Electronics were the representative journals in the field of electric vehicle. The USA, China and Japan were the most productive countries. University of Michigan, Harbin Institute of Technology and Ohio State University were the most productive countries. Vehicle-to-grid technology, control strategy, combination of power management and traffic information from GPS, plug-in electric vehicle, architectures and modeling, battery and policy about electric vehicle are the research fronts of electric vehicle.

Keywords: Analysis, China, Co-Citation, Co-Citation Analysis, Cocitation, Control, Field, Global, GPS, Information, Intellectual Base, International, Japan, Journal, Journals, Language, Management, Michigan, Modeling, Ohio, Papers, Pattern, Plug-In, Policy, Power, Productivity, Publication, Research, Research Fronts, Science, Scientometric, Scientometric Analysis, Strategy, Technology, Traffic, Trends, University, USA, Vehicle, Web of Science, Work

? Ruiz-Conde, E. and Calderon-Martinez, A. (2014), University institutional repositories: competitive environment and their role as communication media of scientific knowledge. *Scientometrics*, **98** (2), 1283-1299.

Full Text: [2014\Scientometrics98, 1283.pdf](2014/Scientometrics98,%201283.pdf)

Abstract: Are institutional repositories mere warehouses for digital documents or are they in fact establishing themselves as a rigorous option for the spread of scientific knowledge? This study analyses the competitive environment of the Top100 university repositories, defined as leaders in terms of market participation and penetration. The study also analyses the basic functionalities of preservation and diffusion of academic production through factors related to the prestige of the repositories and of the institutions that operate them. The results show that repositories with a larger digital academic supply are associated with the production of demonstrated scientific rigor.

Keywords: Analyses, Communication, Competitive, Diffusion, Environment, Institutions, Knowledge, Market, Media, Participation, Preservation, Role, University

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Full Text: [2014\Scientometrics98, 1301.pdf](2014/Scientometrics98,%201301.pdf)

Abstract: This paper concerns the development and use of a new interdisciplinary graphical approach in the statistical analysis of complexity of sentence structure for scientometric purposes. A scheme in three-dimensional space (barycentric plot) is used for a graphical representation of scientific research text correlations between the number of characters, the number of words, and the number of complex syllable words for sentences of several monolingual corpuses. The barycentric plots do not only drastically increase the visual information content in a given corpus, but at equal conditions of text-based corpus, they also contribute to the comparative analysis of different kinds of subject, section, author-style, journal, field, etc. As illustrated in present study, the proposed graphical approach can have broad implications and practical applications not only in scientometric field, but also in statistical linguistics, stylistic text research, and informetric research. This article explores the interdisciplinary approach research and applications of different areas of knowledge.

Keywords: Analysis, Application, Approach, Complexity, Correlations, Development, Field, Information, Interdisciplinary, Journal, Knowledge, Representation, Research, Scientific Research, Scientometric, Statistical Analysis, Structure, Three-Dimensional

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Full Text: [2014\Scientometrics98, 1331.pdf](2014/Scientometrics98,%201331.pdf)

Abstract: Articles published between January 1, 2006 and December 31, 2010 in 42 forestry journals (N = 16,258) were collected and, depending on their content and key words, classified in one of 22 sub-disciplines. Among the forestry sub-disciplines, the following are currently dominant: Mensuration and inventories, Forest management, Plant ecophysiology and Wood science. PCA ordination was used to visualize grouping tendencies and data separation. For each component, a number of characteristics contributed to the total variation, and significant importance was attached to those with the highest loading factors. The first component included Mensuration and inventories, Plant ecophysiology, Vegetation ecology and Forest management, as the highest loading factors. The second components comprised Sociological aspects, Plant ecophysiology, Wood science and Forest management. The most pronounced increase trend over the five-year period is noted for Genetics and breeding, Vegetation ecology, Fuels and energy, while the most pronounced decrease trend is visible in Forest health, Forest fire, Sociological aspects and Forest products. PCA suggests the existence of three groups of journals: the first group comprises Forest Ecology and Management and Canadian Journal of Forest Research, the dominating two, the second group comprises Annals of Forest Science, Plant Ecology, Tree Physiology and Trees-Structure and Function, while the rest of the journals belong to the third group. The Canadian Journal of Forest Research is the most diversified, while Tree Genetics and Genomes, Silvae Genetica and Tree-ring Research are narrowly specialized.

Keywords: Articles, Characteristics, Data, Ecology, Energy, First, Forestry, Fuels, Function, Genetics, Groups, Health, Journal, Journals, Loading, Management, N, PCA, Research, Research Trends, Science, Separation, Trend, Trends, Wood

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Full Text: [2014\Scientometrics98, 1347.pdf](2014/Scientometrics98,%201347.pdf)

Abstract: the Academic Ranking of World Universities (ARWU) published by researchers at Shanghai Jiao Tong University has become a major source of information for university administrators, country officials, students and the public at large. Recent discoveries regarding its internal dynamics allow the inversion of published ARWU indicator scores to reconstruct raw scores for 500 world class universities. This paper explores raw scores in the ARWU and in other contests to contrast the dynamics of rank-driven and score-driven tables, and to explain why the ARWU ranking is a score-driven procedure. We show that the ARWU indicators constitute sub-scales of a single factor accounting for research performance, and provide an account of the system of gains and non-linearities used by ARWU. The paper discusses the non-linearities selected by ARWU, concluding that they are designed to represent the regressive character of indicators measuring research performance. We propose that the utility and USAbility of the ARWU could be greatly improved by replacing the unwanted dynamical effects of the annual re-scaling based on raw scores of the best performers.

Keywords: Academic, ARWU, Country, Dynamics, Effects, Indicator, Indicators, Information, Inversion, Performance, Procedure, Public, Ranking, Recent, Research, Research Performance, Shanghai, Source, Students, Universities, University, USAbility, Utility, World

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Full Text: [2014\Scientometrics98, 1367.pdf](2014/Scientometrics98,%201367.pdf)

Abstract: Quality in Higher Education Institutions is the subject of several debates in the academic community in a worldwide basis and various efforts are made towards identifying ways to quantify it. In this respect, the use of bibliometrics gains significant ground as an effective tool for the evaluation of universities’ research output. In the present study, the research performance of the seven Greek medical schools is assessed by means of widely accepted and advanced bibliometric indices, such as total and average publications and citations, average and median h- and g-index with and without self-citations for all the 1,803 academics, while statistical analysis of the data was also performed in order to compare the observed differences in the mean values of the calculated indices. Considerable effort was exerted to overcome all inherent limitations of a bibliometric analysis through a meticulous data collection. This large-scale work was conducted both in school and academic rank level leading to interesting results concerning the scientific activity of the medical schools studied as units and of the various academic ranks separately, which can be partially justified with geographic and socioeconomic criteria. In general, bibliometrics demonstrate statistically significant difference in favour of Crete University medical school, while it was also found that self-citations have only marginal effect on the individual’s research profile and the average indices. Finally, the useful findings of the present study render the methodology adopted of high viability for assessing the research performance of Higher Education Institutions even in a broader context.

Keywords: Academics, Activity, Analysis, Assessing, Bibliometric, Bibliometric Analysis, Bibliometrics, Citations, Collection, Community, Context, Criteria, Data, Data Collection, Education, Evaluation, G Index, G-Index, General, Indices, Medical, Medical Schools, Methodology, Performance, Publications, Quality, Rank, Research, Research Output, Research Performance, Self-Citations, Statistical Analysis, Universities, University, Viability, Work

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Full Text: [2014\Scientometrics98, 1385.pdf](2014/Scientometrics98,%201385.pdf)

Abstract: S-curves analysis allows to study evolution and trends in specific technological fields; its theoretical background establishes that in order to achieve the best results the analysis must be done using an independent variable that shows the effort invested in R&D activities and a dependent variable that shows the cumulative performance in that field. Actually, S-curves are built using time as independent variable because of the constraints associated in the search of investment data. This paper examines the use of patent data applications as a sample of effort; using geothermal field as a case study, it was possible to test the relationship of Patent applications and investment (R-squared, 0.86), in first place, and the construction of S-curves using patent applications count against performance (R-Squared, 0.947). Results show a high correspondence value and potential of using patent counts to direct technological performance studies.

Keywords: Analysis, Case Study, Construction, Cumulative, Data, Evolution, Field, First, Geothermal, Patent, Performance, Potential, R&D, Results, S-Curves, Source, Theoretical, Trends, Value

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Full Text: [2014\Scientometrics98, 1397.pdf](2014/Scientometrics98,%201397.pdf)

Abstract: It is shown that the “Jaccardized Czekanowski index” is actually a reinterpretation of the Ruzicka index. Thereby, it is proved that its one-complement is a true distance function, which makes it particularly suitable for use in similarity studies even with multidimensional statistical techniques.

Keywords: Function, Index, Multidimensional, Similarity, Techniques

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Full Text: [2014\Scientometrics98, 1401.pdf](2014/Scientometrics98,%201401.pdf)

Abstract: Science has become progressively more complex, requiring greater integration and collaboration between individuals, institutions and areas. Networking research establishes common rules and offers a suitable framework for this cooperation. Therefore, it is a good choice for both scientists and policy-makers. The objective of this study is to know whether the scientists perform better within these structures than outside them. As an example, we analysed the Biomedical Research Networking Centres in Spain and, for the exploratory investigation, we selected two disciplines (Psychiatry and Gastroenterology/Hepatology). The results showed that in every situation of networking research there were higher collaboration and impact rates. Furthermore, the main differences found between disciplines were related to the scope of cooperation, carried out at a more local level in Gastroenterology/Hepatology. Besides, HJ-Biplot technique allowed us to conclude that the outcomes may vary somewhat depending on the types of centres where the scientists work. Although further investigation is needed, the findings of this study might anticipate possible scenarios in which networking research could be the most natural way of collaboration.

Keywords: Analysis, Biomedical, Choice, Collaboration, Cooperation, Disciplines, Framework, Hj-Biplot, Impact, Institutions, Integration, Investigation, Local, Natural, Outcomes, Psychiatry, Rates, Research, Scenarios, Science, Scientists, Scope, Spain, Work

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Full Text: [2014\Scientometrics98, 1417.pdf](2014/Scientometrics98,%201417.pdf)

Keywords: Authorship

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Full Text: [2014\Scientometrics98, 1421.pdf](2014/Scientometrics98,%201421.pdf)

Keywords: Analyses, Bibliometric, Bibliometric Indicators, Data, Discovery, Indicators

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Full Text: [2014\Scientometrics98, 1423.pdf](2014/Scientometrics98,%201423.pdf)

Abstract: This study examines China’s performance on tissue engineering using scientometrics measures such as China’s global publication share, rank, growth rate and citation impact, its publications in various sub-fields, top journals in terms of national share based on last 5 years (2008-2012) publications data obtained from ISI Science citation index expanded database. We have also determined Chinese share with international collaborative papers at the national level, as well as h-core papers and high-cited papers, etc.

Keywords: Chinese, Citation, Citation Impact, Citation Index, Data, Database, Engineering, Global, Growth, Growth Rate, H-Core, Impact, Index, International, Isi, Journals, Measures, Papers, Performance, Publication, Publications, Rank, Science, Science Citation Index, Scientometrics, Tissue Engineering, Trend

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Full Text: [2014\Scientometrics98, 1435.pdf](2014/Scientometrics98,%201435.pdf)

Abstract: Taking articles written by mainland China scholars from management related 258 journals indexed by Web of Science database as the data sets, this paper analyses the output of scientific research of Chinese scholars. It studies the structure, characteristics and development trend of collaboration network of Chinese scholars in management research area through scientometrics and social network analysis approaches. We found that the accumulated number of Chinese authors and the accumulated number of articles published by Chinese authors in the 258 journals increases by exponential form, most of which focus on Operations research & Management science. About half of the articles come up through international collaboration and the accumulated number of articles written through collaboration between Chinese and overseas scholars display an exponential increase. The evolution studies of the collaboration network indicate that the collaboration of Chinese scholars in the field of management is on a sharp rise. However, the collaboration network has not yet stepped into a mature and steady stage. Nonetheless, a tendency towards the stable stage is unveiled.

Keywords: Analyses, Analysis, Authors, Characteristics, China, Chinese, Collaboration, Data, Database, Development, Evolution, Field, International, International Collaboration, Journals, Management, Network, Network Analysis, Research, Science, Scientific Research, Scientometrics, Social, Social Network Analysis, Structure, Trend, Web of Science

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Full Text: [2014\Scientometrics98, 1455.pdf](2014/Scientometrics98,%201455.pdf)

Abstract: This study investigates the contribution of Iranian women in high priority fields of science and technology based on their scientific production and citations according to the records of Web of Science (WoS) during 2000-2010. The methodology relies on scientometrics techniques. The statistical population of this study was composed of 7,138 records extracted from WoS in 2,275 of them women had contributed. The gender data of Iranian authors was obtained via the WoS Excel output, author profile in Scopus, browsing the homepage of author’s affiliated organization, searching in internet and sending email to the correspondents of paper. The descriptive results show that women in basic and applied sciences have more cooperation in comparison with technology and the most science products have been done in environmental field. Results show that 99 % of Iranian women research is done as joint publications and the average number of participants is three, four and two respectively. Most of the international cooperation is done with USA scientists and the main Iranian participant organization is Tehran University. The results indicated that there is a significant difference between scientific productivity of Iranian women in eight high priority fields of science and technology but no significant difference between pure and applied fields of science. Also, there is positive, direct and significant relationship between the number of authors and the score of citation to scientific products of women in high priority fields of science and technology.

Keywords: 2000-2010, Authors, Citation, Citations, Comparison, Cooperation, Data, Environmental, Field, Gender, International, International Cooperation, Methodology, Organization, Population, Productivity, Publications, Records, Research, Results, Science, Science and Technology, Sciences, Scientific Production, Scientific Productivity, Scientists, Scientometrics, Scopus, Techniques, Technology, University, USA, Web of Science, Women, Wos

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Full Text: [2014\Scientometrics98, 1473.pdf](../HO-reference/2014/Scientometrics98,%201473.pdf); [2013\Scientometrics-Ho5-1.pdf](../HO-reference/2013/Scientometrics-Ho5-1.pdf); [2013\Scientometrics-Ho5.pdf](../HO-reference/2013/Scientometrics-Ho5.pdf)

Abstract: A bibliometric analysis was conducted to evaluate the global scientific output of proteomics research in the Science Citation Index Expanded from 1995 to 2010. The document types, languages, journals, categories, countries, and institutions were analyzed to obtain publication patterns. Research focuses and trends were revealed by a word cluster method related to author keywords, title, abstract, and KeyWords Plus. Bradford’s Law and the correlation between keywords and institutions were identified to look deeper into the nature works. Proteomics and Journal of Proteome Research published the most articles in proteomics research. The researchers focused on the categories of biochemical research methods, and biochemistry and molecular biology. The USA and Harvard University were the most productive country and institution, respectively, while China was the fastest-growing country due to the support by Chinese government. The distribution of author keywords provided the important clues of hot issues. Results showed that mass spectrometry and two-dimensional gel electrophoresis had been the most frequently used research methods in the past 16 years; and cancer proteomics had a strong potential in the near future. Furthermore, biologists contributed significantly to proteomics research, and were more likely to co-operate with medical scientists.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Biochemistry, Biology, Bradford’s Law, Cancer, China, Chinese, Citation, Cluster, Correlation, Country, Distribution, Gel, Global, Harvard University, Institutions, Issues, Journal, Journals, Languages, Law, Mass Spectrometry, Medical, Methods, Molecular Biology, Potential, Proteomics, Publication, Research, Research Methods, Results, Science, Science Citation Index, Science Citation Index Expanded, Scientific Output, Scientists, Spectrometry, Support, Trends, University, USA

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Full Text: [2014\Scientometrics98, 1491.pdf](2014/Scientometrics98,%201491.pdf)

Abstract: Web of Science (wos) and scopus have often been compared with regard to user interface, countries, institutions, author sets, etc., but rarely employing a more systematic assessment of major research fields and national production. The aim of this study was to appraise the differences among major research fields in scopus and wos based on a standardized classification of fields and assessed for the case of an entire country (Slovenia). We analyzed all documents and citations received by authors who were actively engaged in research in Slovenia between 1996 and 2011 (50,000 unique documents by 10,000 researchers). Documents were tracked and linked to scopus and wos using complex algorithms in the Slovenian cobiss bibliographic system and sicris research system where the subject areas or research fields of all documents are harmonized by the Frascati/oecd classification, thus offsetting some major differences between wos and scopus in database-specific subject schemes as well as limitations of deriving data directly from databases. scopus leads over wos in indexed documents as well as citations in all research fields. This is especially evident in social sciences, humanities, and engineering & technology. The least citations per document were received in humanities and most citations in medical and natural sciences, which exhibit similar counts. Engineering & technology reveals only half the citations per document compared to the previous two fields. Agriculture is found in the middle. The established differences between databases and research fields provide the Slovenian research funding agency with additional criteria for a more balanced evaluation of research.

Keywords: Agriculture, Algorithms, Assessment, Authors, Bibliographic, Citations, Classification, Country, Criteria, Data, Databases, Engineering, Evaluation, Funding, Funding Agency, Humanities, Institutions, Interface, Medical, Natural, Natural Sciences, Research, Research Evaluation, Research Funding, Science, Sciences, Scopus, Slovenia, Social, Social Sciences, Technology, User Interface, Web of Science

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Full Text: [2014\Scientometrics98, 1505.pdf](2014/Scientometrics98,%201505.pdf)

Abstract: We study the evolution of scientific collaboration at Atapuerca’s archaeological complex along its emergence as a large-scale research infrastructure (LSRI). Using bibliometric and fieldwork data, we build and analyze co-authorship networks corresponding to the period 1992-2011. The analysis of such structures reveals a stable core of scholars with a long experience in Atapuerca’s fieldwork, which would control coauthorship-related information flows, and a tree-like periphery mostly populated by ‘external’ researchers. Interestingly, this scenario corresponds to the idea of a Equipo de Investigacin de Atapuerca, originally envisioned by Atapuerca’s first director 30 years ago. These results have important systemic implications, both in terms of resilience of co-authorship structures and of ‘oriented’ or ‘guided’ self-organized network growth. Taking into account the scientific relevance of LSRIs, we expect a growing number of quantitative studies addressing collaboration among scholars in this sort of facilities in general and, particularly, emergent phenomena like the Atapuerca case.

Keywords: Analysis, Bibliometric, Co-Authorship, Co-Authorship Networks, Coauthorship, Collaboration, Control, Data, Evolution, Experience, Facilities, First, General, Growth, Information, Infrastructure, Network, Networks, Relevance, Research, Resilience, Scenario, Scientific Collaboration

? Low, W.Y., Ng, K.H., Kabir, M.A., Koh, A.P. and Sinnasamy, J. (2014), Trend and impact of international collaboration in clinical medicine papers published in Malaysia. *Scientometrics*, **98** (2), 1521-1533.

Full Text: [2014\Scientometrics98, 1521.pdf](2014/Scientometrics98,%201521.pdf)

Abstract: Research collaboration is the way forward in order to improve quality and impact of its research findings. International research collaboration has resulted in international co-authorship in scientific communications and publications. This study highlights the collaborating research and authorship trend in clinical medicine in Malaysia from 2001 to 2010. Malaysian-based author affiliation in the Web of Science (Science Citation Index Expanded) and clinical medicine journals (n = 999) and articles (n = 3951) as of 30th Oct 2011 were downloaded. Types of document analyzed were articles and reviews, and impact factors (IF) in the 2010 Journal Citation Report Science Edition were taken to access the quality of the articles. The number of publications in clinical medicine increased from 4.5 % (n = 178) in 2001 to 23.9 % (n = 944) in 2010. The top three contributors in the subject categories are Pharmacology and Pharmacy (13.9 %), General and Internal Medicine (13.6 %) and Tropical Medicine (7.3 %). By journal tier system: Tier 1 (18.7 %, n = 738), Tier 2 (22.5 %, n = 888), Tier 3 (29.6 %, n = 1170), Tier 4 (27.2 %, n = 1074), and journals without IF (2.1 %, n = 81). University of Malaya was the most productive. Local collaborators accounted for 60.3 % and international collaborations 39.7 %. Articles with international collaborations appeared in journals with higher journal IFs than those without international collaboration. They were also cited more significantly than articles without international collaborations. Citations, impact factor and journal tiers were significantly associated with international collaboration in Malaysia’s clinical medicine publications. Malaysia has achieved a significant number of ISI publications in clinical medicine participation in international collaboration.

Keywords: Access, Affiliation, Articles, Authorship, Citation, Citations, Clinical, Co-Authorship, Coauthorship, Collaboration, Collaborations, Communications, Impact, Impact Factor, Impact Factors, International, International Collaboration, International Research Collaboration, ISI, ISI Publications, Journal, Journal Citation Report, Journals, Malaya, Malaysia, Medicine, Papers, Participation, Pharmacy, Publications, Quality, Quality Of, Research, Research Collaboration, Reviews, Science, Science Citation Index, Science Citation Index Expanded, Trend, Tropical Medicine, University, Web of Science

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Full Text: [2014\Scientometrics98, 1535.pdf](2014/Scientometrics98,%201535.pdf)

Abstract: A new quantitative method is introduced to analyze the collaboration among different organizations. The method defines the collaboration score based on the number of people involved in collaboration, and then the collaboration strength is obtained by summing up the collaboration scores with this method. We choose “Project 985” universities, which represent the top universities in China, as an example to study the collaboration network, strength in leading collaboration and strength in participating collaboration. Results based on Scopus show some characteristics of such collaboration and verify the feasibility of the new approach.

Keywords: Approach, Characteristics, China, Chinese, Collaboration, Collaborations, Feasibility, Investigation, Network, Results, Scopus, Strength, Universities

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Full Text: [2014\Scientometrics98, 1547.pdf](2014/Scientometrics98,%201547.pdf)

Abstract: Web of Science (WoS) and Google Scholar (GS) are prominent citation services with distinct indexing mechanisms. Comprehensive knowledge about the growth patterns of these two citation services is lacking. We analyzed the development of citation counts in WoS and GS for two classic articles and 56 articles from diverse research fields, making a distinction between retroactive growth (i.e., the relative difference between citation counts up to mid-2005 measured in mid-2005 and citation counts up to mid-2005 measured in April 2013) and actual growth (i.e., the relative difference between citation counts up to mid-2005 measured in April 2013 and citation counts up to April 2013 measured in April 2013). One of the classic articles was used for a citation-by-citation analysis. Results showed that GS has substantially grown in a retroactive manner (median of 170 % across articles), especially for articles that initially had low citations counts in GS as compared to WoS. Retroactive growth of WoS was small, with a median of 2 % across articles. Actual growth percentages were moderately higher for GS than for WoS (medians of 54 vs. 41 %). The citation-by-citation analysis showed that the percentage of citations being unique in WoS was lower for more recent citations (6.8 % for citations from 1995 and later vs. 41 % for citations from before 1995), whereas the opposite was noted for GS (57 vs. 33 %). It is concluded that, since its inception, GS has shown substantial expansion, and that the majority of recent works indexed in WoS are now also retrievable via GS. A discussion is provided on quantity versus quality of citations, threats for WoS, weaknesses of GS, and implications for literature research and research evaluation.

Keywords: Analysis, Citation, Citation Counts, Citations, Development, Evaluation, Google, Google Scholar, Growth, Gs, Indexing, Knowledge, Literature, Longitudinal, Mechanisms, Quality, Quality Of, Recent, Research, Research Evaluation, Results, Science, Services, Small, Web of Science, Wos

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Full Text: [2014\Scientometrics98, 1567.pdf](2014/Scientometrics98,%201567.pdf)

Abstract: From the application point of view, this article introduces the framework of the Chinese Social Science Citation Index (CSSCI). It expounds the idea of designing the CSSCI system, and its major functions and features in particular. The data organization as well as data encoding methods of the CSSCI system is well explained. Moreover, this article elaborates on how the citation index data can be used in analyzing discipline features, exploring research hotspots and developing trends, identifying important academic works and constructing academic network. Such efforts are supposed to help the readers better understand the application value of citation index system. It also provides the academic circle with a new understanding of citation index system.

Keywords: Application, Chinese, Citation, Citation Index, Citation Index Analysis, Citation Index System, CSSCI, Data, Databases, Design, Developing, Framework, Functions, Humanities, Index, Mar, Methods, Network, Organization, Research, Research Performance, Science, Science Citation Index, Social Science Citation Index, Trends, Understanding, Value

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Full Text: [2014\Scientometrics98, 1583.pdf](2014/Scientometrics98,%201583.pdf)

Abstract: We report on the development of an interface to the US Patent and Trademark Office (USPTO) that allows for the mapping of patent portfolios as overlays to basemaps constructed from citation relations among all patents contained in this database during the period 1976-2011. Both the interface and the data are in the public domain; the freeware programs VOSViewer and/or Pajek can be used for the visualization. These basemaps and overlays can be generated at both the 3-digit and 4-digit levels of the International Patent Classification (IPC) of the world intellectual property organization (WIPO). The basemaps can provide a stable mental framework for analysts to follow developments over searches for different years, which can be animated. The full flexibility of the advanced search engines of USPTO are available for generating sets of patents and/or patent applications which can thus be visualized and compared. This instrument allows for addressing questions about technological distance, diversity in portfolios, and animating the developments of both technologies and technological capacities of organizations over time.

Keywords: Algorithm, Citation, Citations, Classification, Constructed, Data, Database, Development, Diversity, Flexibility, Framework, Indicators, Innovation, Instrument, Intellectual Property, Interface, IPC, Map, Mapping, Mar, Networks, Organization, Overlay, Patent, Patents, Property, Public, Relations, Research-And-Development, Science, Spillovers, Technologies, Technology, US, USPTO, Visualization, World

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Full Text: [2014\Scientometrics98, 1601.pdf](2014/Scientometrics98,%201601.pdf)

Abstract: Getting cited is important for scholars and for the institutions in which they work. Whether because of the influence on scientific progress or because of the reputation of scholars and their institutions, understanding why some articles are cited more often than others can help scholars write more highly cited articles. This article builds upon earlier literature which identifies seemingly superficial factors that influence the citation rate of articles. Three Journal Citation Report subject categories are analyzed to identify these effects. From a set of 2,016 articles in Sociology, 6,957 articles in General & Internal Medicine, and 23,676 articles in Applied Physics, metadata from the Web of Knowledge was downloaded in addition to PDFs of the full articles. In this article number of words in title, number of pages, number of references, sentences in the abstract, sentences in the paper, number of authors and readability were identified as factors for analysis.

Keywords: Analysis, Applied Physics, Articles, Authors, Behavior, British, Citation, Citations, Collaboration, Effects, General & Internal Medicine, Highly Cited, Highly Cited Articles, Highly-Cited, Impact, Influence, Information, Institutions, Journal, Journal Citation Report, Journals, Knowledge, Literature, Mar, Medicine, Physics, Progress, Psychology, Readability, Readability, References, Reputation, Science, Scientific Progress, Sociology, Understanding, Web of Knowledge, Work

? Callaert, J., Pellens, M. and Van Looy, B. (2014), Sources of inspiration? Making sense of scientific references in patents. *Scientometrics*, **98** (3), 1617-1629.

Full Text: [2014\Scientometrics98, 1617.pdf](2014/Scientometrics98,%201617.pdf)

Abstract: Scientific references in patent documents can be used as indicators signaling science-technology interactions. Whether they reflect a direct ‘knowledge flow’ from science to technology is subject of debate. Based on 33 interviews with inventors at Belgian firms and knowledge-generating institutes active in nanotechnology, biotechnology and life sciences, we analyze the extent to which scientific references in patents reflect sources of inspiration. Our results indicate that scientific knowledge acts as a source of inspiration for about 50 % of the inventions. At the same time, the scientific references cited in patent documents and available in patent databases do not provide an accurate picture in this respect: 30 % of patents that were inspired by scientific knowledge do not contain any scientific references. Moreover, if scientific references are present, half of them are evaluated as unimportant or background information by the inventor. Overall, these observations provide evidence that scientific references in patent documents signal relatedness with the implied inventions without necessarily implying a direct, inspirational, knowledge flow between both activity realms.

Keywords: Academic Research, Activity, Biotechnology, Databases, Evidence, Examiner Citations, Flow, Indicators, Information, Innovations, Interviews, Inventions, Inventor Interviews, Knowledge, Knowledge Flow, Knowledge Flows, Life, Life Sciences, Linkage, Mar, Nanotechnology, Non-Patent References, Observations, Patent, Patents, Performance, References, Science, Science-Technology Interaction, Science-Technology Interactions, Sciences, Search, Signaling, Source, Sources, Technology, US

? Cabanac, G. (2014), Extracting and quantifying eponyms in full-text articles. *Scientometrics*, **98** (3), 1631-1645.

Full Text: [2014\Scientometrics98, 1631.pdf](2014/Scientometrics98,%201631.pdf)

Abstract: Eponyms are known to praise leading scientists for their contributions to science. Some are so widespread that they are even known by laypeople (e.g., Alzheimer’s disease, Darwinism). However, there is no systematic way to discover the distributions of eponyms in scientific domains. Prior work has tackled this issue but has failed to address it completely. Early attempts involved the manual labelling of all eponyms found in a few textbooks of given domains, such as chemistry. Others relied on search engines to probe bibliographic records seeking a single eponym at a time, such as Nash Equilibrium. Nonetheless, we failed to find any attempt of eponym quantification in a large volume of full-text publications. This article introduces a semi-automatic text mining approach to extracting eponyms and quantifying their use in such datasets. Candidate eponyms are matched programmatically by regular expressions, and then validated manually. As a case study, the processing of 821 recent Scientometrics articles reveals a mixture of established and emerging eponyms. The results stress the value of text mining for the rapid extraction and quantification of eponyms that may have substantial implications for research evaluation.

Keywords: Academic Publications, Alzheimer’S Disease, Approach, Bibliographic, Bibliometric Indicators, Case Study, Chemistry, Discovery, Disease, Eponymy, Equilibrium, Evaluation, Extraction, Fame, Hirsch-Index, History, Mar, Mining, Obliteration, Psychology, Publications, Quantification, Recent, Records, Regular, Regular Expressions, Research, Research Evaluation, Science, Scientists, Scientometrics, Sociology, Stress, Text Mining, Text-Mining, Textbooks, Value, Volume, Work

? Fry, T.D. and Donohue, J.M. (2014), Exploring the author affiliation index. *Scientometrics*, **98** (3), 1647-1667.

Full Text: [2014\Scientometrics98, 1647.pdf](2014/Scientometrics98,%201647.pdf)

Abstract: the Author Affiliation Index (AAI) for ranking a set of academic journals was first presented by Gorman and Kanet (Manuf Serv Oper Manag 7:3-19, 2005). Since that time, it has become a popular method for assessing journal quality in a myriad of academic disciplines. However, a recent paper published by Agrawal et al. (Prod Oper Manag 20:280-300, 2011) pointed out several potential problems with the AAI. In this paper, we present a modified AAI that incorporates several improvements to the original AAI and addresses the three concerns expressed by Agrawal. The modified AAI allows for international institutions, introduces a weighting factor to allow for a greatly expanded set of prestigious institutions, considers the entire population of articles published in a journal during a specified time period, and utilizes a batch means approach to data collection to allow for proper statistical inference. We illustrate the modified AAI using a set of ten well-known journals that publish Operations Research and Operations Management research. The primary intent of this paper, however, is not to rank these ten journals; rather these ten journals are simply used to illustrate the use of the newly developed modified AAI.

Keywords: Academic Affiliations, Affiliation, American-Psychological-Association, Approach, Article Authors, Assessing, Author Affiliation Index, Batch, Collection, Criminal-Justice Journals, Data, Data Collection, Disciplines, Economics Departments, First, Inference, Institutional Research Productivity, Institutions, International, Journal, Journal Quality, Journals, Management, Mar, Modified, Operations Management, Population, Potential, Primary, Publication Productivity, Quality, Rank, Ranking, Real-Estate Research, Recent, Research, Social-Work Journals, Time Period, Weighting

? Dubois, P., Rochet, J.C. and Schlenker, J.M. (2014), Productivity and mobility in academic research: Evidence from mathematicians. *Scientometrics*, **98** (3), 1669-1701.

Full Text: [2014\Scientometrics98, 1669.pdf](2014/Scientometrics98,%201669.pdf)

Abstract: Using an exhaustive database on academic publications in mathematics all over the world, we study the patterns of productivity by mathematicians over the period 1984-2006. We uncover some surprising facts, such as the weakness of age related decline in productivity and the relative symmetry of international movements, rejecting the presumption of a massive “brain drain” towards the US. We also analyze the determinants of success by top US departments. In conformity with recent studies in other fields, we find that selection effects are much stronger than local interaction effects: the best departments are most successful in hiring the most promising mathematicians, but not necessarily at stimulating positive externalities among them. Finally we analyze the impact of career choices by mathematicians: mobility almost always pays, but early specialization does not.

Keywords: Age, Age-Related, Database, Effects, Evidence, Externalities, Faculty Productivity, Hiring, Impact, Interaction, International, Local, Mar, Mobility, Organization of Research, Peer Effects In Science, Productivity, Publications, Recent, Research, Scientists, Selection, Success, Us, World

? Leydesdorff, L. and Zhou, P. (2014), Measuring the knowledge-based economy of China in terms of synergy among technological, organizational, and geographic attributes of firms. *Scientometrics*, **98** (3), 1703-1719.

Full Text: [2014\Scientometrics98, 1703.pdf](2014/Scientometrics98,%201703.pdf)

Abstract: Using the possible synergy among geographic, size, and technological distributions of firms in the Orbis database, we find the greatest reduction of uncertainty at the level of the 31 provinces of China, and an additional 18.0 % at the national level. Some of the coastal provinces stand out as expected, but the metropolitan areas of Beijing and Shanghai are (with Tianjin and Chongqing) most pronounced at the next-lower administrative level of (339) prefectures, since these four “municipalities” are administratively defined at both levels. Focusing on high- and medium-tech manufacturing, a shift toward Beijing, Shanghai, and Tianjin (near Beijing) is indicated, but the synergy is on average not enhanced. High- and medium-tech manufacturing is less embedded in China than in Western Europe. Knowledge-intensive services “uncouple” the knowledge base from the regional economies mostly in Chongqing and Beijing. Unfortunately, the Orbis data is incomplete since it was collected for commercial and not for administrative or governmental purposes. However, we provide a methodology that can be used by others who may have access to higher-quality statistical data for the measurement.

Keywords: Access, China, Coastal, Data, Database, Dynamics, Economy, Entropy, Europe, Knowledge, Knowledge Base, Knowledge-Based, Manufacturing, Mar, Measurement, Methodology, Mutual Information, Organizational, Reduction, Regional, Regional Innovation Systems, Services, Shanghai, Size, Synergy, Triple Helix, Triple-Helix Relations, Uncertainty, University-Industry-Government

? Huang, M.H. and Chang, C.P. (2014), Detecting research fronts in OLED field using bibliographic coupling with sliding window. *Scientometrics*, **98** (3), 1721-1744.

Full Text: [2014\Scientometrics98, 1721.pdf](2014/Scientometrics98,%201721.pdf)

Abstract: Research fronts represent cutting edge studies in specific fields. One can better understand current and future development trends in the relevant field when updated with trends in research fronts. This study uses bibliographic coupling and sliding window to explore the organic light-emitting diodes (OLED) research fronts from 2000 to 2009, and identifies eighteen research fronts that match those predicted by subject experts related to OLED materials. Closer observation of the evolution shows that among the eighteen research fronts, there are four emerging fronts, two growing fronts, eleven stable fronts, and one shrinking front. Bibliographic coupling with sliding window is an effective tool to track the generation, growth, decline, and disappearance of research fronts. Therefore, this analytical method has great potential in discovering the evolution of research fronts.

Keywords: Articles, Bibliographic, Bibliographic Coupling, Citation, Citation Windows, Cocitation Analysis, Core Documents, Development, Evolution, Experts, Field, Generation, Growth, Light-Emitting Devices, Mar, Networks, Observation, Oled, Organic, Patterns, Potential, Research, Research Fronts, Science, Scientific Papers, Sliding Window, Time, Trends

? Wang, X.F., Li, R.R., Ren, S.M., Zhu, D.H., Huang, M. and Qiu, P.J. (2014), Collaboration network and pattern analysis: Case study of dye-sensitized solar cells. *Scientometrics*, **98** (3), 1745-1762.

Full Text: [2014\Scientometrics98, 1745.pdf](2014/Scientometrics98,%201745.pdf)

Abstract: Nowadays, the development of emerging technology has become a double-edged sword in the scientific world. It can not only bring lots of innovation to society, but may also cause some terrible consequences due to its unknown factors. International collaboration may be able to reduce risks, which means a lot to the exploration of the emerging technology. Taking dye-sensitized solar cells (DSSCs) as an example, this paper examines the rapid growth of Chinese DSSCs research and the rise of collaboration between China and other countries/region. We use bibliometric and social network analysis methods to explore the patterns of scientific collaboration at country, institution and individual levels using data from the Science Citation Index. Examining overall trends shows that China has increased her position in DSSCs around the world. Furthermore, by focusing on the individual level, we find that the most influential authors tend to have fixed co-author networks and author name order, which is something worth considering. We use co-author analysis software independently developed to check three kinds of fixed co-author networks to explore author contributions, influence, and Author Activity Index rank in collaboration networks and use the rank we calculated to further explain author contributions in the networks. Results show that Chinese-X (e.g., Chinese-American) authors have pushed the collaboration between country and country and almost every kind of small network has a top author in it to gather others together. The modified author activity index rank list may reflect real research level. Author collaboration patterns have been impacted by the kinds of their institutions to some degree. These results can undoubtedly promote the international collaboration and the innovation process in the similar emerging technology fields.

Keywords: Activity, All-Author, Analysis, Author Activity Index, Authors, Authorship Collaboration, Bibliometric, Bibliometrics, Case Study, China, Chinese, Chinese-American, Citation, Co-Author, Collaboration, Collaboration Network, Collaboration Networks, Country, Data, Development, Dye-Sensitized Solar Cells, Growth, Index, Influence, Innovation, Institutions, International, International Collaboration, Mar, Methods, Modified, Nanotechnology, Network, Network Analysis, Networks, Pattern, Rank, Research, Results, Risks, Science, Science Citation Index, Science-And-Technology, Scientific Collaboration, Small, Social, Social Network Analysis, Society, Software, Solar Cells, Technology, Trends, Us Scientific Collaboration, World

? Wray, K.B. (2014), Specialization in philosophy: A preliminary study. *Scientometrics*, **98** (3), 1763-1769.

Full Text: [2014\Scientometrics98, 1763.pdf](2014/Scientometrics98,%201763.pdf)

Abstract: I examine the degree of specialization in various sub-fields of philosophy, drawing on data from the PhilPapers Survey. The following three sub-fields are highly specialized: Ancient philosophy, seventeenth/eighteenth century philosophy, and philosophy of physics. The following sub-fields have a low level of specialization: metaphilosophy, philosophy of religion, philosophy of probability, philosophy of the social sciences, decision theory, and philosophy of race and gender. Highly specialized sub-fields tend to require extensive knowledge in some area beyond the typical training of a philosopher, and outside of philosophy proper. In addition, there is a correlation between sub-field size and degree of specialization. Larger sub-fields tend to be more specialized.

Keywords: Correlation, Data, Decision, Gender, Knowledge, Mar, Philosophy, Race, Religion, Sciences, Size, Social, Social Sciences, Specialization, Sub-Fields, Theory, Training

? Garg, K.C. and Kumar, S. (2014), Scientometric profile of Indian scientific output in life sciences with a focus on the contributions of women scientists. *Scientometrics*, **98** (3), 1771-1783.

Full Text: [2014\Scientometrics98, 1771.pdf](2014/Scientometrics98,%201771.pdf)

Abstract: An analysis of 9,957 papers published by Indian scientists and indexed by WoS in 12 sub-disciplines of life sciences during 2008-2009 indicates that academic institutions produced the highest number of papers. of these, 340 (3.4 %) were contributed by female scientists exclusively and 4,671 (47 %) were written jointly by male and female scientists. Women scientists produced about 0.36 papers per author, while their male counter parts produced 0.50 papers per author. Significant number of women scientists was first author and about 23 % were corresponding authors in papers written jointly by both sexes. Women scientists emphasized on the sub-discipline of cell biology and reproductive biology and male scientists emphasized on the sub-discipline of zoology. Women scientists work in small teams and have very less international collaborative papers. Women scientists publish in low impact factor and domestic journals and also are cited less as compared to their male counter parts.

Keywords: Analysis, Authors, Biology, Citation-Index, Female, Female Scientists, First, Gender Studies, Gender-Differences, Impact, Impact Factor, India, Indicators, Institutions, International, Journals, Life, Life Sciences, Male, Mar, Papers, Publication Productivity, Reproductive Biology, Sciences, Scientific Output, Scientific Productivity, Scientists, Scientometric, Scientometrics, Small, Women, Women Scientists, Women Studies, Work, WOS

? Cho, Y. and Kim, W. (2014), Technology-industry networks in technology commercialization: evidence from Korean university patents. *Scientometrics*, **98** (3), 1785-1810.

Full Text: [2014\Scientometrics98, 1785.pdf](2014/Scientometrics98,%201785.pdf)

Abstract: Although there is increasing interest in policy issues on university patents, studies hitherto have focused on certain limited factors or case studies. By using a two-mode network analysis, this study identifies idiosyncratic patterns and differences in technology-industry networks between the two groups of Korean university patents-commercialized and non-commercialized. We collected patent data including bibliographic information from Korean universities that have run a patent management advisor dispatch program since 2005. Then, network analysis and analysis of variance for the two groups were conducted to investigate the group differences. We found that the structure of the technology-industry network was significantly more direct and simpler for commercialized than for non-commercialized patents. Specifically, we found that both direct and indirect linkages between technology and related industry were more complex for the non-commercialized group than for the commercialized one: the direct linkage was stronger for the commercialized than for the non-commercialized group. Our study suggests an important aspect of technology commercialization from the perspective of the inherent characteristics of patents, which is at variance with the evolutionary approaches of previous studies.

Keywords: Alliance Network, Analysis, Bibliographic, Case Studies, Characteristics, Collaboration, Countries, Data, Evidence, Groups, Information, Innovation, Institutions, Intellectual Property, Issues, Knowledge, Linkage, Management, Mar, Network, Network Analysis, Networks, Opportunities, Patent, Patents, Performance, Policy, Research-and-Development, Structure, Technology, Technology Commercialization, Universities, University, University Patent

? Kim, B., Gazzola, G., Lee, J.M., Kim, D., Kim, K. and Jeong, M.K. (2014), Inter-cluster connectivity analysis for technology opportunity discovery. *Scientometrics*, **98** (3), 1811-1825.

Full Text: [2014\Scientometrics98, 1811.pdf](2014/Scientometrics98,%201811.pdf)

Abstract: In today’s competitive business environment, the timely identification of potential technology opportunities is becoming increasingly important for the strategic management of technology and innovation. Existing studies in the field of technology opportunity discovery (TOD) focus exclusively on patent textual information. In this article, we introduce a new method that tackles TOD via technology convergence, using both patent textual data and patent citation networks. We identify technology groups with high convergence potential by measuring connectivity between clusters of patents. From such technology groups we select pairs of core patents based on their technological relatedness, on their past involvement in convergence, and on the impact of their new potential convergence. We finally carry out TOD by extracting representative keywords from the text of the selected patent pairs and organizing them into the basic description of a new invention, which the potential convergence of the patent pair might produce. We illustrate our proposed method using a data set of U.S. patents in the field of digital information and security.

Keywords: Analysis, Business, Citation, Competitive, Connectivity, Core Patent, Data, Data Set, Discovery, Documents, Environment, Field, Groups, Identification, Impact, Information, Innovation, Inter-Cluster Connectivity, Keyword, Management, Management of Technology, Mar, Network, Networks, Patent, Patent Analysis, Patent Citation Network, Patents, Potential, Security, Strategic, Strategic Management, Technology, Technology Convergence, Technology Opportunity, Trends

? Tang, E.Z., Liu, F., Sun, J. and Haider, Z. (2014), The relationship between scientists and science: Knowledge-based innovation output. *Scientometrics*, **98** (3), 1827-1835.

Full Text: [2014\Scientometrics98, 1827.pdf](2014/Scientometrics98,%201827.pdf)

Abstract: Many scientists were respected by people and science has made great development in the twentieth century. What role do scientists play in the process of scientific development? Does scientific development bring more researchers into scientists? This paper mainly analyzes the two interested questions and suggests that: (a) not all researchers’ output could be attributed to scientific knowledge, only the innovative output could promote science to develop. Scientists play a more significant role than the rest researchers in scientific development in average because scientists’ innovative consciousness is far higher than that of non-scientists. (b) Distinguishing scientists from researchers in accordance with the fixed basic contribution of innovative output in the process of scientific development. Researchers’ innovative work becomes easier with the accumulated scientific knowledge growing gradually in the initial stage of scientific development. Thus, scientific development could produce more and more scientists. On the contrary, researchers’ innovative work becomes more challenged with the accumulated scientific knowledge increasing gradually while science develops to a certain stage. As a result, scientific development would make researchers become scientist increasingly difficult.

Keywords: Consciousness, Development, Innovation, Knowledge, Knowledge-Based, Mar, Researchers, Role, Science, Scientists, Work

? Celik, E., Gedik, N., Karaman, G., Demirel, T. and Goktas, Y. (2014), Mistakes encountered in manuscripts on education and their effects on journal rejections. *Scientometrics*, **98** (3), 1837-1853.

Full Text: [2014\Scientometrics98, 1837.pdf](2014/Scientometrics98,%201837.pdf)

Abstract: the goal of this study was to identify common mistakes made in research study manuscripts submitted to journals of Education and the effects of these mistakes on rejection by the journal editors and referees. An online questionnaire was developed for this purpose with 43 items and five open-ended questions. Common mistakes were identified by administering the 43 questions, which were to be answered in two stages: first by using 5-point Likert scale responses, and then by responses arranged according to semantic differential scale (for the effects of the mistakes on rejections). The online questionnaire was sent to the editors and referees of Turkish journals of Education indexed in SSCI and ULAKBIM. Data were then collected from 232 participants and examined. The quantitative data obtained from the questionnaire items were analyzed, and the mean and standard deviation scores were presented in tables. The qualitative data gathered from the open-ended questions were analyzed descriptively. The results show that researchers mostly make mistakes in the discussion, conclusion, and suggestions part of the manuscripts. However, mistakes made in the methods part are the most significant causes of manuscript rejection.

Keywords: Acceptance, Authors, Criteria, Data, Decision, Editors, Education, Effects, First, Journal, Journal Editors, Journals, Manuscript Review, Manuscript Review Process, Mar, Methods, Mistakes in Education Manuscripts, Online, Purpose, Qualitative, Questionnaire, Reasons, Reasons For Manuscript Rejection, Referees, Rejection, Research, Reviewing Manuscripts, Scale, SSCI, Standard

? Ucar, I., Lopez-Fernandino, F., Rodriguez-Ulibarri, P., Sesma-Sanchez, L., Urrea-Mico, V. and Sevilla, J. (2014), Growth in the number of references in engineering journal papers during the 1972-2013 period. *Scientometrics*, **98** (3), 1855-1864.

Full Text: [2014\Scientometrics98, 1855.pdf](2014/Scientometrics98,%201855.pdf)

Abstract: the number of references per paper, perhaps the best single index of a journal’s scholarliness, has been studied in different disciplines and periods. In this paper we present a four decade study of eight engineering journals. A data set of over 70,000 references was generated after automatic data gathering and manual inspection for errors. Results show a significant increase in the number of references per paper, the average rises from 8 in 1972 to 25 in 2013. This growth presents an acceleration around the year 2000, consistent with a much easier access to search engines and documents produced by the generalization of the Internet.

Keywords: Access, Citation Density, Citations, Citing Behaviour, Data, Data Set, Disciplines, Engineering, Errors, Growth, Index, Inspection, Internet, Journal, Journals, Mar, Number of References, Papers, Reference Analysis, References, Results, Science, Scientometrics

? Chen, H.Q., Wan, Y.H., Jiang, S.A. and Cheng, Y.X. (2014), Alzheimer’s disease research in the future: Bibliometric analysis of cholinesterase inhibitors from 1993 to 2012. *Scientometrics*, **98** (3), 1865-1877.

Full Text: [2014\Scientometrics98, 1865.pdf](2014/Scientometrics98,%201865.pdf)

Abstract: In this study, the bibliometric study of cholinesterase inhibitors was used to find the trend of Alzheimer’s disease (AD) research and the order of drugs which was most tolerated or more effective in AD treatment. 4,982 articles and reviews from the Science Citation Index Expanded during 1993-2012 were analyzed. The main results were as follows: the publication of cholinesterase inhibitor research increased overall during 1993-2012. Chinese Academy of Science had most publications, University of California, San Diego and Hebrew University of Jerusalem won first place with the highest average citation per paper and the highest h-index respectively. Neurosciences, pharmacology and chemistry were “raising” subject categories in cholinesterase inhibitors research. With the comprehensive analysis of distribution and change of author keywords in two 10-year-time periods, it can be concluded as follows: (i) the order of drugs which was most tolerated or more effective in AD treatment might be donepezil, galantamine, rivastigmine, tacrine, memantine and huperzine A, and memantine attracted increasing interest recently and might be used more frequently now, especially for moderate to severe dementia. (ii) the pathogenesis of oxidative stress hypothesis attracted extensive attention. The interest to beta-amyloid cascade hypothesis increased slightly but that of the cholinergic hypothesis decreased during the past decade. (iii) “Oxidative stress”, “beta-amyloid”, “neuroprotection”, “memory” and “cognition” are the main orientations in the AD research in the future.

Keywords: AD, Alzheimer’s Disease, Analysis, Attention, Author Keywords Analysis, Bibliometric, Bibliometric Analysis, Bibliometric Study, Bibliometrics, California, Chemistry, Chinese, Cholinesterase Inhibitors, Citation, Dementia, Disease, Distribution, Donepezil, Double-Blind, Drugs, First, h Index, h-Index, Hypothesis, Inhibitor, Inhibitors, Mar, Neurodegenerative Disorders, Oxidative Stress, Pathogenesis, Pharmacology, Publication, Publications, Research, Reviews, SCI, Science, Science Citation Index, Science Citation Index Expanded, Science-Citation-Index, Stress, Treatment, Trend, Trial, University

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Full Text: [2014\Scientometrics98, 1879.pdf](2014/Scientometrics98,%201879.pdf)

Abstract: While there is a large body of research analyzing the overall structure of citation relations for patents, there has been very little research seeking to clarify the characteristics of fields relating to the diffusion of technology through observing the citation network surrounding each patent individually and tracing its growth. This study focused on the classifications assigned to patents and examined the diversity of the fields of patents citing each patent from the following two perspectives: (1) expected values for growth in the number of citing fields, when regarding the observation period as being in a synchronic state and assuming that the strength of connections between each patent and citing fields is constant; and (2) empirical values for growth in the number of citing fields according to the increase in the cumulative number of citations over time. From the results, it was confirmed that the strength of potential connections between each patent and citing fields changes over time. Especially in the fields of “chemistry; metallurgy” and “physics,” the following change is considerable: a patent tends to receive citations repeatedly from a limited range of fields for a while, but later comes to be cited by various fields.

Keywords: Changes, Characteristics, Citation, Citation Network, Citations, Cumulative, Diffusion, Diversity, Growth, Japan, Mar, Network, Number, Observation, Patent, Patent Citation, Patent Citations, Patent Classification, Patents, Potential, Relations, Research, Sample, State, Strength, Structure, Technology, Time-Series Variation

? Ferreira, M.P., Pinto, C.F. and Serra, F.R. (2014), The transaction costs theory in international business research: A bibliometric study over three decades. *Scientometrics*, **98** (3), 1899-1922.

Full Text: [2014\Scientometrics98, 1899.pdf](2014/Scientometrics98,%201899.pdf)

Abstract: Transaction costs theory (TCT) has long been an important conceptual lens for examining International Business (IB) phenomena and perhaps especially relevant for the study of multinational corporations, entry mode choices and location selection. In this paper we examine the extent to which TCT been used and has impacted IB research. Methodologically, we conduct a bibliometric study of the articles published on nine top journals for publishing IB-related research. We use Jean-Fran double dagger ois Hennart’s research as the key marker for TCT in IB research given that Hennart’s work has been a hallmark in the discipline. On a sample of 377 articles published between 1982 and 2010, and using the works rather than the authors as the unit of analysis, we analyze citations, co-citations and a spatial visualization of the intellectual research themes delved into. Our analyses provide insights on the influence of Hennart but more broadly of TCT on IB research over the past three decades. We conclude that the TCT has a pervasive influence on a large array of IB research and that Hennart’s work is boundary-spanning, connecting several research themes.

Keywords: Analyses, Analysis, Author Cocitation Analysis, Authors, Bibliometric, Bibliometric Study, Boundary Spanning, Business, Citations, Co-Citations, Costs, Equity Joint Ventures, Foreign Entry, Hennart, IB, IB Research, Influence, Information-Retrieval, Intellectual Structure, International, International Business, Japanese Investors, Journals, Location, Mar, Mode, Multinational-Enterprise, Publishing, Research, Research Themes, Scientific Literature, Selection, Strategic-Management, Theory, Transaction Costs, United-States, Visualization, Work

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Full Text: [2014\Scientometrics98, 1923.pdf](2014/Scientometrics98,%201923.pdf)

Abstract: In this study, we analyze the dynamic usage history of Nature publications over time using Nature metrics data. We conduct analysis from two perspectives. On the one hand, we examine how long it takes before the articles’ downloads reach 50 %/80 % of the total; on the other hand, we compare the percentage of total downloads in 7, 30, and 100 days after publication. In general, papers are downloaded most frequently within a short time period right after their publication. and we find that compared with non-Open Access papers, readers’ attention on Open Access publications are more enduring. Based on the usage data of a newly published paper, regression analysis could predict the future expected total usage counts.

Keywords: Altmetrics, Analysis, Article, Article-Level Metrics, Attention, Data, Digital Library, Download, Dynamic, General, History, Impact, Information, Literature, Mar, Metrics, Nature Metrics, Page View, Papers, Publication, Publications, Regression, Regression Analysis, Right, Scientific Literature, Statistics, Time Period, Usage Data

? Wang, Y.D., Pan, X., Wang, X.Y., Chen, J., Ning, L.T. and Qin, Y. (2014), Visualizing knowledge space: A case study of Chinese licensed technology, 2000-2012. *Scientometrics*, **98** (3), 1935-1954.

Full Text: [2014\Scientometrics98, 1935.pdf](2014/Scientometrics98,%201935.pdf)

Abstract: To explore the rules of knowledge transfer and application activities in knowledge space, defined at both temporal and spatial scales, the present study employs a unique dataset of Chinese patent licensing during the period of 2000-2012, with a total of 91,551 patents. Our results indicate that 70 % of patents were licensed out in the first 3 years. As time elapses, the annual average technology age decreases. There is a moderate difference among different types of licensors and patent types but not technology domains. With regards to the spatial dimension, 86 % of patents were licensed out within 1,000 km. The annual average geographical distance exhibits the same trend as technology age. Except for technology domains, a moderate difference among licensors and patent types is observed. Moreover, the interaction between geographical distance and technology age shows that as the technology age increases, this technology appears to be transferred and applied over greater distances.

Keywords: Age, Application, Case Study, Chinese, Firms, First, Geographical Distance, Impact, Industry, Interaction, Knowledge, Knowledge Space, Knowledge Transfer, Licensing, Mar, Open Innovation, Patent, Patents, References, Research-And-Development, Scales, Science, Search, Technology, Technology Age, Technology Transfer, Temporal, Trend

? Robinson-Garcia, N. and Calero-Medina, C. (2014), What do university rankings by fields rank? Exploring discrepancies between the organizational structure of universities and bibliometric classifications. *Scientometrics*, **98** (3), 1955-1970.

Full Text: [2014\Scientometrics98, 1955.pdf](2014/Scientometrics98,%201955.pdf)

Abstract: University rankings by fields are usually based on the research output of universities. However, research managers and rankings consumers expect to see in such fields a reflection of the structure of their own organizational institution. In this study we address such misinterpretation by developing the research profile of the organizational units of two Spanish universities: University of Granada and Pompeu Fabra University. We use two classification systems, the subject categories offered by Thomson Scientific which are commonly used on bibliometric studies, and the 37 disciplines displayed by the Spanish I-UGR Rankings which are constructed from an aggregation of the former. We also describe in detail problems encountered when working with address data from a top down approach and we show differences between universities structures derived from the interdisciplinary organizational forms of new managerialism at universities. We conclude by highlighting that rankings by fields should clearly state the methodology for the construction of such fields. We indicate that the construction of research profiles may be a good solution for universities for finding out levels of discrepancy between organizational units and subject fields.

Keywords: Address Data, Aggregation, Approach, Bibliometric, Bibliometric Studies, Classification, Constructed, Construction, Data, Developing, Disciplines, Fields, Forms, Institutional Structure, Interdisciplinary, Iugr, Mar, Methodology, Organizational, Profiles, Rank, Rankings, Reflection, Research, Research Output, Solution, Spanish Universities, State, Structure, Subject Classification, Systems, Universities, University, University Rankings

? Martinez, M.A., Herrera, M., Lopez-Gijon, J. and Herrera-Viedma, E. (2014), H-Classics: Characterizing the concept of citation classics through h-index. *Scientometrics*, **98** (3), 1971-1983.

Full Text: [2014\Scientometrics98, 1971.pdf](2014/Scientometrics98,%201971.pdf)

Abstract: Citation classics identify those highly cited papers which are an important reference point in a research field. To identify a paper as a citation classic we have to fix a citation threshold value. Usually, this threshold value should not be the same for all research fields because each field presents its respective citation pattern. Studies of citation classics in the literature define particular criteria and methods to set citation thresholds, which are often set arbitrarily and designed ad-hoc, and do not allow the scientific community to validate and compare their results. In this paper we introduce the concept of H-Classics to overcome this problem and provide scientific community a standardization of key constructs. We present a new and systematic method to identify citation classics. This identification method of highly cited papers is based on the H-index and thank to the properties of H-index it is sensitive to the own characteristics of any research discipline and also its evolution. Therefore, the concept of H-Classics allows to systematize search procedure of citation classics for any field of research.

Keywords: Behavior, Bibliometric Measures, Characteristics, Citation, Citation Classic, Citation Classics, Classics, Community, Concept, Criteria, Evolution, Field, h Index, h-Index, Highly Cited, Highly Cited Papers, Highly-Cited, Identification, Journals, Literature, Mar, Medicine, Methods, Papers, Pattern, Procedure, Properties, Reference, Research, Science, Scientific Community, Scientific-Research Output, Standardization, Surgery, Threshold, Thresholds, Top-Cited Articles, Value, Works

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Full Text: [2014\Scientometrics98, 1985.pdf](2014/Scientometrics98,%201985.pdf)

Abstract: This review study is a first attempt to map the state of entrepreneurship research in China by focusing on the contributions of Chinese researchers. Leading contributors, research collaboration and theoretical underpinnings in both domestic-oriented and international-oriented research are discussed. The review comprises 508 articles published in domestic Chinese journals indexed by the Chinese Social Science Citation Index and 189 articles published in international journals indexed by the Social Science Citation Index between 2000 and 2011. Two bibliometric approaches, co-authorship analysis and co-citation analysis, were utilized. The results indicate that entrepreneurship research in China is characterized by a clear division, not only in terms of researchers in each community, collaborating network but also with regard to theoretical foundation. Domestic-oriented research is still in its infancy. The research community has attracted a majority of Chinese researchers who focus on inter-institutional collaboration based on mentorship and directing relationship. Scholars involved in international-oriented research engage in more open communication by collaborating not only with researchers from other Chinese institutions but also with those from foreign countries. At the same time, they contribute to the understanding of Chinese entrepreneurship by linking the entrepreneurship phenomenon in Chinese context to theoretical frameworks.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, China, Chinese, Citation, Co-Authorship, Co-Citation, Co-Citation Analysis, Coauthorship, Cocitation, Collaboration, Communication, Community, Context, Economies, Entrepreneurship, Entrepreneurship Research, Firm, First, Future, Infancy, Institutions, International, Journals, Management, Mar, Mentorship, Network, Open, Performance, Research, Research Collaboration, Review, Science, Science Citation Index, Social Science Citation Index, State, Theoretical, Theoretical Foundation, Understanding

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Full Text: [2014\Scientometrics98, 2007.pdf](2014/Scientometrics98,%202007.pdf)

Abstract: This study aimed to assess the association between some features of articles title and number of citations in a volume of Addictive Behavior journal. All research articles published in the volume number 32 (2007) in the Addictive Behaviors journal (n = 302) were analyzed by two independent authors. For each article, the following information has been extracted: number of citations up to June 2013 in the Scopus citation database, type of and characteristics of titles, having different words in the keywords, reference to place and presence of an acronym. The summary statistics showed that mean number of citation was 16.36 +/- A 19.55 times. Articles with combinational title (use of a hyphen or a colon separating different ideas within a sentence) and articles with different words in the keywords (at least two different keywords) had higher number of citations. The number of citations was not correlated with the number of words in the title (r = 0.05, P = 0.325). Our results suggested that some features in the paper such as type of the title and articles with keywords different from words included in the title can help to predict the number of citation counts. These findings can be used by authors and reviewers in order to maximize the impact of articles. The length of title is not associated with citation counts. Therefore, the guide for authors of journals can be more flexible regarding the length of the title.

Keywords: Articles, Association, Attractive Title, Authors, Behavior, Characteristics, Citation, Citation Counts, Citation Rates, Citations, Database, Impact, Impact of Article, Information, Journal, Journals, Length, Mar, P, Rates, Reference, Research, Scopus, Statistics, Type of Title, Volume, Word Count

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Full Text: [2014\Scientometrics98, 2011.pdf](2014/Scientometrics98,%202011.pdf)

Abstract: the study aimed to analyse the global research output related to microRNA (miRNA), based on the fact that it has diverse expression patterns and might regulate various developmental and physiological processes. First miRNA was identified as small RNA in 1993 but its function as biological regulator was unknown till 2000. Since then the research in miRNAs has got momentum. To understand and visualize the research dynamics and the research structure of the field, the publications appeared in Science Citation Index expanded database for 2002-2012 under miRNA category using specific search string, were analysed. A sum of more than 14,000 documents found from Web of Science database for the same period. This study detected major productive countries, high productive-institutions, authors, research areas, journals and document types, along with their individual citation impacts. The inter-collaborative linkages of countries, organizations and authors were also analysed. The study has observed that number of publication increased from 8 in 2002 to 4,186 in 2012 with compound annual growth rate of 87 %. The compound annual growth rates of countries, institutions, number of journals, research areas, and authors are 36.60, 76.64, 64.80, 30.5, and 88.09 % respectively.

Keywords: Analysis, Authors, Bibliometric, Bibliometric Analysis, Biological, Citation, Collaboration, Database, Dynamics, Encodes, Expression, Field, Function, Global, Global Research Scenario, Growth, Growth Rate, Impacts, Index, Institutions, Journals, Mar, Microrna, Mirna, Network Analysis, Networks, Physiological Processes, Publication, Publications, Rates, Research, Research Output, RNA, RNAs, Science, Science Citation Index, Scientific-Research, Small, Structure, Till, Web of Science

? Breimer, L.H. and Nilsson, T.K. (2014), Considerations for appointing an external examiner of a PhD in the biomedical sciences in Sweden: A questionnaire-based survey. *Scientometrics*, **98** (3), 2039-2049.

Full Text: [2014\Scientometrics98, 2039.pdf](2014/Scientometrics98,%202039.pdf)

Abstract: A survey of 170 Swedish mentors of PhD-students found that expertise in the research field and avoidance of conflict of interest were big motivators for finding an examiner from abroad for PhD theses. The survey also identified that concern by supervisors for facilitating the career paths of younger scientists in terms of introductions to potential labs for post-doctoral work and obtaining high quality neutral review of one’s research was also important, as was the desire to set up collaborations. An expectation from the management of one’s university of the PR-value of a foreign senior person as examiner also played a part. Although few were willing to admit that PR for one’s own group was a motivating factor. A small fraction of responders expressed concern that, as some of the costs of the PhD-examination were being shifted on to the research groups themselves, this might impact the current situation. Language also played a subordinate role. To get the best out of the visiting examiner, it was important to educate and instruct them in their role in a Swedish PhD-examination protocol. Male supervisors had had more PhD-candidates than female, but they also had used more Sweden-based examiners than their female colleagues. We conclude that using a foreign examiner was motivated by factors that are likely to prevail for the foreseeable future. This Swedish practice may also provide a template for a common standard.

Keywords: Academic Stringency, Biomedical, Collaborations, Conflict of Interest, Costs, Cross-Border Collaboration, Female, Field, Gender Issues, Groups, Impact, Language, Male, Management, Mar, Person, PhD, PhD Process, Potential, PR, Practice, Protocol, Quality, Questionnaire, Research, Review, Role, Sciences, Scientists, Small, Standard, Survey, Sweden, Template, Thesis, University, Work

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Full Text: [2014\Scientometrics98, 2051.pdf](2014/Scientometrics98,%202051.pdf)

Abstract: This study aims what knowledge capital accumulated by the public research institutes (PRIs) of South Korea and Taiwan to facilitate process configurations of new industrial structure. The patenting trends of two PRIs, ETRI of South Korea and ITRI of Taiwan, are assessed to highlight the established knowledge structures for emergence of multi-agent structure since 1990s. To examine their dynamics and variations of knowledge capital, the data series are separated into two phases (catching-up phase from 1970s to 1990s, and post catching-up phase since the 2000s) in accordance to (1) number of patents, (2) number of sole owned and co-owned patents, (3) backward and forward citations, (4) science-linked patents, and (5) fields of patent. When the role of PRIs in the latecomer country is evolving from a facilitator in the catching-up phase to become a mediator in the post catching-up phase, this study demonstrated their influence and dynamic effect in reinforcing industrial strategies and national approaches to attain endogenous structural change in the national innovation system. Our results signal telecommunications is the promising technology targeted by Korea’s chaebols while Taiwan’s small-medium size enterprises are utilizing the aggregate knowledge capital accumulated and derived from semiconductor technologies to develop their niches onto a diverse range of product innovations.

Keywords: Analysis, China, Citations, Country, Data, Dynamic, Dynamics, Enterprises, Flows, Industry, Influence, Innovation, Innovation System, Japan, Knowledge, Korea, Mar, Patent, Patenting, Patents, Post Catching-Up, Public, Public Research Institutes, Public Research Institutions, Research, Research-And-Development, Role, Semiconductor, Size, South Korea, Structure, Systems, Taiwan, Technologies, Technology, Trends

? Abramo, G., D’Angelo, C.A. and Di Costa, F. (2014), Inefficiency in selecting products for submission to national research assessment exercises. *Scientometrics*, **98** (3), 2069-2086.

Full Text: [2014\Scientometrics98, 2069.pdf](2014/Scientometrics98,%202069.pdf)

Abstract: One of the critical issues in national research assessment exercises concerns the choice of whether to evaluate the entire scientific portfolio of the institutions or a subset composed of the best products. Under the second option, the capacities of the institutions to select the appropriate researchers and their best products (the UK case) or simply the best products of every researcher (the Italian case) becomes critical, both for purposes of correct assessment of the real quality of research in the institutions evaluated, and for the selective funding that follows. In this work, through case studies of three Italian universities, we analyze the efficiency of the product selection that is intended to maximize the universities’ scores in the current national research assessment exercise, the results of which will be the basis for assigning an important share of public financing over the coming years.

Keywords: Assessment, Bibliometrics, Case Studies, Choice, Efficiency, Exercise, Exercises, Financing, Funding, Institutions, Issues, Italian Universities, Italy, Mar, Peer Review, Public, Quality, Quality Of, Research, Research Assessment, Research Assessment Exercise, Research Assessment Exercises, Selection, Selection Efficiency, UK, Universities, VQR, Work

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Full Text: [2014\Scientometrics98, 2087.pdf](2014/Scientometrics98,%202087.pdf)

Abstract: the counting of patents and citations is commonly used to evaluate technological innovation and its impact. However, in an age of increasing international collaboration, the counting of international collaboration patents has become a methodological issue. This study compared country rankings using four different counting methods (i.e. whole counting, straight counting, whole-normalized counting, complete-normalized counting) in patent, citation and citation-patent ratio (CP ratio) counts. It also observed inflation depending on the method used. The counting was based on the complete 1992-2011 patent and citation data issued by United States Patent and Trademark Office. The results show that counting methods have only minor effects on country rankings in patent count, citation count and CP ratio count. All four counting methods yield reliable country ranks in technology innovation capability and impact. While the influences of counting methods vary between patent count, citation count and CP ratio count, counting methods may exert slightly greater effects on CP ratio counts than on patent and citation counts. As for the inflation, the distributions of higher and lower inflation by the four counting methods are different in patent, citation and CP ratio counts.

Keywords: Age, Analysis, Citation, Citation Counts, Citations, Collaboration, Complete, Counting Methods, Country, Country Rankings, Data, Effects, Impact, Inflation, Innovation, Innovation Capability, International, International Collaboration, Mar, Methods, Minor, Patent, Patent Analysis, Patents, Productivity, Publication, Rankings, Technological Innovation, Technology, United States

? Cavero, J.M., Vela, B. and Caceres, P. (2014), Computer science research: More production, less productivity. *Scientometrics*, **98** (3), 2103-2111.

Full Text: [2014\Scientometrics98, 2103.pdf](2014/Scientometrics98,%202103.pdf)

Abstract: It is commonly accepted that scientific research or, more precisely, the number of scientific publications, in computer science has greatly increased over the last few years. The reason would appear to be the pressure to publish, coined by the expression “Publish or perish”, which is, among other things, necessary for promotions and applications for grants or projects. In this paper we have conducted a study that covers computer science publications from 1936 to 2010 in order to quantify this increase in publications regarding computing research. We have considered the computing conferences and journals available in the DBLP computer science bibliography (DBLP 2013) database, including more than 1.5 million papers, and more than 4 million authors (more than 900,000 different people), corresponding to about 1,000 different journals and 3,000 different conferences and workshops. Our study confirms and quantifies these increases with regard to the number of papers, number of authors, number of papers per author, etc. However, it also reaches a surprising conclusion: the real productivity of researchers has decreased throughout history. The reason for this decrease is the average number of authors per paper, which has grown significantly and is currently three.

Keywords: Authors, Bibliography, Computer Science, Computer Science Research, Conferences, Database, Expression, History, Journals, Mar, Papers, Pressure, Productivity, Publications, Quantitative Study, Research, Research Publications, Science, Science Research, Scientific Publications, Scientific Research, Workshops

? Torres-Salinas, D., Robinson-Garcia, N., Cabezas-Clavijo, A. and Jimenez-Contreras, E. (2014), Analyzing the citation characteristics of books: Edited books, book series and publisher types in the book citation index. *Scientometrics*, **98** (3), 2113-2127.

Full Text: [2014\Scientometrics98, 2113.pdf](2014/Scientometrics98,%202113.pdf)

Abstract: This paper presents a first approach to analyzing the factors that determine the citation characteristics of books. For this we use the Thomson Reuters’ book citation index, a novel multidisciplinary database launched in 2011 which offers bibliometric data on books. We analyze three possible factors which are considered to affect the citation impact of books: the presence of editors, the inclusion in series and the type of publisher. Also, we focus on highly cited books to see if these factors may affect them as well. We considered as highly cited books, those in the top 5 % of those most highly cited in the database. We define these three aspects and present results for four major scientific areas in order to identify differences by area (science, engineering and technology, social sciences and arts and humanities). Finally, we report differences for edited books and publisher type, however books included in series showed higher impact in two areas.

Keywords: Approach, Bibliometric, Bibliometric Data, Book Citation Index, Characteristics, Citation, Citation Impact, Citation Index, Data, Database, Databases, Engineering, First, Highly Cited, Highly-Cited, Humanities, Impact, Index, Indicators, Mar, Monographs, Multidisciplinary, Publisher, Publishers, Science, Sciences, Social, Social Sciences, Technology, Thomson Reuters, Thomson-Reuters

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Full Text: [2014\Scientometrics98, 2129.pdf](2014/Scientometrics98,%202129.pdf)

Abstract: This study introduces nation diffusion breadth and nation diffusion intensity by adapting the notions of field diffusion breadth and field diffusion intensity as defined by Liu and Rousseau, and a variation on the total cited influence indicator introduced by Hu et al. Knowledge diffusion across countries in the field of management is then analyzed as a case study. Main countries in the field of management studies are considered as centers in their own ego-centered citation networks. The three indicators mentioned above are then calculated for these ego-centered citation networks. They measure the scientific impact each of these countries has on other nations. A general picture of the knowledge diffusion process is given by the three indicators at the country level over four periods 1992-1996, 1997-2001, 2002-2006, and 2007-2011. The validity of the proposed indicators is verified by the calculated results.

Keywords: Breadth, Case Study, Citation, Country, Diffusion, Ego-Centered Citation Network, Field, General, Impact, Indicator, Indicators, Influence, Intensity, Journal Diffusion, Knowledge, Knowledge Diffusion, Management, Mar, Measure, Nations, Network, Networks, Scientific Impact, Validity

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Full Text: [2014\Scientometrics98, 2145.pdf](2014/Scientometrics98,%202145.pdf)

Abstract: Co-citation analysis is a form of content analysis that can be applied in the context of scholarly publications with the purpose of identifying prominent articles, authors and journals being referenced to by the citing authors. It identifies co-cited references that occur in the reference list of two or more citing articles, with the resultant co-citation network providing insights into the constituents of a knowledge domain (e.g., significant authors and papers). The contribution of the paper is twofold; (a) the demonstration of the added value of using co-citation analysis, and for this purpose the underlying dataset that is chosen is the peer-reviewed publication of the Society for Modeling and Simulation International (SCS)-SIMULATION; (b) the year 2012 being the 60th anniversary of the SCS, the authors hope that this paper will lead to further acknowledgement and appreciation of the Society in charting the growth of Modeling and Simulation (M&S) as a discipline.

Keywords: Analysis, Authors, Co-Citation, Co-Citation Analysis, Cocitation, Content Analysis, Context, Growth, Health-Care, Journal, Journal Co-Citation Analysis, Journals, Knowledge, Knowledge Base, Knowledge Domain, Lead, Mar, Modeling, Modelling, Modelling and Simulation (M&S), Network, Networks, Papers, Peer-Reviewed, Profile, Publication, Publications, Purpose, Reference, References, SCS, Simulation, Simulation Research, Simulation: Transactions of the Society for Modeling and Simulation International, Society, Society for Modeling and Simulation International, Systems, Value, Visualization

? Sahu, S.R. and Panda, K.C. (2014), Does the multi-authorship trend influence the quality of an article? *Scientometrics*, **98** (3), 2161-2168.

Full Text: [2014\Scientometrics98, 2161.pdf](2014/Scientometrics98,%202161.pdf)

Abstract: In the last few decades, multi-authored articles have increased in different disciplines with increasing instances of authorship abuse although multi-authorship is not always due to undeserving authorship (McDonald et al. in Mayo Clin Proc 85(10):920-927, 2010). It may be necessitated by interdisciplinary research, the evolution of a discipline, or the intention of quality improvement. This article studies the relationship between the authorship and the quality of articles (publications in better impact factor journals or core journals) in the field of Oceanography. The result shows similar to 75 % increase in the number of authors per article from 1990 to 2009 in the discipline. The increase in authorship correlates not only with the percentage of articles in core journals but also with the mean impact factor (IF) of journals (where the articles were published). The ANOVA study shows that though multi-authorship has no influence on the preference to publish in core journals during the 1990s or 2000s, it does have a significant influence on the preference to publish in high IF journals in both the decades. So these findings establish that in the field of Oceanography, the increase in collaboration would have resulted in more publications in core journals (without any influence of authorship increase) and in better impact factor journals (due to the influence of authorship increase).

Keywords: Abuse, Anova, Authors, Authorship, Co-Authorship, Collaboration, Core Journals, Correlates, Disciplines, Evolution, Field, Impact, Impact Factor, Impact Factor, Improvement, Influence, Interdisciplinary, Interdisciplinary Research, Journal Citation Report, Journals, Mar, Multiple Authorship, Oceanography, Preference, Publications, Publish or Perish, Quality, Quality Improvement, Quality Of, Research, Trend

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Full Text: [2014\Scientometrics98, 2169.pdf](2014/Scientometrics98,%202169.pdf); [2013\Scientometrics-Pouris.pdf](2013/Scientometrics-Pouris.pdf); [2013\Scientometrics-Pouris1.pdf](2013/Scientometrics-Pouris1.pdf)

Abstract: Scientific co-authorship of African researchers has become a fashionable topic in the recent scientometric literature. Researchers are investigating the effects, modes, dynamics and motives of collaboration in a continental research system which is in an embryonic stage and in different stages of development from country to country. In this article we attempt to provide some additional evidence by examining both patterns of collaboration at country and continental levels and the scientific disciplines emphasised. Our findings indicate that the continent’s research emphasises medical and natural resources disciplines to the detriment of disciplines supporting knowledge based economies and societies. Furthermore, we identify that the collaborative patterns in Africa are substantial higher than in the rest of the world. A number of questions related to research collaboration and its effects are raised.

Keywords: Africa, Citation, Co-Authorship, Coauthorship, Collaboration, Cooperation, Country, Development, Disciplines, Dynamics, Effects, Embryonic, Evidence, Impact, Indicators, Knowledge, Knowledge-Based, Literature, Mar, Medical, Natural, Natural Resources, Recent, Research, Research Collaboration, Researchers, Resources, Science, Scientometric, Scientometrics, South-Africa, Topic, Universities, World

? Akhmat, G., Zaman, K., Shukui, T. and Ahmed, T. (2014), Educational reforms and internationalization of universities: Evidence from major regions of the world. *Scientometrics*, **98** (3), 2185-2205.

Full Text: [2014\Scientometrics98, 2185.pdf](2014/Scientometrics98,%202185.pdf)

Abstract: Internationalization of universities has become a worldwide phenomenon as global economic integration continues to make its way forcefully into the higher education. The objective of the study is to develop a model for internationalization of universities with the transformation of some promising macroeconomic variables i.e., educational reforms and economic growth in the seven largest regions of the world [namely, East Asia and Pacific (sample 25 countries); Europe and Central Asia (40 countries); Latin America and Caribbean (27 countries); Middle East and North Africa (17 countries); North America (22 countries); South Asia (7 countries) and Sub-Saharan Africa (21 countries)]. The data has been analyzed by panel fixed effect regression from the period of 1990-2011. In addition to transform inputs into output, the study employed eleven indicators of education and five indicators for growth, where the resulting vector is internationalization. The results show the dynamic linkages between educational indicators and economic factors in the selected regions of the World. In East Asia and Pacific region, tertiary and higher education expenditures per student increase the economic factors. Higher education is a powerful driver of long-term growth in Europe and Central Asia. Governments of the state should have to focus on higher education enrolment, as it does not have any significant contribution to increase GDP; gross capital formation and FDI in Latin America and Caribbean region. Higher education enrolment in MENA region significantly increases growth factors on the cost of increase gross national expenditures. Investment in general education and other generic human capital is of the utmost importance in creating an enabling environment for FDI in North America. It is imperative for South Asia to encourage the skill levels and education opportunities for females, in order to maximize the effects of FDI on the female human capital stock and therefore economic growth. Tertiary school enrolment and tertiary expenditures per student identified the importance of tertiary education in Sub-Saharan Africa. The results conclude that educational indicators improve the economic gains, which ultimately reap out the benefit of internationalization.

Keywords: Africa, Asia, Caribbean Region, Cost, Data, Dynamic, East Asia, Economic, Education, Educational Reforms, Effects, Environment, Europe, Evidence, Expenditures, FDI, Female, GDP, General, Global, Growth, Growth Factors, Higher Education, Human, Indicators, Integration, Internationalization, Latin America, Long Term, Long-Term, Mar, Mena, Middle East and North Africa, Model, North, North America, Region, Regression, South Asia, State, Student, Sub-Saharan Africa, Transformation, Universities, World, World Regions

Notes: CCountry

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Full Text: [2014\Scientometrics98, 2207.pdf](2014/Scientometrics98,%202207.pdf)

Abstract: We performed an analysis of published literature related to fruit and vegetable and indexed in the Web of Science(A (R)), covering the period 2000-2009. The EU27 and the USA are the two leading actors in terms of number of fruit and vegetable articles published. This paper compares their publication outputs using bibliometric methods. We assessed the fruit and vegetable species, topics (from Web of Science(A (R)) categories), countries and institutions involved. The top species, topics and institutions are ranked according to their number of publications. Collaboration networks between countries were mapped to visualize the intensity of the relationships involved in international fruit and vegetable research and to obtain an overall picture of the fruit and vegetable research landscape. These results can be useful for policy makers.

Keywords: Agricultural-Research Inra, Analysis, Bibliometric, Bibliometric Methods, Bibliometric Study, Bibliometrics, Collaboration, Collaboration Networks, Consumption, Countries, Europe, French National Institute, Fruit, Growth, Health, Institutions, Intensity, International, Landscape, Leadership, Literature, Mar, Methods, Networks, Policy, Publication, Publications, R, Research, Research Collaboration, Science, Species, Tools, USA, Vegetable

? Cartes-Velasquez, R. and Delgado, C.M. (2014), Bibliometric analysis of articles published in ISI dental journals, 2007-2011. *Scientometrics*, **98** (3), 2223-2233.

Full Text: [2014\Scientometrics98, 2223.pdf](2014/Scientometrics98,%202223.pdf)

Abstract: In recent years there have been few bibliometric evaluations in dental sciences with an international approach. The aim of this study is to describe the scientific production of original and review articles published in ISI dental journals for the period 2007-2011, considering qualitative and quantitative measures across countries. In this study documents indexed in Science Citation Index Expanded of Web of Science were reviewed between January 2007 and December 2011. All “Article” and “Review” document types in the “Dentistry, Oral Medicine and Surgery” category were included. Quantitative and qualitative analyses were performed. A total of 37,571 documents were found for the entire period, growing 24.3 % annually from 2007 to 2011. The publication language was mostly English (98.6 %), and 54.5 % of productivity was concentrated in five countries. A total of 44 countries had at least 100 documents and were included in the analysis, representing 36,532 (97.23 %) documents. It was concluded that increasing productivity in some countries, such as Brazil, China, India, and Turkey, was observed. High levels and stability in terms of impact was determined in the Nordic countries. The USA continues to lead in terms of overall productivity.

Keywords: Analyses, Analysis, Approach, Bibliometric, Bibliometric Analysis, Brazil, China, Citation, Clinical Studies, Trials, Decision-Making, Evidence-Based Dentistry, Health Care, Impact, India, International, Isi, Journals, Language, Lead, Mar, Measures, Medicine, Nordic Countries, Productivity, Publication, Publishing, Qualitative, Recent, Review, Science, Science Citation Index, Science Citation Index Expanded, Sciences, Scientific Production, Stability, Statistics, Systematic Reviews and Evidence-Based Medicine, Turkey, USA, Web of Science

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Full Text: [2014\Scientometrics98, 2235.pdf](2014/Scientometrics98,%202235.pdf)

Abstract: Publishing histories can reveal changes in ornithological effort, focus or direction through time. This study presents a bibliometric content analysis of Emu (1901-2011) which revealed 115 trends (long-term changes in publication over time) and 18 fads (temporary increases in publication activity) from the classification of 9,039 articles using 128 codes organised into eight categories (author gender, author affiliation, article type, subject, main focus, main method, geographical scale and geographical location). Across 110 years, private authorship declined, while publications involving universities and multiple institutions increased; from 1960, female authorship increased. Over time, question-driven studies and incidental observations increased and decreased in frequency, respectively. Single species and ‘taxonomic group’ subjects increased while studies of birds at specific places decreased. The focus of articles shifted from species distribution and activities of the host organisation to breeding, foraging and other biological/ecological topics. Site- and Australian-continental-scales slightly decreased over time; non-Australian studies increased from the 1970s. A wide variety of fads occurred (e.g. articles on bird distribution, 1942-1951, and using museum specimens, 1906-1913) though the occurrence of fads decreased over time. Changes over time are correlated with technological, theoretical, social and institutional changes, and suggest ornithological priorities, like those of other scientific disciplines, are temporally labile.

Keywords: Activity, Affiliation, Analysis, Australian, Authorship, Avian Ecology, Avian Science, Bibliometric, Bird Study, Birds, Central-Europe, Changes, Classification, Codes, Communication, Conservation-Biology, Content Analysis, Disciplines, Distribution, Female, Future, Gender, Host, Institutions, Landscape-Ecology, Location, Long Term, Long-Term, Mar, Mental-Health Research, Observations, Public-Policy, Publication, Publication Activity, Publications, Publishing, Reliability, Scale, Science, Social, Society, Species, Temporary, Theoretical, Trends, Universities

? Zhu, J., Yang, Y., Xie, Q., Wang, L.W. and Saeed-Ul, H. (2014), Robust hybrid name disambiguation framework for large databases. *Scientometrics*, **98** (3), 2255-2274.

Full Text: [2014\Scientometrics98, 2255.pdf](2014/Scientometrics98,%202255.pdf)

Abstract: In many databases, science bibliography database for example, name attribute is the most commonly chosen identifier to identify entities. However, names are often ambiguous and not always unique which cause problems in many fields. Name disambiguation is a non-trivial task in data management that aims to properly distinguish different entities which share the same name, particularly for large databases like digital libraries, as only limited information can be used to identify authors’ name. In digital libraries, ambiguous author names occur due to the existence of multiple authors with the same name or different name variations for the same person. Also known as name disambiguation, most of the previous works to solve this issue often employ hierarchical clustering approaches based on information inside the citation records, e.g. co-authors and publication titles. In this paper, we focus on proposing a robust hybrid name disambiguation framework that is not only applicable for digital libraries but also can be easily extended to other application based on different data sources. We propose a web pages genre identification component to identify the genre of a web page, e.g. whether the page is a personal homepage. In addition, we propose a re-clustering model based on multidimensional scaling that can further improve the performance of name disambiguation. We evaluated our approach on known corpora, and the favorable experiment results indicated that our proposed framework is feasible.

Keywords: Application, Approach, Authors, Bibliography, Citation, Clustering, Co-Authors, Data, Database, Databases, Digital Libraries, Experiment, Framework, Genre Identification, Hybrid, Identification, Information, Management, Mar, Model, Multidimensional, Multidimensional Scaling, Name Disambiguation, Performance, Person, Publication, Records, Scaling, Science, Sources, Web

? Abramo, G., D’Angelo, C.A. and Murgia, G. (2014), Variation in research collaboration patterns across academic ranks. *Scientometrics*, **98** (3), 2275-2294.

Full Text: [2014\Scientometrics98, 2275.pdf](2014/Scientometrics98,%202275.pdf)

Abstract: the ability to activate and manage effective collaborations is becoming an increasingly important criteria in policies on academic career advancement. The rise of such policies leads to development of indicators that permit measurement of the propensity to collaborate for academics of different ranks, and to examine the role of several variables in collaboration, first among these being the researchers’ disciplines. In this work we apply an innovative bibliometric approach based on individual propensity for collaboration to measure the differences in propensity across academic ranks, by discipline and for choice of collaboration forms-intramural, extramural domestic and international. The analysis is based on the scientific production of Italian academics for the period 2006-2010, totaling over 200,000 publications indexed in Web of Science. It shows that assistant professors register a propensity for intramural collaboration that is clearly greater than for professors of higher ranks. Vice versa, the higher ranks, but not quite so clearly, register greater propensity to collaborate at the international level.

Keywords: Academic Rank, Academics, Analysis, Approach, Bibliometric, Bibliometrics, Choice, Co-Authorship, Collaboration, Collaboration Patterns, Collaborations, Criteria, Determinants, Development, Disciplines, European-Union, First, Impact, Indicators, International, Italy, Level, Mar, Measure, Measurement, Policies, Productivity, Professors, Publications, Research, Research Collaboration, Research Performance, Role, Science, Scientific Production, Scientists Collaboration, University, University, Web of Science, Work

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Full Text: [2014\Scientometrics98, 2295.pdf](2014/Scientometrics98,%202295.pdf)

Abstract: In recent decades, the topic of internationalization has emerged as one of the defining issues of higher education globally. Different approaches are emerged for the internationalization process according to universities structures and strategic plans, however, universities are still facing the problems in identification of basic steps through which transformation of higher education to internationalization is possible. This study proposed a framework for higher education in Pakistan. In order to energize the whole process towards internationalization, three-step framework utilized for the internationalization of higher education in Pakistan. Study identifies the basic dimensions for the improvements of the services and structure, which leads to internationalization of higher education in Pakistan. Study proposed the use of define, measure, analysis, improve and control cycle for continuous improvements in higher education’s institutions in Pakistan.

Keywords: Analysis, Control, Dmaic, Education, Firms, Framework, Higher Education, Identification, Implementation, Institutions, Internationalization, Issues, Mar, Measure, Pakistan, Recent, Services, Strategic, Structure, Topic, Transformation, Universities

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Full Text: [2014\Scientometrics98, 2311.pdf](2014/Scientometrics98,%202311.pdf)

Abstract: An integrative approach is taken to mapping the field of research on information literacy in health sciences and social sciences. The objective was to identify the conceptual structure of these areas, and to determine their main research fronts and descriptors, and the relationships between them. A further objective is to determine whether information literacy is a consistent area. The basis of the study is the use of the program VOSViewer to analyse the co-occurrence of the areas’ descriptors, grouping them into clusters and generating a map of their connections. Information retrieval was by retrospective searches of the Web of Science (Thomson Reuters) and Scopus (Elsevier). The results for the health sciences area yielded four clusters. The centralmost descriptor was Education (with a total link strength of 1,470), which was strongly linked to the descriptor “Information retrieval”, and weakly linked to “Information skills”, “Information seeking”, and “Information Science”. In social sciences, there were six clusters. “Information literacy” was now the descriptor with most occurrences (812) as well as having the greatest weight-a total link strength of 2,340-followed by “Education” with 839 occurrences. The resulting maps provide a graphical identification of the main research issues and trends in information literacy in these two areas of expertise which, according to the data of the present study, correspond to lesser (health sciences) and greater (social sciences) scientific production. Information literacy was seen to be conceptually more consistent in health sciences than in social sciences. However, at least for the moment, it is a still growing conceptual space that is in need of solider indices of consistency and specificity.

Keywords: Approach, Comparison, Competences, Consistency, Data, Education, Faculty, Field, Health, Health Literacy, Health Sciences, Higher-Education, Identification, Indices, Information, Information Literacy, Information Retrieval, Integrative, Issues, Knowledge, Mapping, Mar, Research, Research Fronts, Science, Sciences, Scientific Production, Scopus, Skills, Social, Social Sciences, Specificity, Strength, Structure, Students, Thomson Reuters, Thomson-Reuters, Trends, Visualization of Similarities, Web of Science

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Full Text: [2014\Scientometrics98, 2331.pdf](2014/Scientometrics98,%202331.pdf)

Abstract: In this study we analyse a corpus of 300 randomly selected research paper titles written in English and published between 1998 and 2012 in the most prestigious journals in the field of Astrophysics, an under-researched discipline from a linguistic standpoint. We specifically address issues related to the evolution of titles, their length, their lexical density, their type distribution and their semantic content. Our findings reveal a trend towards relatively long titles with a high lexical density, a preference for nominal and simple titles over verbal and compound ones, a very low occurrence of question constructions, and a prevalence of purpose and results over methods as key research concepts expressed in titles. We compare our findings with the results of previous studies on titles in other scientific disciplines and provide explanations for the differences and similarities observed.

Keywords: Astrophysics, Colons, Diachronic, Disciplines, Distribution, English, Evolution, Field, Issues, Journals, Length, Mar, Methods, Preference, Prevalence, Purpose, Research, Research Articles, Science, Titles, Trend

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Full Text: [2014\Scientometrics98, 2353.pdf](2014/Scientometrics98,%202353.pdf)

Abstract: In November 2012 the Google Scholar Metrics (GSM) journal rankings were updated, making it possible to compare bibliometric indicators in the ten languages indexed-and their stability-with the April 2012 version. The h-index and h-5 median of 1,000 journals were analysed, comparing their averages, maximum and minimum values and the correlation coefficient within rankings. The bibliometric figures grew significantly. In just seven and a half months the h-index of the journals increased by 15 % and the median h-index by 17 %. This growth was observed for all the bibliometric indicators analysed and for practically every journal. However, we found significant differences in growth rates depending on the language in which the journal is published. Moreover, the journal rankings seem to be stable between April and November, reinforcing the credibility of the data held by Google Scholar and the reliability of the GSM journal rankings, despite the uncontrolled growth of Google Scholar. Based on the findings of this study we suggest, firstly, that Google should upgrade its rankings at least semi-annually and, secondly, that the results should be displayed in each ranking proportionally to the number of journals indexed by language.

Keywords: Analysis, Bibliometric, Bibliometric Databases, Bibliometric Indicators, Correlation, Correlation Coefficient, Credibility, Data, Evolution, Google, Google Scholar, Google Scholar Metrics, Growth, h Index, h-Index, Indicators, Journal, Journal Rankings, Journals, Language, Languages, Mar, Metrics, Minimum, Ranking, Rankings, Rates, Reliability, Scientific Journals, Spanish Public Universities, Version, Web

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Full Text: [2014\Scientometrics98, 2369.pdf](2014/Scientometrics98,%202369.pdf)

Keywords: g-Index, MAR

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Full Text: [2014\Scientometrics99, 1.pdf](2014/Scientometrics99,%201.pdf)

Keywords: Developing, Informetrics, Innovation, Mapping, Scientometrics, Triple Helix, Webometrics

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Full Text: [2014\Scientometrics99, 5.pdf](2014/Scientometrics99,%205.pdf)

Abstract: This paper describes the results of a multi-level network analysis of web-citations among the 1,000 universities with the greatest presence on the world wide web. Using data from January 2011, it describes the web-citation network of the world’s universities and ascertains the antecedent factors that determine its structure. At the university level, the network is composed of ten groups, and the most central universities are mainly from the United States. The factors that predict the structure of the network are, whether or not the universities are in the same country, the language of instruction, the size and excellence of the institution (university ranking and the number of Nobel Prizes received), if they offer doctoral degrees, and the infrastructure of its country. Physical distance was not a determinant of the network’s structure. At the nation-state level, international connections among a nation’s universities are composed of a single cluster with the United States, United Kingdom and Germany at the center. The structure of the international network may be predicted by the countries’ overall hyperlink connections, international co-authorships, student flows and the number of Nobel Prizes won by its citizen.

Keywords: Analysis, Cluster, Communication, Country, Data, Departments, Germany, Globalization, Groups, Hyperlink, Hyperlink Network, Hyperlink Network Analysis, Informetrics, Infrastructure, Instruction, International, International Collaboration, International Networks, Language, Link, Network, Network Analysis, Patterns, Ranking, Science, Site Interlinking, Size, Social Network Analysis, Structure, Student, United Kingdom, United States, Universities, University, Web, Webometrics, Webometrics, World, World University Ranking

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Full Text: [2014\Scientometrics99, 27.pdf](2014/Scientometrics99,%2027.pdf)

Abstract: Mutual information in three (or more) dimensions can be considered as a Triple-Helix indicator of possible synergy in university-industry-government relations. An open-source routine th4.exe makes the computation of this indicator interactively available at the internet, and thus applicable to large sets of data. Th4.exe computes all probabilistic entropies and mutual information in two, three, and, if available in the data, four dimensions among, for example, classes such as geographical addresses (cities, regions), technological codes (e.g. OECD’s NACE codes), and size categories; or, alternatively, among institutional addresses (academic, industrial, public sector) in document sets. The relations between the Triple-Helix indicator-as an indicator of synergy-and the Triple-Helix model that specifies the possibility of feedback by an overlay of communications, are also discussed.

Keywords: Cities, Codes, Communications, Computation, Data, Dynamics, Indicator, Information, Information Theory, Knowledge-Base, Model, Mutual Information, Mutual Redundancy, Open Source, Organization, Public, Public Sector, Quadruple Helix, Regional Innovation Systems, Relations, Science, Sector, Size, Software, South-Korea, Technology, Terms, Triple Helix, Triple Helix Model

? Fink, D., Kwon, Y., Rho, J.J. and So, M. (2014), S&T knowledge production from 2000 to 2009 in two periphery countries: Brazil and South Korea. *Scientometrics*, **99** (1), 37-54.

Full Text: [2014\Scientometrics99, 37.pdf](2014/Scientometrics99,%2037.pdf)

Abstract: This paper investigates the dynamic evolution profiles of science and technology knowledge production in Brazil and the Republic of Korea from 2000 to 2009. The two countries have followed different models of publication profiles, bioenvironmental model and Japanese model, and they currently belong to periphery countries in terms of the center-periphery framework. Brazil and the Republic of Korea have established a few core disciplines successfully and increased their share in the world publication of scientific papers over the last decade. Notwithstanding the fact that the two countries have recorded sustained growth in the percentage of published scientific papers, South Korea has evolved into a more balanced science and technology knowledge production system, whereas Brazil into the more unbalanced knowledge production system. Core-lagging or periphery-lagging patterns of science production have been revealed in Brazil and indirectly imply that the existing science base has not been fully stimulated or utilized.

Keywords: Brazil, Charts, Cooperation, Disciplines, Dynamic, Dynamic Evolution Profiles, Evolution, Framework, Growth, International Collaboration, Knowledge, Korea, Model, Models, Papers, Profiles, Publication, Publication Profiles, Relative Indicators, S&T Knowledge Production, Science, Science and Technology, South Korea, Technology, World

? Zhang, Y., Zhou, X., Porter, A.L., Gomila, J.M.V. and Yan, A. (2014), Triple Helix innovation in China’s dye-sensitized solar cell industry: hybrid methods with semantic TRIZ and technology roadmapping. *Scientometrics*, **99** (1), 55-75.

Full Text: [2014\Scientometrics99, 55.pdf](2014/Scientometrics99,%2055.pdf)

Abstract: In recent years, the Triple Helix model has identified feasible approaches to measuring relations among universities, industries, and governments. Results have been extended to different databases, regions, and perspectives. This paper explores how bibliometrics and text mining can inform Triple Helix analyses. It engages Competitive Technical Intelligence concepts and methods for studies of Newly Emerging Science & Technology (NEST) in support of technology management and policy. A semantic TRIZ approach is used to assess NEST innovation patterns by associating topics (using noun phrases to address subjects and objects) and actions (via verbs). We then classify these innovation patterns by the dominant categories of origination: Academy, Industry, or Government. We then use TRIZ tags and benchmarks to locate NEST progress using Technology Roadmapping. Triple Helix inferences can then be related to the visualized patterns. We demonstrate these analyses via a case study for dye-sensitized solar cells.

Keywords: Analyses, Approach, Bibliometrics, Case Study, Cell, Databases, Dsscs, Dye-Sensitized Solar Cells, Dynamics, Emerging Technology, Government, Government Relations, Hybrid, Innovation, Management, Methods, Mining, Model, Policy, Progress, Recent, Relations, Results, Roadmapping, Science, Semantic Triz, Solar Cell, Solar Cells, Support, Systems, Technology, Technology Management, Technology Roadmapping, Text Mining, Text-Mining, Triple Helix, Triple Helix Model, Universities

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Full Text: [2014\Scientometrics99, 77.pdf](2014/Scientometrics99,%2077.pdf)

Abstract: Since the cluster began to receive attention as a critical environmental factor in geographical economics, it has provided a major research methodology across multiple disciplines from industrial organization, strategic management, regional innovation system, and Triple Helix to virtual clusters. Network structure analysis (NSA) offers a common framework to observe clusters that have been studied separately from the viewpoint of industrial organization and strategic management. Industrial structure analysis, is based on the externality of a network and the resource-based view, focused on the inherent network capacity, have been combined with the study of structural changes through cluster NSA, to create a new direction for the growth of industry and individual firms. This study aims to analyze the correlation between the networking of structural change and a firm’s performance by selecting a software industrial cluster as a representative case for the knowledge industry. We examine the network structural positions of each node during the cluster evolution process. This empirical study has significance for establishing a firm’s growth strategy as well as supporting the policy about clusters, through outlining the dynamic evolution process of the networking activities in a knowledge industry cluster.

Keywords: Analysis, Attention, Capabilities, Capacity, Changes, Cluster, Collaboration, Complexity, Correlation, Disciplines, Dynamic, Economics, Emergence, Environmental, Evolution, Framework, Growth, Innovation, Innovation System, Knowledge, Management, Methodology, Network, Network Structure, Network Structure Analysis, Organization, Performance, Policy, Position, Regional, Research, Significance, Social Networks, Software, Strategic, Strategic Management, Strategy, Structure, Technology, Triple Helix

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Full Text: [2014\Scientometrics99, 97.pdf](2014/Scientometrics99,%2097.pdf)

Abstract: the purpose of this study is to explore the possibility of applying research collaboration as a new way of measuring research performance in Korean universities. In this study, we examine whether the activeness of research collaboration between university-government-industry can also enact as a way to measure the research performance aside from the typical indicators such as number of published articles or citations resulted from universities. Also this study focuses to analyze whether such performance differs according to universities’ characteristics and disciplines. For the analysis of the study, we gathered publication and citation data (2000-2009) of 46 Korean universities that are actively involved in research and analyzed their science citation index-expanded and the social sciences citation index (SSCI) data. Notable findings include (1) Several low ranked universities have shown rapid improvement with their research performance despite the rigid hierarchical characteristic of Korean higher education system, (2) Although universities in Korea are involved in various kinds of collaboration methods, it was evident that such dynamic is not necessarily reflected in existing hierarchy structure, (3) Academic relations with education oriented universities and research oriented universities have different dynamics and patterns in research collaboration, (4) In terms of the collaborative publication rate, private universities collaborate more actively amongst university sector whereas public universities collaborate more with government and industry. (5) Due to the nature of the social science subject itself, it was found that the research in SSCI is inevitably more based on the researcher’s independence, hence more international collaboration was found amongst researchers in natural science and engineering subjects.

Keywords: Academic, Analysis, Characteristics, Citation, Citation Index, Citations, Collaboration, Cooperation, Data, Disciplines, Dynamic, Dynamics, Education, Engineering, Higher Education, Impact, Improvement, Index, Indicators, Innovation, International, International Collaboration, International Scientific Collaboration, Korea, Measure, Methods, Natural, Performance, Public, Publication, Publication Rate, Published Articles, Purpose, Quality, Relations, Research, Research Collaboration, Research Performance, Research Productivity, Science, Science Citation Index Expanded, Sciences, Sector, Social, Social Sciences, SSCI, Structure, Triple-Helix, UIG Collaboration, Universities, University

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Full Text: [2014\Scientometrics99, 117.pdf](2014/Scientometrics99,%20117.pdf)

Abstract: Information Communication Technology (ICT) has a significant impact on the socioeconomic development of a country. However, the inequitable access to ICT still remains a major issue in developing countries. In this context, this study examines ICT knowledge infrastructure in South Asia from a network point of view. Existing research on ICTs are useful in understanding the common facts, but are limited in revealing the hidden structures and properties of the ICT research domain in South Asia. The hidden structures and properties, like key players, network of key players for scientific collaborations, and their network characteristics are analyzed and synthesized in this study. This study applies the mixed approach of Social Network Analysis techniques and Triple Helix indicators on scholarly papers obtained from the Web of Science database. Further, burst detection algorithm is applied on keywords appearing in the titles of the South Asian ICT scholarly papers to understand the emerging trends in the ICT research domain. This study helps in providing a better understanding of current trends, strengths, and weaknesses of ICT in South Asia, which provides a better understanding to bridge the digital divide and achieve socioeconomic development through ICT.

Keywords: Access, Algorithm, Analysis, Approach, Asia, Asian, Bridge, Burst Detection, Characteristics, Collaboration, Collaborations, Communication, Context, Country, Database, Developing, Developing Countries, Development, Digital Divide, Dynamics, Ict, Impact, Indicators, Industry-Government Relations, Information, Infrastructure, Innovation, Knowledge, Korea, Mapping, Network, Network Analysis, Papers, Properties, Research, Science, Social Network Analysis, South Asia, Systems, Techniques, Technology, Trends, Triple Helix, Triple-Helix, Understanding, University-Industry-Government Relationship, Web of Science

? Chung, C.J. (2014), An analysis of the status of the Triple Helix and university-industry-government relationships in Asia. *Scientometrics*, **99** (1), 139-149.

Full Text: [2014\Scientometrics99, 139.pdf](2014/Scientometrics99,%20139.pdf)

Abstract: the literature on the characteristics of the Triple Helix (TH) and university-industry-government relationships has not sufficiently shared research on this topic in Asia. Based on the assumption that the literature does not provide a sufficient overview of the sparse and complex yet diverse process of TH research in Asia, this study examines the characteristics of TH scholars such as their affiliations, preferred journals, international linkage patterns, and semantic discourse networks by analyzing their research articles. The results identify the most prominent TH scholars, journals, issues, and research trends in Asia and suggest a need for deeper and more creative analyses of the TH model in the region and for longer time periods for longitudinal analyses.

Keywords: Analyses, Analysis, Asia, Characteristics, Discourse, Dynamics, Future, Information, International, Issues, Journals, Knowledge-Based Innovation, Linkage, Literature, Longitudinal, Model, Networks, Region, Research, Research Trends, Review, Systems, Technology, Topic, Trends, Triple Helix, University-Industry-Government Relationship

? Meyer, M., Grant, K., Morlacchi, P. and Weckowska, D. (2014), Triple Helix indicators as an emergent area of enquiry: A bibliometric perspective. *Scientometrics*, **99** (1), 151-174.

Full Text: [2014\Scientometrics99, 151.pdf](2014/Scientometrics99,%20151.pdf)

Abstract: This contribution explores how work on Triple Helix (TH) indicators has evolved. Over the past 15 years a body of literature has emerged that brings together a variety of approaches to capture, map or measure the dynamics of TH relationships. We apply bibliographic coupling and co-citation in combination with content analysis to develop a better understanding of this literature. We identify several clusters that can be aggregated to two broad streams of work-one ‘neo-evolutionary’, the other ‘neo-institutional’ in nature. We make this observation both for bibliographic coupling and co-citation analyses which we take as indication of an emerging differentiation of the field. Our content analysis underlines this observation about the ‘two faces’ of the TH. We conclude this paper with a discussion of future opportunities for research. We see great potential in developing the application side of TH indicators.

Keywords: Analyses, Analysis, Application, Base, Bibexcel, Bibliographic, Bibliographic Coupling, Bibliometric, Bibliometric Review, Co-Citation, Cocitation, Collaboration, Content Analysis, Contribution, Developing, Differentiation, Dynamics, Field, Indication, Indicators, Knowledge Production, Literature, Mapping, Measure, Observation, Patents, Potential, Public Science, Regional Innovation Systems, Research, Scientific Literature, Streams, Technology, Triple Helix, Understanding, University-Industry-Government, Work

? Skoric, M.M. (2014), The implications of big data for developing and transitional economies: Extending the Triple Helix? *Scientometrics*, **99** (1), 175-186.

Full Text: [2014\Scientometrics99, 175.pdf](2014/Scientometrics99,%20175.pdf)

Abstract: This study examines the implications of the predicted big data revolution in social sciences for the research using the Triple Helix (TH) model of innovation and knowledge creation in the context of developing and transitional economies. While big data research promises to transform the nature of social inquiry and improve the world economy by increasing the productivity and competitiveness of companies and enhancing the functioning of the public sector, it may also potentially lead to a growing divide in research capabilities between developed and developing economies. More specifically, given the uneven access to digital data and scarcity of computational resources and talent, developing countries are at disadvantage when it comes to employing data-driven, computational methods for studying the TH relations between universities, industries and governments. Scientometric analysis of the TH literature conducted in this study reveals a growing disparity between developed and developing countries in their use of innovative computational research methods. As a potential remedy, the extension of the TH model is proposed to include non-market actors as subjects of study as well as potential providers of computational resources, education and training.

Keywords: Access, Analysis, Big Data, Competitiveness, Computational Methods, Computational Social Science, Context, Data, Developing, Developing Countries, Disparity, Economy, Education, Education and Training, Future, Innovation, Knowledge, Lead, Literature, Methods, Model, Potential, Productivity, Providers, Public, Public Sector, Relations, Research, Research Methods, Resources, Sciences, Scientometric, Scientometric Analysis, Sector, Social, Social Sciences, Training, Triple Helix, Universities, World

? Park, H.W. (2014), Mapping election campaigns through negative entropy: Triple and Quadruple Helix approach to South Korea’s 2012 presidential election. *Scientometrics*, **99** (1), 187-197.

Full Text: [2014\Scientometrics99, 187.pdf](2014/Scientometrics99,%20187.pdf)

Abstract: By considering Korea’s presidential election on December 19, 2012, this study examines how a presidential campaign can be measured using (negative) entropy indicators. We collected data from Google-indexed web documents, Twitter, and Facebook for four time periods. More specifically, we measured bilateral, trilateral, and quadruple relationships based on the number of web and social media mentions referring only to a candidate (this is, no mention of other candidates or the term “president”). The results indicate that Twitter tended to generate the highest entropy value across the three time periods but that President Geun-Hye Park outperformed the other candidates across all three periods on Google in terms of (negative) entropy indicators.

Keywords: Approach, Communication, Data, Entropy, Facebook, Google, Indicators, Information, Mapping, Media, Model, Movement, Networks, Politicians, President, Quadruple Helix, Social, South Korea, Systems, Term, Tracking, Triple Helix, Twitter, Value, Web, Webometrics

? Park, H.W. (2014), An interview with Loet Leydesdorff: the past, present, and future of the triple helix in the age of big data. *Scientometrics*, **99** (1), 199-202.

Full Text: [2014\Scientometrics99, 199.pdf](2014/Scientometrics99,%20199.pdf)

Abstract: the triple helix (TH) of university-industry-government relations can be considered as one of the most popular innovation models in the last two decades. In this brief interview with Leydesdorff, we show how the TH can be used to improve knowledge-based innovation systems in some developing and transitional economies and provide some concrete examples of TH applications in the age of big data.

Keywords: Age, Big Data, Concrete, Data, Developing, Developing Economy, Innovation, Knowledge-Based, Leydesdorff, Models, Relations, Systems, Transitional Economy, Triple Helix

? Park, H.W. (2014), Transition from the Triple Helix to N-Tuple Helices? An interview with Elias G. Carayannis and David F. J. Campbell. *Scientometrics*, **99** (1), 203-207.

Full Text: [2014\Scientometrics99, 203.pdf](2014/Scientometrics99,%20203.pdf)

Abstract: Given the widespread use of many digitalized communication channels, knowledge production activities have rapidly become interrelated. As the term “network society” implies, knowledge-based innovation systems have been built mainly on the mediated social infrastructure, which has lead to the emergence of the N-Tuple Helix model. I wish to contribute to this special issue by offering an interview with Prof. Dr. Elias G. Carayannis and Dr. David F. J. Campbell, the two co-authors and co-creators of the Quadruple (Government, University, Industry and Civil Society) and Quintuple (Quadruple Innovation Helix plus Environment) Innovation Helix concepts that extend, expand and complement the Triple Innovation Helix rubric. This article starts with brief background information on N-Tuple Helices and concludes with some implications for developing and transitional economies.

Keywords: Campbell, Carayannis, Co-Authors, Communication, Developing, Developing Economy, Development Partnerships, Environment, Government, Information, Infrastructure, Innovation, Knowledge, Knowledge-Based, Lead, Market Performance, Model, N-Tuple Helix, Networks, Quadruple and Quintuple Innovation Helix, Social, Systems, Term, Transition, Transitional Economy, Triple Helix, University, US

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Full Text: [2014\Scientometrics99, 209.pdf](2014/Scientometrics99,%20209.pdf)

Abstract: This study aims to explore the effects of both journal self citations and mutual citations within a group of journals on the increase in the impact factors (IFs) for social sciences journals published in Eastern Europe. We found that the practice of mutual citations is prevalent among the new journals, a trend that raises questions about possible manipulation of the IF and potential isolation of the recent journals from the international network of scholarly communication.

Keywords: Citations, Communication, Eastern Europe, Effects, Europe, Examination, Impact, Impact Factor, Impact Factors, International, Intra-Citations, Journal, Journals, Network, Potential, Practice, Rates, Recent, Scholarly Communication, Sciences, Scientific Journals, Self, Self-Citation, Self-Citations, Social, Social Sciences, Trend

? Hu, M.C., Wu, C.Y., Lee, J.H. and Lu, Y.C. (2014), The influence of knowledge source and ambidexterity in the thin film transistor and liquid crystal display industry: Evidence from Japan, Korea, and Taiwan. *Scientometrics*, **99** (2), 233-260.

Full Text: [2014\Scientometrics99, 233.pdf](2014/Scientometrics99,%20233.pdf)

Abstract: Based on country-level comparisons, this study applies geographic (internal vs. external) and knowledge (exploitation vs. exploration) boundaries to explore the influence of knowledge sources and ambidexterity on production and innovation performance in the thin film transistor-liquid crystal display (TFT-LCD) industries of the three major players, Japan, Korea, and Taiwan, from 1995 to 2009. Our findings suggest that different resource-based industrial development strategies are associated with the specific knowledge acquisition strategies in the technology leader, Japan and its followers, Korea and Taiwan. The contribution of this study is empirical verification of the influence of knowledge sources and ambidextrous capabilities on production and innovation activities in the TFT-LCD industries of these countries. Since each country is endowed with different resources, this study aims to reveal the strong implications of this for the design of an industrial strategy that has to acquire both known and new knowledge through internal and external sources simultaneously, while carefully integrating them and exploiting their interactions.

Keywords: Absorptive-Capacity, Ambidexterity, Boundaries, Capability, Contribution, Country, Design, Determinants, Development, Evidence, Exploitation, Exploration, Flows, Influence, Innovation, Japan, Knowledge, Knowledge Acquisition, Knowledge Source, Korea, Liquid, Liquid Crystal, National Innovative Capacity, Patent Citations, Performance, Resources, Source, Sources, Strategy, Taiwan, Technology, Tft-Lcd Industry, Thin Film, Verification

? Fragkiadaki, E. and Evangelidis, G. (2014), Review of the indirect citations paradigm: Theory and practice of the assessment of papers, authors and journals. *Scientometrics*, **99** (2), 261-288.

Full Text: [2014\Scientometrics99, 261.pdf](2014/Scientometrics99,%20261.pdf)

Abstract: the family of indicators presented in this paper includes indices created by taking into account not only the direct but also the indirect impact of citations and references. Three types of citation graphs are presented, namely, the Paper-Citation graph, the Author-Citation graph and the Journal-Citation graph, along with different methods for constructing them. In addition, the concept of generations of citations is examined in detail, again by presenting various methods for defining them found in the literature. Finally, a number of indirect indicators for papers, authors and journals are discussed, which among others, include PageRank, CiteRank, indirect h-index and the EigenFactor score.

Keywords: Assessment, Authors, Bibliometric Indicators, Citation, Citations, Concept, Family, h Index, h-Index, Hirsch h, Impact, Indicator, Indicators, Indices, Indirect Indicators, Journals, Literature, Methods, Networks, Output, Pagerank, Papers, Paradigm, Practice, Publication, Recursive Indicators, References, Review, Theory

? Campanario, J. (2014), The effect of citations on the significance of decimal places in the computation of journal impact factors. *Scientometrics*, **99** (2), 289-298.

Full Text: [2014\Scientometrics99, 289.pdf](2014/Scientometrics99,%20289.pdf)

Abstract: Journal impact factors (JIF) are computed by Thomson Reuters to three decimal places. Some authors have cast doubt on the validity of the third decimal place in JIFs. In this paper I present a new approach to evaluate the significance of decimal places in JIFs. To do so, two modified JIFs were computed by adding or removing one citation to the number used by Thomson Reuters to compute the JIF for journals listed in the 2008 Journal Citation Report. The rationale is that one citation is the minimum amount of impact that can be observed and analyzed. Next, the modified JIFs were compared with the original JIF to identify the decimal place that changed as consequence of adding or removing one citation. The results suggest that for about two-third of journals, the number of places used by Thomson Reuters to compute JIFs can be considered appropriate for the most part.

Keywords: Approach, Authors, Citation, Citations, Computation, History, Impact, Impact Factors, Journal, Journal Citation Report, Journal Impact, Journal Impact Factor, Journal Impact Factors, Journals, Minimum, Modified, Publications, Significance, Thomson Reuters, Thomson-Reuters, Validity

? Cerchiello, P. and Giudici, P. (2014), On a statistical *h* index. *Scientometrics*, **99** (2), 299-312.

Full Text: [2014\Scientometrics99, 299.pdf](2014/Scientometrics99,%20299.pdf)

Abstract: the measurement of the quality of academic research is a rather controversial issue. Recently Hirsch has proposed a measure that has the advantage of summarizing in a single summary statistics the information that is contained in the citation counts of each scientist. From that seminal paper, a huge amount of research has been lavished, focusing on one hand on the development of correction factors to the h index and on the other hand, on the pros and cons of such measure proposing several possible alternatives. Although the h index has received a great deal of interest since its very beginning, only few papers have analyzed its statistical properties and implications. In the present work we propose a statistical approach to derive the distribution of the h index. To achieve this objective we work directly on the two basic components of the h index: the number of produced papers and the related citation counts vector, by introducing convolution models. Our proposal is applied to a database of homogeneous scientists made up of 131 full professors of statistics employed in Italian universities. The results show that while “sufficient” authors are reasonably well detected by a crude bibliometric approach, outstanding ones are underestimated, motivating the development of a statistical based h index. Our proposal offers such development and in particular confidence intervals to compare authors as well as quality control thresholds that can be used as target values.

Keywords: Alternatives, Approach, Authors, Bibliometric, Citation, Citation Counts, Confidence, Confidence Intervals, Control, Convolution Models, Database, Development, Discrete Extreme Value Models, Distribution, h Index, h-Index, Hirsch, Hirsch Index, Index, Information, Intervals, Italian Universities, Measure, Measurement, Models, Papers, Professors, Properties, Quality, Quality Control, Quality Of, Research, Scientists, Statistics, Thresholds, Universities, Work

? Capellari, S. and De Stefano, D. (2014), University-owned and university-invented patents: A network analysis on two Italian universities. *Scientometrics*, **99** (2), 313-329.

Full Text: [2014\Scientometrics99, 313.pdf](2014/Scientometrics99,%20313.pdf)

Abstract: the paper presents results from social network analysis applied to data on patenting of academics inventors employed in two Italian universities (Trieste University and Udine university, both located in Friuli Venezia Giulia region). The aim is to compare the co-invention networks generated by the academic inventors, tenured by one of the two universities, in their patenting activity with several organisations-firms, public research organisations-and in their activity for patents owned by one of the two universities. Results show that, despite the structural similarity, non-marginal differences emerge in the interaction of the two forms of patenting across the two universities. Empirical evidence suggests new research questions related in particular to the role played by the differing university patenting strategies in shaping local networks.

Keywords: Academic Patenting, Academic Research, Academics, Activity, Analysis, Blockmodeling, Brokerage, Collaboration, Data, Evidence, Fields, Forms, Industry-Government Relations, Innovation, Interaction, Italian Universities, Knowledge, Local, Network, Network Analysis, Networks, Patents, Performance, Public, Region, Research, Results, Role, Science, Science-Industry Linkages, Similarity, Social, Social Network, Social Network Analysis, Technology, Triple-Helix, Universities, University

? Ausloos, M. (2014), Binary scientific star coauthors core size. *Scientometrics*, **99** (2), 331-351.

Full Text: [2014\Scientometrics99, 331.pdf](2014/Scientometrics99,%20331.pdf)

Abstract: It is examined whether the relationship J ae A/r (alpha), and the subsequent coauthor (CA) core notion (Ausloos, Scientometrics 95(3):895-909, 2013), between the number (J) of joint publications (JPs) by a “main scientist” [leading investigator (LI)] with her/his CAs can be extended to a team-like system. This is done by considering that each CA can be so strongly tied to the LI that they are forming binary scientific star (BSS) systems with respect to their other collaborators. Moreover, publications in peer review journals and in “proceedings”, both often thought to be of “different quality”, are separately distinguished. The role of a time interval for measuring J and alpha is also examined. New indirect measures are also introduced. For making the point, two LI cases with numerous CAs are studied. It is found that only a few BSS need to be usefully examined. The exponent alpha turns out to be “second scientist” weakly dependent, but still “size” and “publication type” dependent, according to the number of CAs or JP. The CA core value is found to be (CA or JP) size and publication type dependent, but remains in an understandable range. Somewhat unexpectedly, no special qualitative difference on the BSS CA core value is found between publications in peer review journals and in proceedings. In conclusion, some remark is made on partner cooperation in BSS teams. It is suggested that such measures can serve as criteria for distinguishing the role of scientists in a team.

Keywords: Bibliometric Indicators, Binary, Coauthorship, Cooperation, Criteria, h-Index, Hirsch Index, Interval, Journals, Li, Measures, Networks, Notion, Partner, Peer Review, Peer Review Journals, Peer-Review, Power Laws, Proceedings, Productivity, Publication, Publications, Qualitative, Quality, Research Collaboration, Research Cores, Review, Role, Scientists, Scientometrics, Size, Systems, Time Effects, Value, Variants

? Luor, T.Y., Lu, H.P., Yu, H.J. and Chang, K.L. (2014), Trends in and contributions to entrepreneurship research: A broad review of literature from 1996 to June 2012. *Scientometrics*, **99** (2), 353-369.

Full Text: [2014\Scientometrics99, 353.pdf](2014/Scientometrics99,%20353.pdf)

Abstract: This article, which began as an effort to gauge trends in and contributions to the broad field of “entrepreneur/entrepreneurship,” reviews 5,476 academic articles on entrepreneurship that were published in 522 Social Sciences Citation Index and Science Citation Index journals from 1996 to June 2012. This survey identifies keywords and conducts a review to search for and identify related articles in the Institute for Scientific Information Web of Science database. We then present our findings, including the number of publications by year, categorization of article types, main academic journals, authors, and most-cited articles. The citation counts for authors, journals, and articles are also analyzed. This study indicates that the number of articles related to the keyword entrepreneur increased from 1996 to the end of 2011, which is a sign of an upward trend in the influence of entrepreneurs. Entrepreneur research fascinated numerous scholars during the study period covering 16.5 years. In particular, researchers from the USA, England, Canada, Germany, and the Netherlands have made the most contributions to this field. This literature review provides evidence that the concept of entrepreneur attracted academic researchers, resulting in significant contributions to the field of entrepreneur research.

Keywords: Authors, Canada, Citation, Citation Analysis, Citation Counts, Concept, Contribution Research, Database, England, Entrepreneur, Entrepreneurship, Evidence, Field, Forum, Germany, Influence, Information, Institute For Scientific Information, Journals, Knowledge, Law, Literature, Literature Review, Most Cited Articles, Organizations, Publications, Research, Review, Review of Literature, Reviews, Scholars, Science, Science Citation Index, Sciences, Social Sciences, Social Sciences Citation Index, Survey, Technology, the Netherlands, Trend, Trends, USA, Web of Science

? Liu, A.Y., Li, S.Y. and Guo, Y.Q. (2014), Characteristics of research on bioinformatics in China assessed with Science Citation Index Expanded. *Scientometrics*, **99** (2), 371-391.

Full Text: [2014\Scientometrics99, 371.pdf](2014/Scientometrics99,%20371.pdf)

Abstract: A bibliometric research based on the Science Citation Index Expanded was carried out to provide insights into research activities on bioinformatics in China. Annual publication output has been on continuous increase both worldwide and for China from 1998 to 2012. In recent years, China showed faster growth rates than world average. As the second productive country in the field of bioinformatics, China did not do equally well in terms of citation counts and h-index. Chinese Academy of Sciences and Shanghai Jiao Tong University were among the ten most productive institutes in the world, and their basic metrics and collaboration patterns were compared with other institutes, especially two institutes from Japan. The journal PLoS One was found to have published the most papers from China. In addition, this paper compared the most active categories in Web of Science worldwide with those of China. Personal perspectives of bioinformatics research in China were also presented.

Keywords: Bibliometric, Bibliometric Analysis, Bibliometric Analysis, Bibliometric Research, Bioinformatics, China, Chinese, Citation, Citation Counts, Collaboration, Computational Biology, Country, Field, Growth, h Index, h-Index, Japan, Journal, Metrics, Papers, Publication, Rates, Recent, Research, Science, Science Citation Index, Science Citation Index Expanded, Sciences, Shanghai, University, Web of Science, World

? Schubert, T. (2014), Are there scale economies in scientific production? On the topic of locally increasing returns to scale. *Scientometrics*, **99** (2), 393-408.

Full Text: [2014\Scientometrics99, 393.pdf](2014/Scientometrics99,%20393.pdf)

Abstract: In this paper the question of returns to scale in scientific production is analysed using non-parametric techniques of multidimensional efficiency measurement. Based on survey data for German research groups from three scientific fields, it is shown that the multidimensional production possibility sets are weakly non-convex and locally strictly non-convex. This suggests that the production functions for the groups in the sample are characterised by increasing returns to scale in some regions and at least constant returns to scale otherwise. This has two implications for the organisation of scientific research: first, the size of at least some groups in our sample is suboptimal and they would benefit from growth. Second, greater specialisation in certain tasks in science (e.g. transfer-oriented groups vs. research-oriented groups) would increase the output of the overall system.

Keywords: Costs, Data, Data Envelopment Analysis, Dea, Efficiency, Efficiency Scores, First, Functions, Groups, Growth, Higher-Education, Indicators, Institutions, Management, Measurement, Multidimensional, Production, Research, Research Performance, Research Units, Returns To Scale, Scale, Science, Scientific Production, Scientific Research, Scope, Size, Specialisation, Survey, Techniques, Topic, Universities

? Lorentzen, D.G. (2014), Webometrics benefitting from web mining? An investigation of methods and applications of two research fields. *Scientometrics*, **99** (2), 409-445.

Full Text: [2014\Scientometrics99, 409.pdf](2014/Scientometrics99,%20409.pdf)

Abstract: Webometrics and web mining are two fields where research is focused on quantitative analyses of the web. This literature review outlines definitions of the fields, and then focuses on their methods and applications. It also discusses the potential of closer contact and collaboration between them. A key difference between the fields is that webometrics has focused on exploratory studies, whereas web mining has been dominated by studies focusing on development of methods and algorithms. Differences in type of data can also be seen, with webometrics more focused on analyses of the structure of the web and web mining more focused on web content and usage, even though both fields have been embracing the possibilities of user generated content. It is concluded that research problems where big data is needed can benefit from collaboration between webometricians, with their tradition of exploratory studies, and web miners, with their tradition of developing methods and algorithms.

Keywords: Academic Web, Algorithms, Analyses, Citation Analysis, Collaboration, Cybermetrics, Data, Decisional Dna, Developing, Development, Differences, Hyperlink Analysis, Investigation, Link Analysis, Literature, Literature Review, Methods, Mining, Network Structure, Potential, Research, Review, Search Engine, Site Interlinking, South-Korea, Structure, Web, Web Content, Web Data Mining, Web Mining, Webometrics, World-Wide-Web

? Garcia, J.A., Rodriguez-Sanchez, R. and Fdez-Valdivia, J. (2014), How the same organizational structures can arise across seemingly unrelated domains of human activities: the example of academic publishing and stock market. *Scientometrics*, **99** (2), 447-461.

Full Text: [2014\Scientometrics99, 447.pdf](2014/Scientometrics99,%20447.pdf)

Abstract: Here we show how the same organizational structures can arise across seemingly unrelated domains of human activities. To this end we examine the example of academic journals publishing and stock market. A number of academic journals with low-prestige and limited resources may compete in the same selection process of high-quality manuscripts. This shared selection process is performed by an independent editorial committee. A journal editor is interested in maximizing the growth rate of journal wealth based on an optimal strategy of allocations on candidate manuscripts. Here we introduce the system of optimality equations for the maximization problem. Next, we find an optimal set of manuscripts to allocate on, as well as the optimal allocation fractions. It can be easily implemented by a simple algorithm for use at the shared selection process of high-quality manuscripts. The proposed structure presents a loose network of economic transactions, i.e. journal editors compete on somewhat like manuscript market by making stakes and risking their money. We provide a publicly available suite of web-based tools designed to the computation of the optimal set of manuscripts and the respective allocation fractions. Examples of the performance of the Web application for allocating journal resources are presented for two different selection processes of high-quality manuscripts.

Keywords: Academic Publishing, Algorithm, Allocation, Application, Computation, Economic, Growth, Growth Rate, High-Quality Manuscripts, Human, Human Activities, Interdisciplinary Approach, Journal, Journal Editors, Journals, Market, Network, Optimal Allocations, Optimality, Organizational, Performance, Publishing, Resources, Selection, Selection Process, Strategy, Structure, Wealth

? Silaghi-Dumitrescu, R. and Sabau, A. (2014), Scientometric analysis of relative performance in a key university in Romania. *Scientometrics*, **99** (2), 463-474.

Full Text: [2014\Scientometrics99, 463.pdf](2014/Scientometrics99,%20463.pdf)

Abstract: A scientometric analysis of the BabeAY-Bolyai University in Romania is provided, highlighting the strong and the weak points with respect to a range of leading international universities and referencing to some extent to nation-wide data from several countries. Taken into account are such items as total number of publications, analyses per subject area or per research field, number of citations, types of publications, Hirsch indexes, and books. Internationally, chemistry, physics, mathematics, computer science, religion, area studies, geology, paleontology, and public administration are identified as the most active areas. Nationally, a number of additional strong points are identified, such as psychology, history, and environmental sciences. The percentage of researchers with reasonably high activity (e.g., at least similar to one publication per year as indexed in major databases) is relatively low (similar to 10 %), and the percentage with reasonably high international competitiveness (based on citation counts, number of publications, books indexed in international libraries) is at only similar to 2 %. The decisive factor controlling an exponential increase in publications since similar to 2000-2004 appears to have been a conservatively managed exponential increase of the national GDP and implicitly of the research budgets.

Keywords: Activity, Administration, Analyses, Analysis, Babes-Bolyai, Chemistry, Citation, Citation Counts, Citations, Cluj-Napoca, Competitiveness, Computer Science, Countries, Data, Database, Databases, Environmental, Field, Gdp, Geology, Hirsch, History, Index, Indicators, International, Minister, National Research Performance, Performance, Physics, Plagiarism, Psychology, Public, Public Administration, Publication, Publications, Referencing, Religion, Research, Romania, Science, Sciences, Scientific-Research, Scientometric, Scientometric Analysis, Universities, University

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Full Text: [2014\Scientometrics99, 475.pdf](2014/Scientometrics99,%20475.pdf)

Abstract: the degree to which scholarly journal articles published in subscription-based journals could be provided open access (OA) through publisher-permitted uploading to freely accessible web locations, so called green OA, is an underexplored area of research. This study combines article volume data originating from the Scopus bibliographic database with manually coded publisher policies of the 100 largest journal publishers measured by article output volume for the year 2010. of the 1.1 million articles included in the analysis, 80.4 % could be uploaded either as an accepted manuscript or publisher version to an institutional or subject repository after one year of publication. Publishers were found to be substantially more permissive with allowing accepted manuscripts on personal webpages (78.1 % of articles) or in institutional repositories (79.9 %) compared to subject repositories (32.8 %). With previous studies suggesting realized green OA to be around 12 % of total annual articles the results highlight the substantial unused potential for green OA.

Keywords: Access, Analysis, Bibliographic, Data, Database, Growth, Journal, Journal Articles, Journals, Open, Open Access, Policies, Potential, Publication, Publisher, Publishers, Research, Science Policy, Scientific Publishing, Scopus, Self-Archiving, Version, Volume, Web

? Cechlarova, K., Fleiner, T. and Potpinkova, E. (2014), Assigning evaluators to research grant applications: the case of Slovak Research and Development Agency. *Scientometrics*, **99** (2), 495-506.

Full Text: [2014\Scientometrics99, 495.pdf](2014/Scientometrics99,%20495.pdf)

Abstract: Peer evaluation of research grant applications is a crucial step in the funding decisions of many science funding agencies. Funding bodies take various measures to increase the independence and quality of this process, sometimes leading to difficult combinatorial problems. We propose a novel method based on network flow theory to find assignments of evaluators to grant applications that obey the rules formulated by the Slovak Research and Development Agency.

Keywords: Agency, Algorithm, Bodies, Evaluation, Flow, Funding, Grant Application Evaluation, Measures, Network, Network Flow, Peer Evaluation, Peer Review, Proposals, Quality, Quality Of, Research, Reviewer Assignment Problem, Science, Slovak, Theory

? Liu, W.S., Gu, M.D., Hu, G.Y., Li, C., Liao, H.C., Tang, L. and Shapira, P. (2014), Profile of developments in biomass-based bioenergy research: A 20-year perspective. *Scientometrics*, **99** (2), 507-521.

Full Text: [2014\Scientometrics99, 507.pdf](2014/Scientometrics99,%20507.pdf)

Abstract: In an era of energy crisis, biomass-based bioenergy research has attracted the attention of R&D managers and policy makers around the world. This study explores the structural and dynamic patterns of biomass-based bioenergy research. We measure the profile of biomass research on both macro scales (nations) and meso level (institutions) in an international context. We find that biomass publications are intensively distributed in developed regions and some emerging economies. The U.S. leads in this emerging field as evidenced by research quantity, impact, and international collaboration links. China is developing rapidly in this domain in terms of publication volume and collaborative links but suffers from low research visibility. The study also finds strong interactions are taking place both within macro-disciplines and between macro-disciplines. Research limitations are presented.

Keywords: Attention, Bibliometric Analysis, Bibliometric Analysis, Bioenergy, Biomass, Biomass-Based Bioenergy, China, Collaboration, Context, Crisis, Developing, Distributed, Dynamic, Emerging Economies, Energy, Field, Fuels, Impact, Information Visualization, Institutions, International, International Collaboration, Measure, Nanoscience, Nanotechnology Research, Nations, Policy, Publication, Publications, R&D, Research, Research Profile, Scales, Scientific Collaboration, Search, Visibility, Volume, World

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Full Text: [2014\Scientometrics99, 523.pdf](2014/Scientometrics99,%20523.pdf)

Abstract: Drawing on social choice theory we derive a rationale in which each reviewer is asked to provide his or her second, third, and fourth choice in addition to his/her first choice recommendation regarding the acceptance/revision/rejection of a given manuscript. All reviewers’ hierarchies of alternatives are collected and combined such that an overall ranking can be computed. Consequently, conflicting recommendations are resolved not by asking a third adjudicating reviewer for his/her recommendation as is usual editorial praxis in many scientific journals, but rather by using more information from the available judges. After a brief introduction into social choice theory and a description and justification of the maximum likelihood rule for ranking alternatives, we describe and demonstrate a public available web application that provides easy-to-use tools to apply these methods for aggregating conflicting reviewers’ recommendations. This application might be accessed by editors to aid their decision process in case they receive conflicting recommendations by their reviewers.

Keywords: Alternatives, Application, Choice, Conflicting Recommendations, Consensus Ranking, Decision, First, Information, Journals, Maximum Likelihood, Methods, Peer Review, Public, Ranking, Ranking Rule, Recommendations, Scientific Journals, Social, Social Choice Theory, Stands Today, Theory, Web

? Selek, S. and Saleh, A. (2014), Use of *h* index and g index for American academic psychiatry. *Scientometrics*, **99** (2), 541-548.

Full Text: [2014\Scientometrics99, 541.pdf](2014/Scientometrics99,%20541.pdf)

Abstract: Several publication metrics are used for the evaluation of academic productivity. h index and g index are relatively new statistics for this purpose. Our aim is to evaluate academic psychiatrists’ h and g indices at different academic ranks in the United States. 30 psychiatry programs from the American Medical Association’s FREIDA online database were included to the study. From each academic rank, the total number of papers (P (total)), The single authored papers (P (single)) and the h and g indexes of faculty members were calculated by using one way ANOVA for multiple comparisons as primary analysis test. The metric medians as follows; P (total) = 34.5, P (single) = 13, g index = 19.5 and h index = 9. h index significantly differed between academic ranks except chairperson-professor. The other indices failed to distinguish junior academic ranks (associated professor-assistant professor) in addition to chairperson-professor. The strongest correlation was between h index and g indexes. of the indices evaluated, the h-index is best tracked with academic ranking in psychiatry programs studied.

Keywords: Academic Productivity, Analysis, Anova, Bibliometrics, Citations, Correlation, Database, Evaluation, Faculty, g Index, g-Index, h Index, h-Index, Index, Indexing, Indices, Medical, Metrics, Online, P, Papers, Performance Evaluation, Physicians, Primary, Productivity, Professor, Psychiatrists, Psychiatry, Publication, Purpose, Rank, Ranking, Scholarly Impact, Scopus, Statistics, United States, University, Web-Of-Science

? Hassan, S.U., Haddawy, P. and Zhu, J. (2014), A bibliometric study of the world’s research activity in sustainable development and its sub-areas using scientific literature. *Scientometrics*, **99** (2), 549-579.

Full Text: [2014\Scientometrics99, 549.pdf](2014/Scientometrics99,%20549.pdf)

Abstract: This paper presents a bibliometric study of the world’s research activity in Sustainable Development using scientific literature. The study was conducted using data from the Scopus database over the time period of 2000-2010. We investigated the research landscape in Sustainable Development at country level and at institute level. Sustainable Development and its sub-areas are defined by keywords vetted by the domain experts, allowing publications to be identified independent of the journals and conferences in which they are published. The results indicate that institutes strong in Sustainable Development overall may not be strong in all sub-areas and that institutes not strong in Sustainable Development overall may have significant niche strengths in a given sub-area. It is also noted that China appears strong in terms of publication output in Sustainable Development and its sub-areas but it does not appear strong in terms of citation counts. The information produced in this study can be useful for government research agencies in terms of understanding how to more effectively knit together the various niche strengths in the country; and for the institutes to find strategic partners that can coordinate in niche areas of Sustainable Development and complement their strengths. In order to conduct bibliometric analysis in an interdisciplinary research area, the keyword collection approach appears to be very useful. This approach is flexible and can be used to conduct such analysis for interdisciplinary research fields.

Keywords: 2000-2010, Activity, Analysis, Approach, Bibliometric, Bibliometric Analysis, Bibliometric Study, Bibliometrics, China, Citation, Citation Counts, Collection, Conferences, Country, Data, Database, Development, Experts, Information, Interdisciplinary, Interdisciplinary Research, Interdisciplinary Research Fields, Journals, Landscape, Literature, Niche, Publication, Publications, Research, Science, Scientific Literature, Scopus, Scopus Database, Strategic, Subject Categories, Sustainable, Sustainable Development, Time Period, Understanding

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Full Text: [2014\Scientometrics99, 581.pdf](2014/Scientometrics99,%20581.pdf)

Abstract: Authors have various motivations in citing references during scientific production. The study of these motivations has led to the introduction of different theories like normative theory and social constructive theory of citing behavior. Using the social constructive approach to citing behavior, this research introduces citing conformity whereby some authors’ social, personal or non professional citing behaviors are determined by societal pressure. This is explained at three levels namely; normative, informational and identification. This paper aims to design, validate and determine the reliability of a questionnaire to measure citing conformity at these three levels. In order to devise the instrument, a questionnaire with 45 items was preliminarily designed. After face validity of the questionnaire had been determined by ten scholars, data was gathered. 150 Iranian authors with at least two articles indexed in Arts and Humanities Citation Index (AHCI) or Social Science Citation Index (SSCI) during the period 2001-2010 were selected using systematic random allocation and were asked to fill out the questionnaire. Exploratory factor analysis was used to analyze the data. Factor analysis was administered using principal components analysis (PCA) with Varimax rotation, eigenvalue more than one, and factor loading 0.45 to extract three factors. Out of 45 items, 11 were deleted by the software due to low factor loading. The remaining 34 items were retained and constitute tree factors: normative (13 items), informational (13 items), and identification (8 items). KMO coefficient test was 0.726 and Bartlett sphericity index was 2431.91 (P < 0.0001) which proved the sufficiency of sample size and the reliability of the test. Cronbach’s alpha was employed to determine the reliability of this instrument. Cronbach’s alpha coefficient for normative, informational and identification conformities was 0.86, 0.81 and 0.85 respectively. Therefore, the reliability of all the factors was acceptable with approximately high coefficients. As the Cronbach’s alpha coefficients convey, the reliability of all factors was acceptable. The development of a citing conformity instrument at normative, informational and identification levels, provides a scale to measure authors’ citing behavior in social, personal or non professional aspects according to the above mentioned psychological variables (normative, informational and identification conformities). Therefore, this instrument will be able to explain the authors’ citing behavior and motivations in a large extent of a subject area.

Keywords: Allocation, Analysis, Approach, Articles, Arts and Humanities Citation Index, Authors, Behavior, Citation, Citation Behavior, Citing Behaviors, Citing Motivations, Data, Design, Designing, Development, Factor Analysis, Humanities, Identification, Identification Citing Conformity, Impact, Index, Informational Citing Conformity, Instrument, Loading, Measure, Normative Citing Conformity, P, PCA, Pressure, Psychological, Psychology Journals, Questionnaire, References, Reliability, Research, Sample Size, Scale, Science, Science Citation Index, Scientific Production, Size, Social, Social Science Citation Index, Software, SSCI, Theory, Validation, Validity

? Chang, Y.W. (2014), Exploring scientific articles contributed by industries in Taiwan. *Scientometrics*, **99** (2), 599-613.

Full Text: [2014\Scientometrics99, 599.pdf](2014/Scientometrics99,%20599.pdf)

Abstract: the scientific knowledge contributed by industries remains ambiguous because prior studies have evaluated only specific industries, large companies, or industries collaborating with universities. We conducted a bibliometric analysis of data in the Web of Science database to explore the research partners of industries and determine which industries generate scientific articles, observing industrial trends in Taiwan from 1982 to 2011. The results showed that articles were published related to 26 industries, and the electronic components industry generated the highest percentage of articles (42.4 %), followed by the computer, electronics, and optical product industry (12.3 %). High-tech industries dominated, generating 84.5 % of the articles and demonstrating an annual increase in publications. In addition, industry researchers tended to cooperate with researchers affiliated with domestic institutions, particularly universities. Those in high-tech industries produced a higher percentage of articles coauthored with universities compared with those in low-tech industries.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Collaboration, Companies, Corporate Research, Data, Database, Industries, Information, Innovation, Institutions, Knowledge, Publications, Research, Research-And-Development, Science, Scientific Collaboration, Taiwan, Technology, Trends, Universities, Web of Science

? Garcia, J.A., Rodriguez-Sanchez, R., Fdez-Valdivia, J., Robinson-Garcia, N. and Torres-Salinas, D. (2014), Best-in-class and strategic benchmarking of scientific subject categories of Web of Science in 2010. *Scientometrics*, **99** (3), 615-630.

Full Text: [2014\Scientometrics99, 615.pdf](2014/Scientometrics99,%20615.pdf)

Abstract: Here we show a novel technique for comparing subject categories, where the prestige of academic journals in each category is represented statistically by an impact-factor histogram. For each subject category we compute the probability of occurrence of scholarly journals with impact factor in different intervals. Here impact factor is measured with Thomson Reuters Impact Factor, Eigenfactor Score, and Immediacy Index. Assuming the probabilities associated with a pair of subject categories our objective is to measure the degree of dissimilarity between them. To do so, we use an axiomatic characterization for predicting dissimilarity between subject categories. The scientific subject categories of Web of Science in 2010 were used to test the proposed approach for benchmarking Cell Biology and Computer Science Information Systems with the rest as two case studies. The former is best-in-class benchmarking that involves studying the leading competitor category; the latter is strategic benchmarking that involves observing how other scientific subject categories compete.

Keywords: Approach, Benchmarking, Biology, Case Studies, Cell Biology, Characterization, Computer Science, Computer Science Information Systems, Eigenfactor, Immediacy, Impact, Impact Factor, Impact-Factor Histogram, Information, Intervals, Journals, Measure, Research Assessment Exercises, Scholarly Journals, Science, Scientific Subject Categories, Strategic, Thomson Reuters, Thomson-Reuters, Web of Science

? Schymura, M. and Loschel, A. (2014), Incidence and extent of co-authorship in environmental and resource economics: Evidence from the *Journal of Environmental Economics and Management*. *Scientometrics*, **99** (3), 631-661.

Full Text: [2014\Scientometrics99, 631.pdf](2014/Scientometrics99,%20631.pdf)

Abstract: We examine the incidence and extent of co-authorship in environmental and resource economics by investigating the leading journal of environmental and resource economics: the Journal of Environmental Economics and Management. Previous studies of general economic journals have offered empirical evidence for the fact that intellectual collaboration is most prevalent in the field of environmental and resource economics. However, no previous study has examined this finding more carefully. This is a gap in the literature we hope to fill. Accordingly, we investigate all 1,436 papers published in JEEM from 1974 until 2010 with respect to potential drivers of co-authorship. We start with a descriptive analysis in order to depict the most important trends in the past 36 years. We then employ empirical methods to test several hypotheses that are commonly used to analyze the structure of co-authorship. However, we do not stick to hypotheses but investigate also other potentially relevant drivers of co-authorship as e.g. external funding. We find empirical support for a relation between the number of authors and key characteristics of an article like the number of equations, tables or the presence of external funding. Research in environmental and resource economics is demanding in terms of both disciplinary and interdisciplinary skills, so the likelihood of collaboration and jointly written publications is present and significant.

Keywords: Analysis, Article, Authors, Characteristics, Citation Analysis, Co-Authorship, Coauthorship, Collaboration, Determinants, Ecological Economics, Economic, Economics, Environmental, Environmental and Resource Economics, Evidence, Field, Funding, General, Incidence, Interdisciplinary, Jeem, Journal, Journals, Literature, Management, Methods, Papers, Potential, Production Of Knowledge, Publications, Quality, Research, Structure, Support, Trends

? Paolucci, M. and Grimaldo, F. (2014), Mechanism change in a simulation of peer review: From junk support to elitism. *Scientometrics*, **99** (3), 663-688.

Full Text: [2014\Scientometrics99, 663.pdf](2014/Scientometrics99,%20663.pdf)

Abstract: Peer review works as the hinge of the scientific process, mediating between research and the awareness/acceptance of its results. While it might seem obvious that science would regulate itself scientifically, the consensus on peer review is eroding; a deeper understanding of its workings and potential alternatives is sorely needed. Employing a theoretical approach supported by agent-based simulation, we examined computational models of peer review, performing what we propose to call redesign, that is, the replication of simulations using different mechanisms. Here, we show that we are able to obtain the high sensitivity to rational cheating that is present in literature. In addition, we also show how this result appears to be fragile against small variations in mechanisms. Therefore, we argue that exploration of the parameter space is not enough if we want to support theoretical statements with simulation, and that exploration at the level of mechanisms is needed. These findings also support prudence in the application of simulation results based on single mechanisms, and endorse the use of complex agent platforms that encourage experimentation of diverse mechanisms.

Keywords: Agent-Based Simulation, Alternatives, Application, Approach, BDI Approach, Consensus, Elitism, Literature, Mechanism, Mechanism Change, Mechanisms, Modeling Approach, Models, Peer Review, Peer-Review, Potential, Rational Cheating, Reliability, Replication, Research, Restrained Cheaters, Review, Science, Sensitivity, Simulation, Small, Support, Theoretical, Understanding

? Huang, C., Su, J., Xie, X. and Li, J. (2014), Basic research is overshadowed by applied research in China: A policy perspective. *Scientometrics*, **99** (3), 689-694.

Full Text: [2014\Scientometrics99, 689.pdf](2014/Scientometrics99,%20689.pdf)

Abstract: This paper demonstrates that basic research has been overshadowed by applied research in China for decades, from the perspective of S&T policy. The data involves 4,707 Chinese S&T policies during the period between 1949 and 2010, which are grouped into five phases, based on the process of S&T system reform in China. We also found that S&T policies in China are leaning more towards basic research, and the gap between basic research and applied research is shrinking.

Keywords: Applied Research, Applied Research & Industrialization, Basic Research, China, Chinese, Data, Policies, Policy, Reform, Research, S&T Policy, Science

? Zhou, P. and Tian, H.B. (2014), Funded collaboration research in mathematics in China. *Scientometrics*, **99** (3), 695-715.

Full Text: [2014\Scientometrics99, 695.pdf](2014/Scientometrics99,%20695.pdf)

Abstract: Based on publications in mathematics of Chinese authors indexed in Chinese domestic and international databases, namely, the CNKI and the Web of Science, the current paper tries to explore impact of collaboration and funding support on academic productivity. Collaboration is classified into domestic and international collaboration, and domestic collaboration is further divided into within-institutional collaboration and cross-institutional collaboration. Regional performance in terms of collaboration and funding support has also been investigated. The results show that collaboration and funded support are highly skewed among Chinese regions. Beijing, Jiangsu, Shanghai, and Zhejiang are most active in collaboration and are the major winners of research funds. Zhejiang and Shaanxi perform in a contrast way: the former publishes mostly internationally whereas the latter mainly domestically. Compared with within-institutional collaboration, cross-institutional and international collaboration perform better in raising productivity and achieving research funds.

Keywords: Academic Productivity, Authors, China, Chinese, Collaboration, Cross-Institutional Collaboration, Databases, Domestic Collaboration, Excellence, Funded Collaboration, Funding, Impact, International, International Collaboration, International Collaboration, Performance, Productivity, Publications, Research, Science, Scientific Co-Authorship, Shanghai, Support, View, Web of Science, Within-Institutional Collaboration

? Sotudeh, H. and Khoshian, N. (2014), Gender, web presence and scientific productivity in nanoscience and nanotechnology. *Scientometrics*, **99** (3), 717-736.

Full Text: [2014\Scientometrics99, 717.pdf](2014/Scientometrics99,%20717.pdf)

Abstract: Digital and scientific realms are commonly believed to be gendered. The wide pervasiveness of e-science may result in an interaction between the scientific and digital gender divides, increasing the disparities against women. Selecting web-presence as a manifestation of web activity, and applying a quasi-experimental scientometric method, the present study aims to investigate the effects of the interaction, if any, on web-present females and males compared to web-absent ones in Nanoscience and Nanotechnology. The results show that the web-present Nanoscientists are not necessarily superior in their scientific production, though they are higher in their recognition. The web-present females and males are equal in their numbers and productions. Although the female web-present are found to be equal in their recognition to their male counterparts, there is a significant difference between the web-present and web-absent males in this regard, signifying the higher impact of the web on males’ recognition.

Keywords: Activity, Computer-Mediated Communication, Digital, Disparities, Effects, Female, Gap, Gender, ICT, Impact, Impact, Interaction, Internet Usage, Male, Nanoscience, Nanoscience and Nanotechnology, Nanotechnology, Open-Access Articles, Productivity, Publication Productivity, Science, Scientific Production, Scientific Productivity, Scientometric, Social Networks, Web, Web Presence, Women

? Gao, W. and Guo, H.C. (2014), Nitrogen research at watershed scale: A bibliometric analysis during 1959-2011. *Scientometrics*, **99** (3), 737-753.

Full Text: [2014\Scientometrics99, 737.pdf](2014/Scientometrics99,%20737.pdf)

Abstract: Because of enhanced anthropogenic nitrogen input, eutrophication, hypoxia, and acidification threaten the health of aquatic ecosystems. To better understand the current state of research and emerging trends in this area, a bibliometric approach was applied to quantitatively evaluate global nitrogen research at the watershed scale. Using 9,748 articles selected from among 10,163 returned by a search in the Science Citation Index Expanded (SCI-Expanded) database from 1900 to 2011, spatial and temporal characteristics of the articles, authors, institutions, countries, and keywords are presented, and focal research areas are derived. Compared with the annual increase in all articles in the SCI-Expanded (4.5 %), The studies on nitrogen in watersheds increased more quickly (11.2 %), indicating an increasing interest in this area. The relationship between authors and their output was evaluated by a two-step function, in which 6,074 authors (26.8 %) publishing on this topic were key scientists who contributed 56.4 % of the total articles. Based on the number of authors, first authors, international collaborators, and citations, four types of authors were analyzed using cluster methods. The influence of the authors, institutions and countries was also analyzed in terms of publication and citation, and a co-occurrence analysis was used to assess cooperation among countries and research hotpots. The keywords were compared among countries to assist our understanding of interests of research and modes. From the analysis of the primary subjects and the co-occurrence of keywords, studies involving nitrogen’s environmental effects, the nitrogen process and models are increasing, which indicates that they are likely to become a primary research focus in the near future.

Keywords: Acidification, Analysis, Anthropogenic, Approach, Aquatic, Aquatic Ecosystems, Articles, Authors, Bibliometric, Bibliometric Analysis, Biogeochemistry, Characteristics, Citation, Citations, Cluster, Co-Occurrence Analysis, Cooperation, Cycle, Database, Ecosystems, Effects, Environmental, Environmental Effects, Eutrophication, First, Function, Future, Global, Health, Hypoxia, Influence, Institutions, International, Land, Methods, Models, Nitrogen, Nitrogen Cycle, Nutrients, Performance, Primary, Publication, Publishing, Research, Research Output, Research Trends, Review, Scale, Sci-Expanded, Science, Science Citation Index, Science Citation Index Expanded, Science-Citation-Index, Scientists, State, Temporal, Topic, Trends, Understanding, Watershed, Watershed Scale, Watersheds

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Full Text: [2014\Scientometrics99, 755.pdf](2014/Scientometrics99,%20755.pdf)

Abstract: This study represents one of the first attempts to use empirical analysis to estimate academic productivity complex and proves the thesis that academic productivity is a function of multidimensional combination of the work of academic researchers: the scientific work, education, and external relationships. Given the complexity of academic productivity, it is necessary to clarify that it is divided into scientific productivity of the first type (scientific publications); scientific productivity of the second type (awards and academic positions); productivity in terms of external relationships (or external advice); and educational productivity. This objective of this paper is achieved through a sample survey (2,738 academics responded) conducted by Italian researchers from the PIR research project. The results obtained, however (as a case of estimates obtained using the results of a sample survey), are the result of a working reality that Italian academics are flooded by a myriad of activities that are not always consistent with the primary aims of the work of a researcher with an organisational and environmental well-being at the limit of iper productivity (or hyper productivity). The overall productivity (academic productivity) is significantly correlated with the four dimensions: average annual scientific productivity of the first type, average annual scientific productivity of the second type, the productivity external advice and, lastly, teaching productivity. The estimate of the sizes for the four indicators of productivity are the result of a literature search of the primary techniques used to assess productivity in academia. By comparing the most significant indicators, we managed to select all of the technical aspects missing in the Italian system of evaluation. This process allowed for us to add additional variables characterising the various aspects of productivity and prove the validity of our theory about the multidimensionality of academic productivity.

Keywords: Academic Productivity, Academic Productivity Complex, Academics, Analysis, Approach, Assignments and Awards, Complexity, Didactics Productivity, Education, Environmental, Estimates, Evaluation, First, Function, Gender, Indicators, Literature, Literature Search, Multidimensional, Patents and Service Productivity, Primary, Productivity, Publications, Research, Sample Survey, Scientific Productivity, Scientific Publications, Scientists, Survey, Teaching, Techniques, Theory, Thesis, Validity, Well-Being, Work

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Full Text: [2014\Scientometrics99, 785.pdf](2014/Scientometrics99,%20785.pdf)

Abstract: This paper provides an analysis of the relationship between research performance and individual characteristics (e.g., career path information) of researchers, based on information provided in the curriculum vitaes of 565 excellent researchers within the life sciences and medical sciences fields in Japan. I specifically analyzed the relationship between the experiences of practical physicians and research performance. As a result, I found that the experience as a practical physician had a statistically positive relationship with the number of research papers, but there was not a significant relationship with the number of citations. Moreover, the diversity of a researcher’s career related significantly to the number of citations and patents. An employment experience at a young age with a company or independent administrative agency had a significant and positive relationship with number of coauthors. However, a significant relationship between work experience in a foreign country and research performance was not observed.

Keywords: Age, Analysis, Authorship, Career Path, Characteristics, Citations, Compare, Country, Curriculum, Curriculum Vitae, Curriculum-Vitae, Diversity, Diversity Of Career, Employment, Experience, Gender, Grants, Impacts, Information, Japan, Life, Life Sciences, Medical, Medical Sciences, Mobility, Papers, Patents, Performance, Physician, Physicians, Practical Physician, Productivity, Research, Research Collaboration, Research Grant, Research Performance, Research Productivity, Sciences, Scientific Productivity, Work

? Harzing, A.W., Alakangas, S. and Adams, D. (2014), hIa: An individual annual *h*-index to accommodate disciplinary and career length differences. *Scientometrics*, **99** (3), 811-821.

Full Text: [2014\Scientometrics99, 811.pdf](2014/Scientometrics99,%20811.pdf)

Abstract: Hirsch’s h-index cannot be used to compare academics that work in different disciplines or are at different career stages. Therefore, a metric that corrects for these differences would provide information that the h-index and its many current refinements cannot deliver. This article introduces such a metric, namely the hI,annual (or hIa for short). The hIa-index represents the average annual increase in the individual h-index. Using a sample of 146 academics working in five major disciplines and representing a wide variety of career lengths, we demonstrate that this metric attenuates h-index differences attributable to disciplinary background and career length. It is also easy to calculate with readily available data from all major bibliometric databases, such as Thomson Reuters Web of Knowledge, Scopus and Google Scholar. Finally, as the metric represents the average number of single-author-equivalent “impactful” articles that an academic has published per year, it also allows an intuitive interpretation. Although just like any other metric, the hIa-index should never be used as the sole criterion to evaluate academics, we argue that it provides a more reliable comparison between academics than currently available metrics.

Keywords: Academics, Article, Articles, Bibliometric, Citations, Collaboration, Comparison, Data, Databases, Disciplines, Google, Google Scholar, h Index, h-Index, Hirsch’s h-Index, Humanities, Information, Knowledge, Length, Metrics, Research Impact, Scholarly Impact, Scopus, Social-Sciences, Thomson Reuters, Thomson-Reuters, Web of Knowledge, Work

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Full Text: [2014\Scientometrics99, 823.pdf](2014/Scientometrics99,%20823.pdf)

Abstract: Research evaluation is a necessity for management of academic units (scientists, research groups, departments, institutes, universities) and for government decision making in science and technology. Yet, wrong conclusions may be drawn due to errors in assignments of authors to institutions. To improve existing techniques of institution name disambiguation (IND) based on word similarity or editing distance, a rule-based algorithm is proposed in this study. One-to-many relationships between an institution and many variant names under which it is referred to in bylines of publications are recognized with the aid of statistical methods and specific rules. The performance of the rule based IND algorithm is evaluated on large datasets in four fields. These experimental results demonstrate that the precision of the algorithm is high. Yet, recall should be improved.

Keywords: Algorithm, Artificial Intelligence, Assessment, Author, Authors, Decision, Decision Making, Decision-Making, Errors, Evaluation, Experimental, Groups, Informetrics, Institution Name Disambiguation (IND), Institutions, Management, Methods, Performance, Personal Names, Precision, Publications, Recall, Research, Research Assessment, Research Evaluation, Rule-Based System, Science, Science and Technology, Scientists, Similarity, Techniques, Technology, Universities, Web

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Full Text: [2014\Scientometrics99, 839.pdf](2014/Scientometrics99,%20839.pdf)

Abstract: In a previews paper we introduced the quantitative method named reference publication year spectroscopy (RPYS). With this method one can determine the historical roots of research fields and quantify their impact on current research. RPYS is based on the analysis of the frequency with which references are cited in the publications of a specific research field in terms of the publication years of these cited references. In this study, we illustrate that RPYS can also be used to reveal the origin of scientific legends. We selected “Darwin finches” as an example for illustration. Charles Darwin, the originator of evolutionary theory, was given credit for finches he did not see and for observations and insights about the finches he never made. We have shown that a book published in 1947 is the most-highly cited early reference cited within the relevant literature. This book had already been revealed as the origin of the term “Darwin finches” by Sulloway through careful historical analysis.

Keywords: Analysis, Citation Analysis, Field, Impact, Literature, Observations, Origin, Publication, Publications, Reference, Reference Publication Year Spectroscopy, References, Research, Scientific Legends, Spectroscopy, Term, Theory

? Ukrainski, K., Masso, J. and Kanep, H. (2014), Cooperation patterns in science within Europe: The standpoint of small countries. *Scientometrics*, **99** (3), 845-863.

Full Text: [2014\Scientometrics99, 845.pdf](2014/Scientometrics99,%20845.pdf)

Abstract: This article is concerned with the cooperation patterns of science among European countries from the viewpoint of small countries. This is an issue, which empirical literature so far has overlooked, but which is still relevant for understanding the implications of integration processes in EU. We have replicated and expanded in sample, indicator and time dimensions the empirical analysis suggested by Frenken (Economic Systems Research 14(4):345-361, 2002) for assessing the homogeneity of cooperation patterns among European countries. We find that small states are less homogenously collaborating with all countries in the European research system and their intra-national research cooperation is also more fragmented. Our analysis reveals the outcomes of cooperation processes, and also highlights the factors such as research funding and research specialisation that can impact the results of the connectivity measurement. We also show that the results are sensitive to the size and measurement of the science system.

Keywords: Analysis, Article, Assessing, Connectivity, Cooperation, Eu, Europe, European Integration, Funding, Homogeneity, Impact, Indicator, Integration, Literature, Measurement, Mutual Information, Outcomes, Research, Research Collaboration, Research Funding, Science, Scientific Collaboration, Size, Small, Small Countries, Understanding

? Liu, X.Z. and Fang, H. (2014), The impact of publications from mainland China on the trends in alphabetical authorship. *Scientometrics*, **99** (3), 865-879.

Full Text: [2014\Scientometrics99, 865.pdf](2014/Scientometrics99,%20865.pdf)

Abstract: This paper investigates the impact of burgeoning Chinese publication on academic alphabetical authorship in the 25 subject categories that have the highest percentage of intentionally alphabetical publications. The use of alphabetical authorship is common in the social sciences and humanities, mathematics, and in some physical disciplines. Chinese academic publication has increased rapidly in recent decades (Hong Kong and Macau were excluded from the study because Hong Kong and Macau are much more internationalized than mainland China). However, authors from mainland China do not prefer alphabetical authorship. The increase in publications from mainland China lowers the probability of intentional alphabetical authorship in the natural science and technology subject categories that we examined. In some natural science and technology categories, the influence is strong. But for the social sciences and humanities, the influence is weak, due to the lower share of world publications from mainland China. Yet, in some social science and humanities subject categories such as ‘Economics’, the relative share of publications from mainland China is increasing rapidly, and the results on alphabetical authorship trends will be felt in the near future.

Keywords: Alphabetical Authorship, Authors, Authorship, China, Chinese, Collaboration, Collaboration, Countries, Credit, Disciplines, Economics, Hong Kong, Humanities, Impact, Index, Influence, Mainland China, Natural, Patterns, Physical, Publication, Publications, Recent, Science, Science and Technology, Sciences, Social, Social Sciences, Technology, Trends, World, World Share Of Publications

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Full Text: [2014\Scientometrics99, 881.pdf](2014/Scientometrics99,%20881.pdf)

Abstract: This paper aims to evaluate the health issues related to urbanization and get an overview of urban health with the bibliometric approach, the powerful tool in quantitatively macroscopic analysis across multiple disciplines. A total of 11,299 articles and 5,579 Medical Subject Headings (MeSH) terms from the year 1978-2012 were retrieved by searching PubMed/MEDLINE using MeSH term “urban health”. The bibliographic information was analyzed to summarize the overall research characteristics. MeSH terms were sorted by their normalized frequency. Top 10 % of the high-frequency MeSH terms were classified into categories (physical environment, health effects, social environment and counter-measures) and analyzed. We investigated the themes and their tendency of the corresponding categories by co-occurrence word (co-word) and regression analysis. We concluded and elaborated nine themes of physical environment, ten themes of health effects, three themes of social environment and four themes of counter-measures in urban health, as well as the main themes in five representative countries (USA, India, China, South Africa and Japan). We present a data-based overview of the issues in urban health, as reference for further researchers.

Keywords: Africa, Analysis, Approach, Articles, Bibliographic, Bibliometric, Bibliometric Analysis, Bibliometrics, Characteristics, China, Co-Word, Co-Word Analysis, Co-Word Analysis, Counter Measures, Disciplines, Effects, Environment, Health, Health Effects, India, Information, Issues, Japan, Medical, Overview, Particulate Matter, Physical, Popular Themes, Reference, Regression, Regression Analysis, Research, Research Tendency, Risk Factors, Social, South Africa, Term, Urban, Urban Health, Urbanization, USA

? Yasukawa, S. and Kano, S. (2014), Validating the usefulness of examiners’ forward citations from the viewpoint of applicants’ self-selection during the patent application procedure. *Scientometrics*, **99** (3), 895-909.

Full Text: [2014\Scientometrics99, 895.pdf](2014/Scientometrics99,%20895.pdf)

Abstract: In this study, we validated the usefulness of examiners’ forward citations, especially from the viewpoint of the applicants’ self-selection (ASS) decisions during the patent application procedure. We believe that the ASS in an early stage would be decided by a potential-value comparison among patent applications. We focused on six self-selection decision points of the applicants: whether to file patent applications in foreign countries, request for examination, request for accelerated examination, reply to a notification of reasons for refusal, appeal after receiving a decision of refusal, and register after receiving a decision to grant a patent as patent value parameters. We found that application groups that selected “Yes” have a significantly larger number of examiners’ forward citations than groups that selected “No” at all decision points. In addition, we confirmed that applications that were finally granted and those that were renewed for a full term after grant have a significantly large number of examiners’ forward citations. We concluded that the number of examiners’ forward citations would be a useful indicator of the potential value of patent applications in macroscopic analysis.

Keywords: Analysis, Application, Citations, Comparison, Decision, Examination, Examiner, Forward Citations, Full-Term, Groups, Indicator, Indicators, Innovation, Patent, Patent Citation Analysis, Potential, Potential Value Of Patent Applications, Procedure, Refusal, Self-Selection, Term, Value

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Full Text: [2014\Scientometrics99, 911.pdf](2014/Scientometrics99,%20911.pdf)

Abstract: Comparison, rating, and ranking of alternative solutions, in case of multicriteria evaluations, have been an eternal focus of operations research and optimization theory. There exist numerous approaches at practical solving the multicriteria ranking problem. The recent focus of interest in this domain was the event of parametric evaluation of research entities in Poland. The principal methodology was based on pairwise comparisons. For each single comparison, four criteria have been used. One of the controversial points of the assumed approach was that the weights of these criteria were arbitrary. The main focus of this study is to put forward a theoretically justified way of extracting weights from the opinions of domain experts. Theoretical bases for the whole procedure are based on a survey and its experimental results. Discussion and comparison of the two resulting sets of weights and the computed inconsistency indicator are discussed.

Keywords: Academic Entity Quality, Ahp, Alternative, Approach, Comparison, Criteria, Evaluation, Experimental, Expert Opinion, Experts, Hierarchical Structures, Inconsistency Analysis, Indicator, Methodology, Multicriteria, Operations Research, Opinions, Optimization, Pairwise Comparisons, Performance Evaluation, Priorities, Procedure, Quality, Ranking, Recent, Research, Scaling Method, Solutions, Survey, Theory

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Full Text: [2014\Scientometrics99, 972.pdf](2014/Scientometrics99,%20972.pdf)

Abstract: A Triple Helix (TH) network of bi- and trilateral relations among universities, industries, and governments can be considered as an ecosystem in which uncertainty can be reduced when functions become synergetic. The functions are based on correlations among distributions of relations, and therefore latent. The correlations span a vector space in which two vectors (P and Q) can be used to represent forward “sending” and reflexive “receiving,” respectively. These two vectors can also be understood in terms of the generation versus reduction of uncertainty in the communication field that results from interactions among the three bi-lateral channels of communication. We specify a system of Lotka-Volterra equations between the vectors that can be solved. Redundancy generation can then be simulated and the results can be decomposed in terms of the TH components. Furthermore, we show that the strength and frequency of the relations are independent parameters in the model. Redundancy generation in TH arrangements can be decomposed using Fourier analysis of the time-series of empirical studies. As an example, the case of co-authorship relations in Japan is re-analyzed. The model allows us to interpret the sinusoidal functions of the Fourier analysis as representing redundancies.

Keywords: Analysis, Co-Authorship, Coauthorship, Communication, Communication, Correlations, Decomposition, Ecosystem, Empirical Studies, Field, Functions, Generation, Information, Innovation, Innovation, Japan, Meaning, Model, Network, P, Reduction, Redundancy, Relations, Self-Organization, Simulation, Simulation Model, Sociocybernetics, Strength, Systems, Time Series, Triple Helix, Uncertainty, Universities

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Full Text: [2014\Scientometrics99, 949.pdf](2014/Scientometrics99,%20949.pdf)

Abstract: This paper reports results on a bibliometric case study of the long-term development of research organizations, using an internationally leading biomedical institute as example. Using scientometric concepts, small group theory, organizational ecology, and process-based organizational theory, we developed a life cycle based theoretical model for analyzing long-term development of research groups and institutes. Three bibliometric indicators are proposed for growth, activity profile stability, and focus. With these, the research dynamics of the case institute are described. First, overall output growth matches developments internationally in developmental biology and stem cell research, and, in line with this, journal article output increasingly dominates the institute’s activity profile. Second, superposed on the overall growth curve, a stepwise development is observed, consisting of long phases of growth and stabilisation. These steps reflect local conditions and events. Historical sources from the Institutes’ archive and interviews with the current staff of the institute suggest that the pattern of life cycles reflects a strong influence of pioneering individuals. But once settled, pioneering directors who remain in function for many years delay adaptation of the institutes’ mission to field developments. Furthermore, national science policies on PhD training, and on priority areas have influenced the life cycles, as did merging with other institutes. As in a social science case, also in this case study stabilized local conditions lead to adaptation to research field dynamics in a delayed fashion. In the present case stable output periods lasted at most 15 years, when local impulses led to new growth of research output and thus prevented onset of a lifecycle decline. The continued growth in the larger field both promoted and legitimized these local impulses.

Keywords: Activity, Adaptation, Article, Audiences, Bibliometric, Bibliometric Indicators, Biology, Biomedical, Case Study, Cell, Development, Development of Research Groups, Developmental Biology, Dynamics, Ecology, Events, Field, Function, Groups, Growth, Indicators, Influence, Interviews, Journal, Journal Article, Lead, Life, Life Cycle, Lifecycle, Local, Long Term, Long-Term, Merging, Model, Onset, Organizational, Organizational Ecology, Pattern, Phd, Policies, Research, Research Focus, Research Output, Science, Scientometric, Small, Social, Sources, Stabilisation, Stability, Stem Cell, Theoretical, Theory, Training

? Brunson, J.C., Fassino, S., McInnes, A., Narayan, M., Richardson, B., Franck, C., Ion, P. and Laubenbacher, R. (2014), Evolutionary events in a mathematical sciences research collaboration network. *Scientometrics*, **99** (3), 973-998.

Full Text: [2014\Scientometrics99, 973.pdf](2014/Scientometrics99,%20973.pdf)

Abstract: This study examines long-term trends and shifting behavior in the collaboration network of mathematics literature, using a subset of data from Mathematical Reviews spanning 1985-2009. Rather than modeling the network cumulatively, this study traces the evolution of the “here and now” using fixed-duration sliding windows. The analysis uses a suite of common network diagnostics, including the distributions of degrees, distances, and clustering, to track network structure. Several random models that call these diagnostics as parameters help tease them apart as factors from the values of others. Some behaviors are consistent over the entire interval, but most diagnostics indicate that the network’s structural evolution is dominated by occasional dramatic shifts in otherwise steady trends. These behaviors are not distributed evenly across the network; stark differences in evolution can be observed between two major subnetworks, loosely thought of as “pure” and “applied”, which approximately partition the aggregate. The paper characterizes two major events along the mathematics network trajectory and discusses possible explanatory factors.

Keywords: Analysis, Behavior, Clustering, Coauthorship Networks, Collaboration, Collaboration Networks, Data, Degree Sequence, Diagnostics, Distributed, Events, Evolution, Evolving Networks, Interdisciplinary Research, Interval, Literature, Long Term, Long-Term, Mathematics Research, Modeling, Models, Network, Patterns, Random Graphs, Research, Research Collaboration, Sciences, Scientific Collaboration, Small-World Networks, Structure, Trajectory, Trends

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Full Text: [2014\Scientometrics99, 999.pdf](2014/Scientometrics99,%20999.pdf)

Abstract: Scientifically liberated and developed countries produce huge amounts of cutting-edge publications in peer-reviewed impact-creating journals. These publications may become basis for various policies/other blueprints. There is no reported study regarding the publication trends of Periodontists from India. The aim of this study was to assess the trends of Indian Periodontist’s publications in Pubmed database till 1st March, 2012 by taking quantitative bibliometric approach. Studies were identified by running select search phrases on Pubmed search engine. Search inputs included, ‘dental’, ‘oral’, ‘periodontal’, ‘gingiva’, ‘gingival’, ‘periodontology’, ‘periodontics’, ‘periodontia’, ‘periodontitis’, ‘gingivitis’, and ‘dental implant’. A parallel search with above phrases along with ‘India’ also done to assess India-specific publications. All publications with or without available abstracts were analyzed for selected parameters. Analysis was performed to determine name of the journal, number of authors, year of publication, type of institute, statewide distribution, type of study etc. The approximate contribution of Indian Dental/Periodontal literature to Pubmed database is 1.45 % till 1st March 2012. The number of articles published by Indian Periodontists is 764 across 107 journals and starting from 1960. The number of original articles published were 510 (66.75 %) as opposed to 127 (16.62 %) each for review articles and case reports/case series. The average contribution of an Indian Periodontist to Pubmed database is 0.53 articles. The contribution of Indian Periodontists to world literature through Pubmed database is not voluminous but, the publications are multiplying every passing year almost in an exponential way. There is also an increasing trend towards original articles to be published.

Keywords: Analysis, Approach, Articles, Authors, Bibliometric, Bibliometric Evaluation, Bibliometrics, Contribution, Database, Distribution, Engine, Evaluation, Gingiva, History, Implant, India, Indian Dentistry, Journal, Journals, Literature, Oral, Peer-Reviewed, Periodontal Research, Periodontics, Periodontists, Periodontitis, Publication, Publication Trends, Publications, Pubmed Database, Review, Search, Till, Trend, Trends, World

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Full Text: [2014\Scientometrics100, 1.pdf](2014/Scientometrics100,%201.pdf)

Keywords: First, Journal, Scientometrics

? Shin, D., Kim, T., Choi, J. and Kim, J. (2014), Author name disambiguation using a graph model with node splitting and merging based on bibliographic information. *Scientometrics*, **100** (1), 15-50.

Full Text: [2014\Scientometrics100, 15.pdf](2014/Scientometrics100,%2015.pdf)

Abstract: Author ambiguity mainly arises when several different authors express their names in the same way, generally known as the namesake problem, and also when the name of an author is expressed in many different ways, referred to as the heteronymous name problem. These author ambiguity problems have long been an obstacle to efficient information retrieval in digital libraries, causing incorrect identification of authors and impeding correct classification of their publications. It is a nontrivial task to distinguish those authors, especially when there is very limited information about them. In this paper, we propose a graph based approach to author name disambiguation, where a graph model is constructed using the co-author relations, and author ambiguity is resolved by graph operations such as vertex (or node) splitting and merging based on the co-authorship. In our framework, called a Graph Framework for Author Disambiguation (GFAD), The namesake problem is solved by splitting an author vertex involved in multiple cycles of coauthorship, and the heteronymous name problem is handled by merging multiple author vertices having similar names if those vertices are connected to a common vertex. Experiments were carried out with the real DBLP and Arnetminer collections and the performance of GFAD is compared with three representative unsupervised author name disambiguation systems. We confirm that GFAD shows better overall performance from the perspective of representative evaluation metrics. An additional contribution is that we released the refined DBLP collection to the public to facilitate organizing a performance benchmark for future systems on author disambiguation.

Keywords: Approach, Author Name Disambiguation, Authors, Bibliographic, Citations, Classification, Co-Author, Co-Authorship, Coauthorship, Collection, Constructed, Contribution, Digital Libraries, Digital Library, Disambiguation, Evaluation, Framework, Graph Model, Heteronymous Name Resolution, Identification, Information, Information Retrieval, Merging, Metrics, Model, Namesake Resolution, Performance, Public, Publications, Relations, Systems, Web

? Suominen, A. (2014), Phases of growth in a green tech research network: A bibliometric evaluation of fuel cell technology from 1991 to 2010. *Scientometrics*, **100** (1), 51-72.

Full Text: [2014\Scientometrics100, 51.pdf](2014/Scientometrics100,%2051.pdf)

Abstract: This study uncovers the evolution of a fuel cell research network through a bibliometric study focusing on a period from 1991 to 2010. From a dataset of 37,435 research articles, the study focuses on the evolution of fuel cell research networks at a national level. Focusing solely on the expansion of the research networks, and the policies effecting collaboration, the paper poses three research questions (1) Is research into fuel cells more unconcentrated than in science overall and if so, (2) is there changes within time and (3) can we identify a cluster among certain countries. To answer the research questions, the data was compared to findings on the overall scientific output worldwide. In addition, an ego network analysis was performed and a modularity algorithm was used in order to identify clusters from the network data. The study showed that fuel cell research co-operation has had a distinct evolution within the time frame of the study. Research has increased in both volume and in co-operation, but research co-operation is more unconcentrated than in science overall. Non-TRIAD countries have a stronger role in fuel cell research than in science overall. Clusters in research co-operation have evolved into two modes of co-operation-one around Asia and North America and the second around European co-operation with US and Asia.

Keywords: Algorithm, Analysis, Articles, Asia, Bibliometric, Bibliometric Evaluation, Bibliometric Study, Bibliometrics, Cell, Changes, Cluster, Clusters, Collaboration, Cooperation, Data, European Public Research, Evaluation, Evolution, Fuel Cell, Fuel Cells, Growth, Hydrogen, Impact, Indicators, Input-Output-Analysis, Network, Network Analysis, Networks, North, North America, Policies, Research, Research Collaboration, Research Networks, Role, Science, Scientific Output, Technology, Us, Volume

? Vugteveen, P., Lenders, R. and Van den Besselaar, P. (2014), The dynamics of interdisciplinary research fields: The case of river research. *Scientometrics*, **100** (1), 73-96.

Full Text: [2014\Scientometrics100, 73.pdf](2014/Scientometrics100,%2073.pdf)

Abstract: Interdisciplinarity results from dynamics at two levels. Firstly, research questions are approached using inputs from a variety of disciplinary fields. Secondly, the results of this multidisciplinary research feed back into the various research fields. This may either contribute to the further development of these fields, or may lead to disciplinary reconfiguration. If the latter is the case, a new interdisciplinary field may emerge. Following this perspective, the scientific landscape of river research and river science is mapped to assess to which current river research is a multi-disciplinary endeavor, and to which extent it results in a new emerging (inter) disciplinary field of river science. The paper suggests that this two level approach is a useful method to study interdisciplinary research and, more generally, disciplinary dynamics. With respect to river research, we show that it is mainly performed in several fields (limnology, fisheries & fish research, hydrology & water resources, and geomorphology) that hardly exchange knowledge. The different river research topics are multidisciplinary in nature, as they are shared by different fields. However, river science does not emerge as an interdisciplinary field, and often-mentioned new interdisciplinary fields such as hydroecology or hydromorphology are not (yet) visible. There is hardly any involvement of social within river research. Finally, the field of ecology occupies a central position within river research, whereas an expected engineering field is shown absent. This together may signal the acceptance of the ecosystem-based paradigm in river management, replacing the traditional engineering paradigm.

Keywords: Acceptance, Approach, Challenges, Cognitive Change, Development, Dynamics, Ecology, Engineering, Feed, Field, Fish, Fisheries, Framework, Geomorphology, Hydrology, Hydromorphology, Interdisciplinarity, Interdisciplinary, Interdisciplinary Research, Knowledge, Knowledge Dynamics, Landscape, Landscape Ecology, Lead, Limnology, Management, Multidisciplinarity, Multidisciplinary, Paradigm, Perspective, Policy, Research, Resources, River, River Management, River Science, Science, Social, Society, Water, Water Resources, Water-Resources Management

? Hung, S.C., Liu, J.S., Lu, L.Y.Y. and Tseng, Y.C. (2014), Technological change in lithium iron phosphate battery: The key-route main path analysis. *Scientometrics*, **100** (1), 97-120.

Full Text: [2014\Scientometrics100, 97.pdf](2014/Scientometrics100,%2097.pdf)

Abstract: Technological change evolves along a cyclical divergent-convergent pattern in knowledge diffusion paths. Technological divergence occurs as a breakthrough innovation, or discontinuity, inaugurating an era of ferment in which several competing technologies emerge and gradually advance. Technological convergence occurs as a series of evolutionary, variant changes that are gradually combined or fused together to open the industry to successive dominant designs or guideposts. To visualize such a pattern of technological evolution, we choose to study lithium iron phosphate (LFP) battery technology through an extension of the citation-based main path analysis, namely the key-route main path analysis. The key-route method discloses the main paths that travel through a specified number of key citations. The resulting multiple paths reveal the structure of the knowledge diffusion paths. The citation network is constructed from 1,531 academic articles on LFP battery technology published between 1997 and early 2012. Findings illustrate that LFP battery technology has completed two full technological cycles and is in the middle of the third cycle.

Keywords: Advance, Analysis, Articles, Breakthrough, Cathode Materials, Changes, Citation, Citation Network, Citations, Commercial Graphite, Lifepo4 Cell, Constructed, Diffusion, Electrochemical-Behavior, Evolution, Innovation, Iron, Knowledge, Li-Insertion, Extraction, Lifepo4, Lithium, Lithium Iron Phosphate Battery, Lixfepo4, Main Path Analysis, Network, Olivines, Open, Path Analysis, Pattern, Phosphate, Room-Temperature, Solid-Solution Phases, Structure, Technological Cycle, Technological Evolution, Technologies, Technology, Trajectories

? Gorjiara, T. and Baldock, C. (2014), Nanoscience and nanotechnology research publications: A comparison between Australia and the rest of the world. *Scientometrics*, **100** (1), 121-148.

Full Text: [2014\Scientometrics100, 121.pdf](2014/Scientometrics100,%20121.pdf)

Abstract: Nanoscience and nanotechnology are research areas of a multidisciplinary nature. Having a good knowledge of the rapidly evolving nature of these research areas is important to understand the research paths, as well as national and global developments in these areas. Accordingly, in this reported study nanoscience and nanotechnology research undertaken globally was compared with that of Australia by way of analyzing research publications. Initially, four different bibliometric Boolean-based search methodologies were used to analyze publications in the Web of Science database (Thomson Reuters ISI Web of Knowledge). These methodologies were (a) lexical query, (b) search in nanoscience and nanotechnology journals, (c) combination of lexical query and journal search and (d) search in the ten nano-journals with the highest impact factors. Based on results obtained, the third methodology was found to be the most comprehensive approach. Consequently, this search methodology was used to compare global and Australian nanoscience and nanotechnology publications for the period 1988-2000. Results demonstrated that depending on the search technique used, Australia ranks fourteenth to seventeenth internationally with a higher than world average number of nanoscience and nanotechnology publications. Over the last decade, Australia showed a relative growth rate in nanoscience and nanotechnology publications of 16 % compared to 12 % for the rest of the world. Researchers from China, the USA and the UK are from the main countries that collaborate with Australian researchers in nanoscience and nanotechnology publications.

Keywords: Approach, Australia, Australian, Bibliometric, Categories, China, Comparison, Database, Delineation, Emergence, Global, Growth, Growth Rate, Impact, Impact Factors, ISI, Journal, Journals, Knowledge, Lexical Query, Methodologies, Methodology, Multidisciplinary, Nanoscience, Nanoscience and Nanotechnology, Nanotechnology, Nanotechnology Research, Patents, Publications, Research, Research Areas, Researchers, Results, Science, Scientometric, Search Strategy, Technology, Terms, Thomson Reuters, Thomson-Reuters, UK, USA, Web Of Knowledge, Web Of Science, World

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Full Text: [2014\Scientometrics100, 149.pdf](2014/Scientometrics100,%20149.pdf)

Abstract: Technological trajectory is a representation of the development of technology. Based on the analysis of the trajectories of prominent technologies, we can explore the phenomena of technology evolution and knowledge diffusion. In this study, we focus on explaining knowledge diffusion in the core technology used in fuel cells, i.e. The development of 5-layer membrane electrode assembly (MEA) technologies. Through an investigation of path analysis, this study explores how the knowledge of this technology has evolved and diffused across different locations. The empirical analysis also explains how certain technological knowledge plays a critical role in main path. In this study, patent data of 5-layer MEA technologies for fuel cells is collected from the US Patent Office, for a total of 1,356 patents, followed by constructing a patent citation network based on citation relationships, recognising prominent patents with many citations through path analysis. Using the local main path analysis and global key-route method, we identify three stages of technological development, including an improvement of the proton exchange membrane (PEM) and catalyst synthesis. Additionally, we use regression analysis to demonstrate that patents with specific characteristics play a vital role in the process of knowledge diffusion. Patents from Japan and South Korea are relatively more important than patents from other countries. The brokerage characteristics of a patent (e.g., coordinating domestically or liaising among three or more countries) also facilitate the diffusion of technological knowledge. However, the importance of these brokerages changes when we look at inventing time. Furthermore, the technological diversification of a patent exerted no substantial influence on its network position.

Keywords: Analysis, Assembly, Catalyst, Changes, Characteristics, Citation, Citation Network, Citations, Cluster, Data, Determinants, Development, Diffusion, Europe, Evolution, Fuel Cells, Global, Improvement, Influence, Innovation, Investigation, Japan, Knowledge, Knowledge Diffusion, Korea, Local, Main Path Analysis, Membrane, Membrane Electrode Assembly (Mea), Nations, Network, Patent, Patent Citation Network, Patent Citations, Patents, Path Analysis, Pem, Proton Exchange Membrane Fuel Cells (Pemfcs), Regression, Regression Analysis, Representation, Role, South Korea, Spillovers, Synthesis, Technological Knowledge, Technological Trajectory, Technologies, Technology, Trajectory, US, US Patent

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Full Text: [2014\Scientometrics100, 173.pdf](2014/Scientometrics100,%20173.pdf)

Abstract: This study seeks to bridge the gap between scientometrics literature on scientific collaboration and science and technology management literature on partner selection by linking scientists’ collaborator preferences to the marginal advantage in citation impact. The 1981-2010 South Korea NCR (National Citation Report), a subset of the Web of Science that includes 297,658 scholarly articles, was used for this research. We found that, during this period, multi-author scientific articles increasingly dominated single-author articles: multi-university collaboration grew significantly; and the numbers of research publications produced by teams working within a single institution or by a single author diminished. This study also demonstrated that multi-university collaboration produces higher-impact articles when it includes “Research Universities,” that is, top-tier university schools. We also found that elite universities experienced impact degradation of their scientific results when they collaborated with lower-tier institutions, whereas their lower-tier partners gained impact benefits from the collaboration. Finally, our research revealed that Korean universities are unlikely to work with other universities in the same tier. This propensity for cross-tier collaboration can be interpreted as strategic partner selection by lower-tier schools seeking marginal advantage in citation impact.

Keywords: Alliances, Articles, Benefits, Bridge, Citation, Citation Impact, Coauthorship, Collaboration, Collaborative Research, Degradation, Europe, Impact, Institutions, Knowledge Production, Korea, Literature, Management, Multi-University Research, Networks, Partner, Partner Selection, Publications, Research, Research-And-Development, Science, Science and Technology, Scientific Collaboration, Scientific Impact, Scientists, Scientometrics, Selection, South Korea, Strategic, Teams, Technology, Technology Management, Universities, University, Web Of Science, Work

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Full Text: [2014\Scientometrics100, 189.pdf](2014/Scientometrics100,%20189.pdf)

Abstract: Upflow anaerobic sludge blanket/bed (UASB) has been recognized as a robust technology arousing wide concern in wastewater treatment research recently. In this study, a bibliometric analysis was performed to evaluate the publications on UASB research from 1983 to 2012, based on the Science Citation Index databases. It was identified that a total of 2363 UASB-related outputs were published in 220 journals over the past 30 years. Results showed that China and Indian Institute of Technology in India came as the most productive country and institute publishing most articles on UASB, respectively. The most productive field of “wastewater treatment” would still maintain the leading role as to provide a good reference on the UASB research in the future. Besides, the performance improving approaches and practical applications of the UASB would probably continue as the two main developing orientations. This study is to serve as an alternative and innovative way of revealing the research trends in UASB.

Keywords: Alternative, Anaerobic Sludge, Analysis, Articles, Bibliometric, Bibliometric Analysis, China, Citation, Country, Databases, Developing, Digestion, Field, Granular Sludge, India, Journals, Performance, Phenol, Publications, Publishing, Reactors, Reference, Research, Research Trend, Research Trends, Results, Role, Science, Science Citation Index, Sludge, Technology, Treatment, Trends, Upflow Anaerobic Sludge Blanket, Bed (UASB), Waste-Water, Wastewater, Wastewater Treatment, Word Cluster Analysis

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Full Text: [2014\Scientometrics100, 203.pdf](2014/Scientometrics100,%20203.pdf)

Abstract: This main purpose of this paper is to investigate the causal relationship between knowledge (research output) and economic growth in US over 1981-2011. To overcome the issues of ignoring possible instability and hence, falsely assuming a constant relationship through the years, we use bootstrapped Granger non-causality tests with fixed-size rolling-window to analyze time-varying causal links between two series. Instead of just performing causality tests on the full sample which assumes a single causality relationship, we also perform Granger causality tests on the rolling sub-samples with a fixed-window size. Unlike the full-sample Granger causality test, this method allows us to capture any structural shifts in the model, as well as, the evolution of causal relationships between sub-periods, with the bootstrapping approach controlling for small-sample bias. Full-sample bootstrap causality tests reveal no causal relationship between research and growth in the US. Further, parameter stability tests indicate that there were structural shifts in the relationship, and hence, we cannot entirely rely on full-sample results. The bootstrap rolling-window causality tests show that during the sub-periods of 2003-2005 and 2009, GDP Granger caused research output; while in 2010, the causality ran in the opposite direction. Using a two-state regime switching vector smooth autoregressive model, we find unidirectional Granger causality from research output to GDP in the full sample.

Keywords: Africa, Approach, Autoregressive Model, Autoregressive Models, Basic Research, Bias, Bootstrap, Causality, Economic, Economic Growth, Evolution, Gdp, Growth, Impact, Indicators, Issues, Knowledge, Model, Parameter Instability, Purpose, Research, Research Output, Science, Scientometrics, Series Regression, Size, Stability, Tests, Unit-Root, US

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Full Text: [2014\Scientometrics100, 217.pdf](2014/Scientometrics100,%20217.pdf)

Abstract: In this study we examined a sample of 100 European astrophysicists and their publications indexed by the citation database Scopus, submitted to the arXiv repository and bookmarked by readers in the reference manager Mendeley. Although it is believed that astrophysicists use arXiv widely and extensively, the results show that on average more items are indexed by Scopus than submitted to arXiv. A considerable proportion of the items indexed by Scopus appear also on Mendeley, but on average the number of readers who bookmarked the item on Mendeley is much lower than the number of citations reported in Scopus. The comparisons between the data sources were done based on the authors and the titles of the publications.

Keywords: Altmetrics, Arxiv, Astrophysics, Authors, Case Study, Citation, Citations, Data, Database, Impact, Mendeley, Publications, Reference, Scopus, Sources, Subject-Base Repositories

? Lee, Y., Kim, S.Y., Song, I., Park, Y. and Shin, J. (2014), Technology opportunity identification customized to the technological capability of SMEs through two-stage patent analysis. *Scientometrics*, **100** (1), 227-244.

Full Text: [2014\Scientometrics100, 227.pdf](2014/Scientometrics100,%20227.pdf)

Abstract: Small and medium enterprises (SMEs) have difficulties identifying appropriate technology opportunities under severe capability and resource constraints. To tackle this issue, we suggest a method for identifying technology opportunities that is customized to the existing technologies and technological capabilities of SMEs through two-stage patent analysis. An expert-based technological attribute-application table makes it possible to identify basic opportunities by multiple keyword matching. Also, non-traditional opportunities can be explored and identified by an iterative action-object analysis of patents. This two-stage patent analysis approach provides managers with a way of identifying specific technology opportunities in which their existing technologies can be utilized to the maximum extent, therefore helping them to develop technology strategies.

Keywords: Action and Object Analysis, Analysis, Approach, Bibliometrics, Citations, Enterprises, Forecasting Emerging Technologies, Identification, Information, Innovation, Morphology Analysis, Networks, Patent, Patent Analysis, Patents, Product, Research-And-Development, Small and Medium Enterprise, Technological Capability, Technologies, Technology, Technology Opportunity, Trends

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Full Text: [2014\Scientometrics100, 245.pdf](2014/Scientometrics100,%20245.pdf)

Abstract: The concept of citer analysis investigated earlier by Ajiferuke and Wolfram (In: B. Larsen, J. Leta (eds.) Proceedings of the 12th international conference of the international society for scientometrics and informetrics (ISSI) pp. 798-808, 2009, Scientometrics 83:623-638, 2010) is extended to journals where different citing units (citers, citing articles, citing journals) are compared with the journal impact factor and each other to determine if differences in ranking arise from different measures. The citer measures for the 31 high impact journals studied from information science and library science are significantly correlated, even more so than the earlier citer analysis findings, indicating that there is a close relationship among the different units of measure. Still, notable differences in rankings for the journals examined were evident for the different measures used, especially from either 5-year impact factor or number of citing articles per publication to the number of citing journals per publication. The journals that are adversely affected seem to be those whose citations are concentrated in a few journals. This informed the need to develop a journal citation concentration index, which can serve as a complementary measure to the existing journal impact indices.

Keywords: 5-Year Impact Factor, Analysis, Articles, Citation, Citation Analysis, Citations, Citing Journals, Complementary, Concentration, Concept, Evaluation, Impact, Impact Factor, Impact Indices, Index, Indices, Information, Information Science, Informetrics, International, Journal, Journal Impact, Journal Impact Factor, Journals, Measure, Measures, Metrics, Proceedings, Publication, Ranking, Rankings, Science, Scientific Literature, Scientometrics, Society

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Full Text: [2014\Scientometrics100, 261.pdf](2014/Scientometrics100,%20261.pdf)

Abstract: Understanding the direction and magnitude of soil science publication in the Philippines is crucial in formulating research priorities and funding allocation. There is no consensus on the current state of soil science publication in the Philippines, thus this study was conducted to elucidate the trend in the soil science publication. We conducted an in-depth analysis on the total number of publications and the total number of citations of soil science publications collected from Thomson ISI database. Results revealed an upsurge in soil science publication from 1970 to 2000 with no indication that this trend is slowing down. Increases in the number of citations with time are consistent with increases in the total number of publications (r = 0.93; p < 0.05). Results further revealed that the soil science publication in the Philippines is biased towards rice research particularly soil water with very few studies were published for plant nutrition and soil chemistry. The present study highlights the need for a paradigm shift in soil science research from mostly rice related research to environmental research. Ways to increase soil science publication among Filipino soil scientist’s particularly in academic institutions is proposed. Finally, since only a few government-funded research have been published, future studies should stress on identifying factors that influence scientific productivity of most soil scientists in the Philippines.

Keywords: Allocation, Analysis, Asia, Bibliometric Analysis, Chemistry, Citations, Consensus, Database, Environmental, Environmental Research, Field, Flux, Funding, Indication, Influence, Institutions, Irrigated Lowland Rice, Isi, Isi Database, Leyte, Magnitude, Methane, Nitrogen-Use Efficiency, Nutrition, Paradigm, Philippines, Plant, Plant Nutrition, Productivity, Publication, Publications, Research, Research Priorities, Research Productivity, Results, Rice, Science, Science Research, Scientific Productivity, Scientific Publication, Scientists, Soil, Soil Science, Soil Water, State, Stress, Systems, Trend, Water, Water Management, Web Of Science, Yield

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Full Text: [2014\Scientometrics100, 273.pdf](2014/Scientometrics100,%20273.pdf)

Abstract: To demonstrate the importance and the actual research situation of Antarctic studies in the humanities and social sciences, we collected data from the SSCI and A&HCI covering a period of over 100 years and focused on the number of articles published each year, major journals, types of document, authors and their countries publishing the most articles, collaboration, the major research subjects covered, and citations. Comparisons were also made with the Arctic studies to show some similarities and differences. The results suggest that the research in the fields of humanities and social sciences has been in the long-run developing without interruption over 100 years. With regard to the number of articles in high-capacity journals, Geographical Journal performs best, followed by the Petermanns Geographische Mitteilungen and Scottish Geographical Magazine. The documentation is rather scattered without a strong cohesion, while book review and article are the two most common types of document. There haven’t many stable collaborated teams on Antarctic topics. Joyner, Savours, and Beck are the three authors having the highest number of publications. USA is the most active country while the most active research institute is University of Tasmania in Australia. The Antarctic expedition has been the main theme lasted for centuries. In addition, the research in the fields of humanities and social sciences has generated a lot of high-impact articles, among which the article entitled “Chemical concentrations of pollutant lead aerosols, terrestrial dusts and sea salts in Greenland and Antarctic snow strata” enjoys the highest citation counts.

Keywords: Analysis, Antarctic Studies, Arctic, Article, Articles, Australia, Authors, Bibliometric Study, Citation, Citation Counts, Citations, Collaboration, Country, Data, Developing, Documentation, High-Impact Articles, Humanities, Humanities and Social Sciences, Journal, Journals, Lead, Publications, Publishing, Quantitative Analysis, Research, Review, Salts, Sciences, Sea, Social, Social Sciences, Southern-Ocean, Ssci, Tasmania, Treaty, University, USA, World

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Full Text: [2014\Scientometrics100, 287.pdf](2014/Scientometrics100,%20287.pdf)

Abstract: This paper uses two large databases, one of given names and one of family names, to categorise the names of researchers from Italy, Sweden, the UK and the USA whose papers in astronomy and oncology were published in 2006-2007 and in 2011-2012 by sex (gender) and ethnicity or national origin. For all the countries, there were relatively many more females publishing papers in oncology than in astronomy, but their share of contributions was lower than the percentage of researchers. Sweden and the UK had much higher percentages of both other European and Rest of the World researchers than Italy did. US researchers with non-European names were categorised in six main country groups. The ones with the greatest presence were Chinese (mainly Mandarin) and South Asians (mainly Indians). The method could be adapted to investigate the progress of women in research in many other countries, and the role played by non-national researchers in their scientific output.

Keywords: Asians, Bibliometric Analysis, Bibliometrics, Chinese, Country, Databases, Ethnic Minorities, Ethnicity, Family, Gender, Groups, Immigration, Issue, Italy, Minority Faculty, Oncology, Onomastics, Origin, Papers, Progress, Publishing, Research, Role, Science, Scientific Output, Sex, Success, Sweden, UK, US, USA, Women, Women

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Full Text: [2014\Scientometrics100, 297.pdf](2014/Scientometrics100,%20297.pdf)

Abstract: This study demonstrates the continued existence of gender disparity with respect to salary in four neurologic specialties in the largest public healthcare system of the Western United States without the bias of self-report. We extracted physician salary information from the publicly available UC pay system database and obtained Scopus (http://www.scopus.com/home.url) and Web of Science publication counts and h-indices via searching individual faculty by name and specialty. Faculty gender, institution, specialty, ranking, chairmanship, degrees, and salary data were collected through review of departmental websites and individual faculty profiles. All faculty members (n = 433) from the departments of ophthalmology, otolaryngology, neurosurgery and neurology in the UC pay system database in 2008 were selected for analysis. We found that female faculty members in the 2008 UC healthcare system were significantly underrepresented from the highest salary brackets, representing only 12.5 and 2.6 % of those earning $300,001-$400,000 and over $400,000, respectively (p < 0.01). The female-to-male salary ratio in 2008 for all UC physicians earning over $100,000 was 0.698 (p < 0.00001). Multivariate regression modeling demonstrated a 12 % salary deficit (95 % CI 2-21 %, p = 0.02) for women in the UC healthcare system after controlling for institution, professorial rank, chairmanship, specialty, Scopus publication count, and Scopus h-index. Despite recent efforts at educational equality in the training of physicians, gender disparities still persist within academic medicine.

Keywords: Academic, Advancement, Analysis, Bias, California, Compensation, Data, Database, Disparities, Disparity, Equality, Faculty, Faculty Members, Female, Gap, Gender, Gender Differences, Gender Disparities, Gender Disparity, h Index, h-Index, Information, Medicine, Men, Modeling, Neurologic, Neurological, Neurology, Ophthalmology, Otolaryngology, Physician, Physicians, Profiles, Public, Publication, Publication Counts, Rank, Ranking, Recent, Regression, Review, Salary, Science, Scopus, Specialty, Training, United States, University, Web Of Science, Websites, Women, Women Physicians

? Michels, C. and Fu, J.Y. (2014), Systematic analysis of coverage and usage of conference proceedings in web of science. *Scientometrics*, **100** (2), 307-327.

Full Text: [2014\Scientometrics100, 307.pdf](2014/Scientometrics100,%20307.pdf)

Abstract: The role of conference proceedings for scientific communication varies among the different research fields. It is thus difficult to determine how to use them in bibliometric studies that cover all or at least a variety of the research fields without favouring or penalizing observation subjects that are specialized in fields that rely heavily on conference proceedings. Also, the coverage of conference proceedings in bibliometric databases is often unclear. Not only have there been reports of misclassification but also of insufficient coverage. In this study, the Web of Science is used to give an overview of coverage of conference proceedings as well as advantages and pitfalls of their usage in bibliometric analyses. In particular, the focus lies on different citation behaviour of and for conference proceedings and the implications for bibliometric indicators. This is complemented by an investigation of the development of coverage and publication behaviour in conference proceedings which is compared to those of journal publications. Finally, the importance but also drawbacks and opportunities of acknowledging conference proceedings publications for bibliometric studies are summarized.

Keywords: Analyses, Analysis, Behaviour, Bibliometric, Bibliometric Analyses, Bibliometric Analysis, Bibliometric Indicators, Bibliometric Studies, Citation, Citation Analysis, Communication, Conference Proceedings, Coverage, Databases, Development, Fields Of Science, Index, Indicators, Investigation, Journal, Journal Publications, Journals, Observation, Overview, Publication, Publication Analysis, Publications, Research, Role, Science, Scientific Communication, Scopus, Web, Web Of Science

? Zhou, Z.W., Xing, R., Liu, J. and Xing, F.Y. (2014), Landmark papers written by the Nobelists in physics from 1901 to 2012: A bibliometric analysis of their citations and journals. *Scientometrics*, **100** (2), 329-338.

Full Text: [2014\Scientometrics100, 329.pdf](2014/Scientometrics100,%20329.pdf)

Abstract: We collected 382 landmark papers written by 193 Nobel Laureates in physics from 1901 to 2012 and used bibliometric methods, citation frequencies, impact factor (IF), and tendency of the landmark journals to analyze their contents. The results show: (1) Of landmark papers published during 1980-2009, 74.7 % were cited more than 500 times. Average citation frequencies and proportion of highly cited papers were higher for theoretic discoveries than for experimental methods. However, the proportion of highly cited papers in both domains was lower than for an invention. The average test period for the latter was markedly shorter too. (2) Landmark papers by Nobelists were mainly published in journals with IF from 5.0 to 10.0, but journals below IF 5.0 ranked first among all landmark journals. (3) As to countries where landmark papers were published, the Netherlands ranked at the top of the countries with the most landmark journals, besides the United States and England. In addition, the majority of landmark papers written by non-mainstream countries’ Nobelists were published in foreign journals with IF < 7.0. These data indicate some regularity and tendency of landmark papers written by Nobelists in physics.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometric Methods, Characteristics, Citation, Citations, Data, Distribution, England, Experimental, First, Highly Cited, Highly Cited Papers, Highly-Cited, Impact, Impact Factor, Journals, Landmark Papers, Methods, Nobel Prize, Papers, Performance, Physics, Test Period, The Netherlands, United States

? Cheang, B., Chu, S.K.W., Li, C.S. and Lim, A. (2014), OR/MS journals evaluation based on a refined PageRank method: An updated and more comprehensive review. *Scientometrics*, **100** (2), 339-361.

Full Text: [2014\Scientometrics100, 339.pdf](2014/Scientometrics100,%20339.pdf)

Abstract: The purpose of this research is to furnish the OR/MS research community with an updated assessment of the discipline’s journals set with refinements that also highlight the various characteristics of OR/MS journals. More specifically, we apply a refined PageRank method initially proposed by Xu et al. (2011) to evaluate the top 31 OR/MS journals for 2010, and report our findings. We also report the shifts in the rankings that span 5 years, from 2006 to 2010. We observe that Manufacturing and Service Operations Management, indexed by the SCI only in 2008, is a specialized journal that is consistently highly regarded within the discipline. The rankings also suggest that Management Science is more established as a generalized journal as it has more external impact. In general, our ranking results correlate with expert opinions, and we also observe, report and discuss some interesting patterns that have emerged over the past 5 years from 2006 to 2010.

Keywords: Assessment, Author Affiliation Index, Characteristics, Citation Indicators, Citations Analysis, Community, Evaluation, General, Impact, Impact Factor, Impact Factor, Influence Index, Journal, Journal Impact, Journal Influence, Journals, Journals Evaluation, Management, Metrics, Operations Management, Opinions, Or, Ms, Pagerank, Professors, Purpose, Quality, Ranking, Rankings, Research, Review, SCI, Science, System

? Zhao, L.M., Zhang, Q.P. and Wang, L. (2014), Benefit distribution mechanism in the team members’ scientific research collaboration network. *Scientometrics*, **100** (2), 363-389.

Full Text: [2014\Scientometrics100, 363.pdf](2014/Scientometrics100,%20363.pdf)

Abstract: Scientific research collaboration networks are well-established research topics, which can be divided into two kinds of research paradigms: (1) The topological features of the whole scientific collaboration networks and the collaboration representations in some given fields. (2) The individual nodes’ characteristics in the collaboration networks and their endorsements in the networks. However, in the above studies, all the nodes’ roles in the scientific collaboration network are the same, all of whom are called collaborators, thus the relationships among all the nodes in the scientific collaboration network are symmetric, and the scientific collaboration network is undirected. Such symmetric roles and relationships in the undirected networks have no incentive effects on the members’ participations and efforts in the team’s scientific research. In this paper, the roles of team members in the scientific research collaborations are defined, including the scientific research pioneers and contributors, their collaboration relationships are considered from the viewpoint of principal-agent theory, and then the directed scientific collaboration network is built. Then the benefit distribution mechanism in the team members’ networked scientific research collaborations is presented, which will encourage the team members with different roles to make their efforts in their scientific research collaborations and improve the quality of scientific research outputs. An example is used to test the above ideas and conclude that the individual member’s real outputs not only lie in his/her real scientific research efforts, but also rest with his/her contributions to other members’ scientific research.

Keywords: Analytic Hierarchy Process, Authorship, Benefit Distribution Mechanism, Centrality, Characteristics, China, Collaboration, Collaboration Networks, Collaborations, Credit, Distribution, Effects, Environment, Impact Factor, Mechanism, Network, Networks, Paradigms, Patterns, Productivity, Quality, Quality Of, Research, Research Collaboration, Research Outputs, Science, Scientific Collaboration, Scientific Research, Scientific Research Collaboration, Scientific Research Collaboration Network, Scientific Research Team, Theory

? Freyer, L. (2014), Robust rankings Review of multivariate assessments illustrated by the Shanghai rankings. *Scientometrics*, **100** (2), 391-406.

Full Text: [2014\Scientometrics100, 391.pdf](2014/Scientometrics100,%20391.pdf)

Abstract: Defined errors are entered into data collections in order to test their influence on the reliability of multivariate rankings. Random numbers and real ranking data serve as data origins. In the course of data collection small random errors often lead to a switch in ranking, which can influence the general ranking picture considerably. For stabilisation an objective weighting method is evaluated. The robustness of these rankings is then compared to the original forms. Robust forms of the published Shanghai top 100 rankings are calculated and compared to each other. As a result, the possibilities and restrictions of this type of weighting become recognisable.

Keywords: Academic Ranking, Assessments, Collection, Course, Data, Data Collection, Errors, Fatal Attraction, Fault Tolerance, Forms, General, Influence, Lead, Multivariate, Objective Weighting, Ranking, Rankings, Reliability, Restrictions, Review, Robustness, Shanghai, Shanghai Ranking, Small, Stabilisation, Weighting, World Universities

? Yan, E.J. (2014), Topic-based Pagerank: Toward a topic-level scientific evaluation. *Scientometrics*, **100** (2), 407-437.

Full Text: [2014\Scientometrics100, 407.pdf](2014/Scientometrics100,%20407.pdf)

Abstract: Within the same research field, different subfields and topics may exhibit varied citation behaviors and scholarly communication patterns. For a more effect scientific evaluation at the topic level, this study proposes a topic-based PageRank approach. This approach aims to evaluate the scientific impact of research entities (e.g., papers, authors, journals, and institutions) at the topic-level. The proposed topic-based PageRank, when applied to a data set on library and information science publications, has effectively detected a variety of research topics and identified authors, papers, and journals of the highest impact from each topic. Evaluation results show that compared with the standard PageRank and a topic modeling technique, the proposed topic-based PageRank has the best performance on relevance and impact. Different perspectives of organizing scientific literature are also discussed and this study recommends the mode of organization that integrates stable research domains and dynamic topics.

Keywords: Algorithm, Approach, Authors, Citation, Citation Networks, Communication, Communities, Data, Data Set, Discipline, Dynamic, Evaluation, Field, Impact, Impact Factors, Indicator, Information, Information Science, Information-Science, Institutions, Journals, Latent Dirichlet Allocation, Library, Library and Information Science, Literature, Mode, Modeling, Organization, Pagerank, Papers, Performance, Publications, Relevance, Research, Scholarly Communication, Science, Scientific Evaluation, Scientific Impact, Scientific Literature, Standard, Topic, Topic Models

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Full Text: [2014\Scientometrics100, 439.pdf](2014/Scientometrics100,%20439.pdf)

Abstract: This paper probes into the current status of collaboration regarding the field of the Chinese humanities and social sciences in respects of the degree of collaboration and the status of the relationships. It researches the status quo in humanities, the growth of social development science and cross-disciplinary social science, and the maturity of applied social science. In addition, it further highlights the important roles of economics, management, and library and information science in the collaboration network of humanities and social science with their extensive intra-disciplinary cooperation and crucial roles in the whole collaboration network.

Keywords: Chinese, Collaboration, Cooperation, Cooperative Relationships, Cssci, Degree Of Collaboration, Development, Economics, Field, Growth, Humanities, Humanities and Social Science, Information, Information Science, Library and Information Science, Management, Network, Networks, Science, Sciences, Scientific Collaboration, Social, Social Network Analysis, Social Sciences

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Full Text: [2014\Scientometrics100, 459.pdf](2014/Scientometrics100,%20459.pdf)

Abstract: This study aims at exploring whether significant inventions are more technologically diversified or have more diverse applications, investigating whether there are any innovation laws existing in R&D activities. Based on technology co-classification analysis, we select patent dataset meets the specific standard from the worldwide patent database named Derwent Innovations Index as sample dataset. Three indicators out of four verify the proposed hypotheses, i.e., significant inventions are more diversified in terms of individual invention. The fourth indicator implies that focusing on some core technology domains maybe better for creating significant inventions when R&D activities are considered as a whole. The results are of great theoretical significance by helping us identifying the diversified characteristic laws of significant inventions; moreover, they are of crucial practical meanings to R&D work and technology innovation activities etc.

Keywords: Analysis, Citation, Co-Classification, Competition, Database, Evolution, Firms, Indicator, Indicators, Innovation, Innovation Laws, Inventions, Laws, Patent, Patent Citations, Patterns, Performance, R&D, Significance, Significant Inventions, Standard, Technological Diversification, Technologically Diversity, Technology, Technology Co-Classification Analysis, Theoretical, Triz, Work

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Full Text: [2014\Scientometrics100, 471.pdf](2014/Scientometrics100,%20471.pdf)

Abstract: An analysis of the number of research papers from India and China in the fields of sciences and engineering between the years 1975 and 2012 is presented. The results show that while Indian research output has increased steadily, the Chinese research output has been increasing at a rate far outpacing that of India. The research output of China has been increasing with distinct inflection points that show an acceleration in output growth. The research output for India shows periodic inflection points that show either an acceleration or deceleration in output growth. The possible reasons for the inflection points are discussed. Simple statistical analyses are used to analyze the trends in output. Although multiple factors affect a nation’s research output, this paper highlights that the government programs targeted to increase the research output from universities may create inflection points resulting in a rapid increase in the research output. The article also highlights that India has fallen far behind China in terms of scientific and engineering research output, providing important clues for the future growth of the two countries.

Keywords: Analyses, Analysis, Article, China, Chinese, Data, Economic Growth, Engineering, Government Programs, Growth, Impact, India, Indian Research Output, Indicators, Nations, Papers, Performance Measures, Publication Productivity, Research, Research Output, Research Papers, Science Indicators, Sciences, Scientometrics, Statistical Analyses, Trends, Universities, World Share

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Full Text: [2014\Scientometrics100, 483.pdf](2014/Scientometrics100,%20483.pdf)

Abstract: Although the nuclear era and the Cold War superpower competition have long since passed, governments are still investing in Big Science, although these large facilities are nowadays mostly geared towards areas of use closer to utility. Investments in Big Science are also motivated not only by promises of scientific breakthroughs but also by expectations (and demands) of measurable impact, and with an emerging global market of competing user-oriented Big Science facilities, quantitative measures of productivity and quality have become mainstream. Among these are rather simple and one-sided publication counts. This article uses publication counts and figures of expenditure for three cases that are disparate but all represent the state-of-the-art of Big Science of their times, discussing at depth the problems of using simple publication counts as a measure of performance in science. Showing, quite trivially, that Big Science is very expensive, the article also shows the absurd consequences of consistently using simple publication counts to display productivity and quality of Big Science, and concludes that such measures should be deemed irrelevant for analyses on the level of organizations in science and replaced by qualitative assessment of the content of the science produced.

Keywords: Analyses, Article, Assessment, Big Science, Competition, Energy, Expectations, Facilities, Global, Impact, Institutional Persistence, Market, Measure, Measures, Megascience, Particle Physics, Performance, Performance Assessment, Perspective, Policy, Politics, Productivity, Prospects, Publication, Publication Counts, Qualitative, Quality, Quality Assessment, Quality Of, Science, State-Of-The-Art, Utility, War

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Full Text: [2014\Scientometrics100, 497.pdf](2014/Scientometrics100,%20497.pdf)

Abstract: The aim of this paper is to empirically test whether interlinking patterns between higher education institutions (HEIs) conform to a document model, where links are motivated by webpage content, or a social relationship model, where they are markers of underlying social relationships between HEIs. To this aim, we analyzed a sample of approximately 400 European HEIs, using the number of pages on their web domains and the total number of links sent and received; in addition we test whether these two characteristics are associated with organizational size, reputation, and the volume of teaching and research activities. Our main findings are as follows: first, the number of webpages of HEI websites is strongly associated with their size, and to a lesser extent, with the volume of their educational activities, research orientation, and reputation; differences between European countries are rather limited, supporting the insight that the academic Web has reached a mature stage. Second, the distribution of connectivity (as measured by the total degree of HEI’s) follows a lognormal distribution typical of social networks between organizations, while counts of weblinks can be predicted with good precision from organizational characteristics. HEIs with larger websites tend to send and receive more links, but the effect is rather limited and does not fundamentally modify the resulting network structure. We conclude that aggregated counts of weblinks between pairs of HEIs are not significantly affected by the web policies of HEIs and thus can be considered as reasonably robust measures. Furthermore, interlinking should be considered as proxies of social relationships between HEIs rather than as reputational measures of the content published on their websites.

Keywords: Academic Web, Behavior, Canadian Universities, Characteristics, Co-Authorship Networks, Connectivity, Distribution, Document Network, Education, Europe, First, Growth, Higher Education, Information, Institutions, Links, Measures, Model, Network, Networks, Organizational, Organizations, Policies, Precision, Reputation, Research, Site Interlinking, Size, Social, Social Networks, Social Relationships, Structure, Teaching, Volume, Web, Weblinks, Websites, World-Wide-Web

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Full Text: [2014\Scientometrics100, 519.pdf](2014/Scientometrics100,%20519.pdf)

Abstract: Emerging scientific fields are commonly identified by different citation based bibliometric parameters. However, their main shortcoming is the existence of a time lag needed for a publication to receive citations. In the present study, we assessed the relationship between the age of references in scientific publications and the change in publication rate within a research field. Two indices based on the age of references are presented, the relative age of references and the ratio of references published during the preceding 2 years, and applied thereafter on four datasets from the previously published studies, which assessed eutrophication research, sturgeon research, fisheries research, and the general field of ecology. We observed a consistent pattern that the emerging research topics had a lower median age of references and a higher ratio of references published in the preceding 2 years than their respective general research fields. The main advantage of indices based on the age of references is that they are not influenced by a time lag, and as such they are able to provide insight into current scientific trends. The best potential of the presented indices is to use them combined with other approaches, as each one can reveal different aspects and properties of the assessed data, and provide validation of the obtained results. Their use should be however assessed further before they are employed as standard tools by scientists, science managers and policy makers.

Keywords: Age, Application, Articles, Bibliometric, Bibliometry, Citation, Citations, Data, Ecology, Environmental, Eutrophication, Field, Fisheries, General, h-Index, Impact Factor, Impact Factor, Indices, Journals, Literature, Networks, Pattern, Policy, Potential, Properties, Publication, Publication Rate, Publication Year, Publications, Reference List, References, Relative, Research, Research Fronts, Science, Sciences, Scientific Publications, Scientists, Standard, Time, Tracking, Trends, Validation

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Full Text: [2014\Scientometrics100, 531.pdf](2014/Scientometrics100,%20531.pdf)

Abstract: Due to recession in the world economy there is a trend towards a reduction in growth of R&D expenditure in the G7 countries. At the same time countries like China and Korea are investing more in scientific research. We compare the differences in the inputs to science for different countries and explore the level of efficiency in the output of scientific papers with respect to inputs such as manpower and investment. We find that the EU countries are relatively more efficient than Japan, the USA and also China and Korea so far as the production of papers is concerned. However, if efficiency is considered in terms of patents, Japan Korea and the USA are ahead. We compare our results with Albuquerque’s model linking patent to paper ratios and development, and find significant deviations for some countries. We deduce that there has been a shift from publishing towards patenting in certain countries and link it to high contribution from the business sector to R&D expenditure. Preliminary results of this analysis have been presented in Basu (In Proceedings of the 14th International Society for Scientometrics and Informetrics (ISSI) Conference, 2013).

Keywords: Albuquerque Model, Analysis, Berd, Business, China, Conference, Contribution, Development, Economy, Efficiency, Eu, Funding, G7 Countries, Gerd, Growth, Indicators, Informetrics, International, Japan, Korea, Model, Papers, Patent, Patents, Proceedings, Productivity, Publishing, R&D, R&D Efficiency, R&D Expenditure, Reduction, Research, Science, Scientific Productivity, Scientific Research, Scientometrics, Sector, Trend, USA, Wealth, World

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Full Text: [2014\Scientometrics100, 541.pdf](2014/Scientometrics100,%20541.pdf)

Abstract: The purpose of this paper is to highlight the weakness of innovative activities and guide the improvement of innovation efficiency at country-level through carefully comparing innovation efficiency across countries. Following the conceptual framework which divides innovation processes into knowledge production process (KPP) and knowledge commercialization process (KCP) and applying dual network-DEA models, this paper tries to take economic benefit of R&D outputs into account. Moreover, we construct the production frontier of the innovation processes and two component processes under different assumptions (e.g., constant returns-to-scale, variable returns-to-scale and non-increasing returns-to-scale) for 35 countries over the period 2007-2011. Based on the production frontier, we do not only estimate technical efficiency and scale efficiency for each country but also investigate and verify whether returns-to-scale of each country are decreasing or increasing. Furthermore, we add together the radial movement and the slack movement to acquire input redundancy. We decompose the input redundancy into two parts: redundancy caused by technical inefficiency (R\_TI) and redundancy caused by scale inefficiency (R\_SI), and carry out a detail analysis of the input redundancy. We find specific circumstances of inefficiency and redundancy vary with the different countries’ characteristics and development stages. Moreover, innovation efficiency statistically mainly depends on the KCP efficiency. In particular, the study reveals that China suffers scale inefficiency is attributed to insufficient macro-level coordination, malfunctioning funding system, and flawed evaluations and incentives. Finally, public policy implications are proposed for the inefficient countries.

Keywords: Analysis, Assumptions, Characteristics, China, Comparison, Coordination, Country, Cross-Country Comparison, Data Envelopment Analysis, Decision-Making Units, Development, Development Productivity, Economic, Economic-Growth, Efficiency, Electric Utilities, Framework, Funding, Improvement, Incentives, Indicators, Innovation, Innovation Efficiency, Knowledge, Models, Movement, Network-Dea, Performance, Policy, Public, Public Policy, Purpose, R&D, R&D Outputs, Redundancy Analysis, Relative Efficiency, Research-And-Development, Scale

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Full Text: [2014\Scientometrics100, 577.pdf](2014/Scientometrics100,%20577.pdf)

Abstract: This paper compared and contrasted patent counts by examining the inventor country and the assignee country. An empirical analysis of the patent data revealed how assignment principles (i.e. by the inventor country and by the assignee county) and counting methods (i.e. whole counts, first country and fractional counts) generate different results. Quadrant diagrams were utilised to present the patent data of the 33 selected countries. When countries had similar patent counts by inventor country with patent counts by assignee country, all the countries allocated along the diagonal line in the quadrant diagram were developed countries. When countries had more patent counts by inventor than by assignee, developed countries were more likely to sit in the right upper section of the quadrant diagram, while more developing countries were situated in the left lower section. Countries with higher patent counts by assignee than by inventor were more likely to be tax havens. A significant contribution of this paper resides in the recommendation that patent counts be analysed using both the inventor country and the assignee country at the same time if meaningful implications from patent statistics are to be obtained.

Keywords: Analysis, Assignee Country, Comparative Study, Contribution, Countries, Country, Data, Developing, Developing Countries, Firms, First, Globalization, Inventor Country, Methods, Output, Patent, Patent Counts, Patentometrics, Performance, Principles, Research-And-Development, Right, Statistics

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Full Text: [2014\Scientometrics100, 595.pdf](2014/Scientometrics100,%20595.pdf)

Abstract: “Delayed recognition” refers to the phenomenon where papers did not achieve recognition in terms of citations until some years after their original publication. A paper with delayed recognition was termed a “sleeping beauty”: a princess sleeps (goes unnoticed) for a long time and then, almost suddenly, is awakened (receives a lot of citations) by a prince (another article). There are a sleeping period and an awakening period in the definition of a “sleeping beauty”. Apart from and prior to the two periods, an awaking period was found in citation curves of some publications, “sleeping beauties” was hence expanded to “all-elements-sleeping-beauties”. The opposite effect of “delayed recognition” was described as “flash in the pan”: documents that were noticed immediately after publication but did not seem to have a lasting impact. In this work, we briefly discussed the citation curves of two remarkable “all-elements-sleeping-beauties”. We found they appeared “flash in the pan” first and then “delayed recognition”. We also found happy endings of sleeping beauties and princes, and hence suggest the citation curve of an “all-elements-sleeping-beauty” include an awaking period, a sleeping period, an awakening period and a happy ending.

Keywords: All-Elements-Sleeping-Beauty, Article, Citation, Citation Curves, Citations, Delayed Recognition, Documents, First, Flash In The Pan, Highly Cited Papers, Impact, Papers, Publication, Publications, Science, Scientific Discovery, Sleeping Beauty, Time, Work

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Full Text: [2014\Scientometrics100, 603.pdf](2014/Scientometrics100,%20603.pdf)

Keywords: institutions, Ranking

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Full Text: [2014\Scientometrics100, 605.pdf](2014/Scientometrics100,%20605.pdf)

Keywords: Analysis, Dynamic, Knowledge, Korea, Public, Research, Taiwan

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Full Text: [2014\Scientometrics100, 607.pdf](2014/Scientometrics100,%20607.pdf)

Keywords: Clinical, Collaboration, Impact, International, International Collaboration, Malaysia, Medicine, Papers, Trend

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Full Text: [2014\Scientometrics100, 609.pdf](2014/Scientometrics100,%20609.pdf)

Keywords: Concept, Grant Proposals, Research

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Full Text: [2014\Scientometrics100, 611.pdf](2014/Scientometrics100,%20611.pdf)

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Full Text: [2014\Scientometrics100, 613.pdf](2014/Scientometrics100,%20613.pdf)

Abstract: The extent to which an article attracts citations has long been of interest. However, recent research has emphasized not just the receipt but also the pacing of citation. Citation speed has been shown to be affected by journal prestige and self-citation but also public funding of research. Amidst these viewpoints, this paper explores the speed of article citation of a multi-institutional, multi-disciplinary publicly funded research center relative to that of a comparison group of articles. Results indicate that articles by authors affiliated with the center are significantly more likely to have early-cited papers within the year of publication than the random comparison group, with controls by field also being significant. Implications for the ability of a publicly funded center to attract attention toward articles are discussed.

Keywords: Article, Articles, Attention, Author Self-Citations, Authors, Citation, Citations, Comparison, Effects, Field, Funding, Journal, Journals, Macro, Multidisciplinary, Nanotechnology, Papers, Public, Public Funding Of Research, Publication, Recent, Research, Research Center, Results, Science, Self-Citation, Speed

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Full Text: [2014\Scientometrics100, 623.pdf](2014/Scientometrics100,%20623.pdf)

Abstract: Literature-related discovery (LRD) is the linking of two or more literature concepts that have heretofore not been linked (i.e., disjoint), in order to produce novel, interesting, and intelligible knowledge (i.e., potential discovery). The mainstream software for assisting LRD is Arrowsmith. It uses text-based linkage to connect two disjoint literatures, and it generates intermediate linking literatures by matching Title phrases from two disjoint literatures (literatures that do not share common records). Arrowsmith then prioritizes these linking phrases through a series of text-based filters. The present study examines citation-based linkage in addition to text-based linkage to link disjoint literatures through a process called bibliographic coupling. Two disjoint literatures were selected for the demonstration: Parkinson’s Disease (PD) (neurodegeneration) and Crohn’s Disease (CD) (autoimmune). Three cases were examined: (1) matching phrases in records with no shared references (text-based linkage only); (2) shared references in records with no matching phrases (citation-based linkage only); (3) matching phrases in records with shared references (text-based and citation-based linkages). In addition, the main themes in the body of shared references were examined through grouping techniques to identify the common themes between the two literatures. All the high-level concepts in the Case 1) records could be found in Case 3) records Some new concepts (at the sub-set level of the main themes) not found in the Case 3) records were identified in the Case 2) records. The synergy of matching phrases and shared references provides a strong prioritization to the selection of promising matching phrases as discovery mechanisms. There were three major themes that unified the PD and CD literatures: Genetics; Neuroimmunology; Cell Death. However, these themes are not completely independent. For example, there are genetic determinants of the inflammatory response. Naturally occurring genetic variants in important inflammatory mediators such as TNF-alpha appear to alter inflammatory responses in numerous experimental and a few clinical models of inflammation. Additionally, there is a strong link between neuroimmunology and cell death. In PD, for example, neuroinflammatory processes that are mediated by activated glial and peripheral immune cells might eventually lead to dopaminergic cell death and subsequent disease progression.

Keywords: Alzheimers-Disease, Autoimmunity, Bibliographic, Bibliographic Coupling, Cancer, Cd, Cell, Classification, Clinical, Colitis, Crohn’S Disease, Death, Discovery, Disease, Disease Progression, Experimental, Genetic, Genetic Variants, Genetics, Immune, Inflammation, Inflammatory Mediators, Inflammatory Response, Information, Knowledge, Knowledge Discovery, Lead, Linkage, Literature, Literature-Related Discovery, Mechanisms, Medical Literatures, Models, Necrosis, Neurodegeneration, Parkinson’s Disease, Pd, Peripheral, Potential, Potential Treatments, Prioritization, Progression, Records, References, Response, Scientometrics, Selection, Software, Techniques, Text Mining, Therapies, Tnf Alpha, Tnf-Alpha

? Vicente-Gomila, J.M. (2014), The contribution of syntactic-semantic approach to the search for complementary literatures for scientific or technical discovery. *Scientometrics*, **100** (3), 659-673.

Full Text: [2014\Scientometrics100, 659.pdf](2014/Scientometrics100,%20659.pdf)

Abstract: The present paper tries to show that the current state of the art in syntactics and semantics, in computer systems based on the theory of inventive problem solving known as TRIZ, may help in the task of literature based discovery. With a structured and logic cause linkage between concepts, LBD could be faster and with less expert involvement at the beginning of the LBD process. The author tries to demonstrate the concept with two different problems: the hearing and balance problem known as Meniere’s disease, and to some of the current problems in the lithium air batteries for electric vehicles. By using open literature based discovery from An to Bn and from Bn to Cn, and with the logic relationships of real causes and effects approach, the author finds several relative new concepts such as vitamin A. Other concepts as niacin or fish oil, are also found, as potential to help in the Meniere’s disease. Secondly, using such procedure the author is able to find patents from disparate domain of expertise, as patents about odor control or metal casting.

Keywords: Air, Approach, Art, Balance, Complementary, Computer Systems, Concept, Contribution, Control, Discovery, Disease, Effects, Electric Vehicles, Fish, Lbd, Linkage, Literature, Literature Based Discovery, Lithium, Logic, Lrd, Meniere’S Disease, Metal, Network, Odor Control, Open, Patents, Potential, Procedure, Semantic Triz, Semantics, State, State-Of-The-Art, Syntatic-Semantic Processing, Systems, Tech Mining, Technology, Theory, Triz, Vitamin, Vitamin A

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Full Text: [2014\Scientometrics100, 675.pdf](2014/Scientometrics100,%20675.pdf)

Abstract: Progress on the development of nanotechnology has led to a number of initiatives which serve to normalize activities in this area. Among emerging technologies, nanotechnology is one of the most prominent, and it raises high expectations in a wide range of areas affecting daily life. The risks to human health, the pathways of exposure to nanomaterials, and occupational safety are recent issues which require more attention. The study was performed on nanopatents by collecting, processing and analyzing information extracted from specialized patent databases covering the period from 1991 to 2011, totalling 1,343 patents and representing 36 countries. These patents were classified by the International Patent Classification, using the methodology proposed in a study published by Organization for Economic Co-operation and Development, which resulted in six groups of patents, distributed as follows: nanomaterials (40.3 %), medicine and biotechnology (26.6 %), measurement and production (10 %), electronics (2.7 %), energy and the environment (2.2 %), and optical electronics (1 %). Around 17 % of the patents in question did not fall into the adopted classification. The aim of this paper is to analyze the main trends of patenting related to nanotechnology, its development and environmental implications. An additional goal is to assist policy-makers to adjust the regulatory framework on nanotechnology, and to make recommendations for governments, industry, and national organizations, on creating specific subsidies for regulatory framework in Brazil.

Keywords: Attention, Biotechnology, Brazil, Classification, Co-Operation, Collaboration, Databases, Development, Distributed, Emerging Technologies, Energy, Environment, Environmental, Expectations, Exposure, Foresight, Framework, Future, Groups, Health, Human, Human Health, Information, Interdisciplinarity, International, Issues, Life, Measurement, Medicine, Methodology, Nanomaterials, Nanoscience, Nanotechnology, Nanotechnology, Occupational, Patent, Patent Analyses, Patents, Pathways, Patterns, Recent, Recommendations, Regulatory Framework, Risks, Safety, Standardization, Technological Foresight, Technologies, Trends

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Full Text: [2014\Scientometrics100, 687.pdf](2014/Scientometrics100,%20687.pdf)

Abstract: Research that integrates the social and natural sciences is vital to address many societal challenges, yet is difficult to arrange, conduct, and disseminate. This paper compares diffusion of the research supported by a unique U.S. National Science Foundation program on Human and Social Dynamics (“HSD”) with a matched group of heavily cited papers. We offer a measure of the distance of cites between the Web of Science Category (“WoSC”) in which a publication appears and the WoSC of the journal citing it, and find that HSD publications are cited more distantly than are comparison publications. We provide another measure-citation velocity-finding that HSD publications are cited with similar lag times as are the comparison papers. These basic citation distance and velocity measures enrich analyses of research knowledge diffusion patterns.

Keywords: Analyses, Bibliometrics, Breadth, Citation, Citation Analysis, Citations, Comparison, Diffusion, Diffusion Score, Distance Measure, Dynamics, Human, Impact, Interdisciplinary Research, Journal, Knowledge, Knowledge Diffusion, Measure, Measures, Natural, Natural Sciences, Papers, Publication, Publications, Research, Research Impact, Science, Sciences, Social, Velocity Measure, Web Of Science

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Full Text: [2014\Scientometrics100, 705.pdf](2014/Scientometrics100,%20705.pdf)

Abstract: Increased competition due to rapid technological development pushes all participants in the market to focus on the prospect of New and Emerging Science & Technologies (NESTs). One promising NEST, dye-sensitized solar cells (DSSCs), has attracted attention in recent years. We focus on three research questions: how can we estimate DSSCs research activity trends; how can we identify DSSCs market expansion patterns; and, seeking to identify potential subsystems, what are the likely evolutionary paths of DSSCs development? In this paper, patent analysis is applied to help determine the developmental stage of a particular technology and trace its potential evolutionary pathways. In addition, since patent information can reflect commercial degree, we use patent transfer patterns to help evaluate market shift prospects.

Keywords: 3rd-Generation Photovoltaics, Activity, Analysis, Attention, Competition, Cycle, Development, Dsscs, Dye-Sensitized, Dye-Sensitized Solar Cells, Efficiency, Information, Low-Cost, Market, Market Shift, Model, Patent, Patent Analysis, Patent Information, Pathways, Potential, Recent, Research, Science, Sensitized Solar-Cells, Solar Cells, Solar Cells (Dsscs), Technology, Technology Evaluation, Trends

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Full Text: [2014\Scientometrics100, 723.pdf](2014/Scientometrics100,%20723.pdf)

Abstract: Patent activity in China for vibration-reduction control technology in high-speed railway vehicle systems was analyzed based on a portfolio of 193 patents or applications from the State Intellectual Property Office of the People’s Republic of China official Web-based database and a search of the World Intellectual Property Organization PCT database. Patent activity features such as timing, applicant, technology classification, technical themes, and patents in force were obtained and analyzed. As a further stage of research, patent data on locomotive wheel sets were analyzed by means of a matrix analysis of problems and technologies. The main statistical information and conclusions include estimating the development stage, discovering the distributions of applications and applicants, weighing the roles played by major applications, determining R&D hotspots, and providing a better understanding of domestic patent activities in this field. Policy implications for innovation-related domestic R&D institutions in the technologies under study were proposed based on the analytical results.

Keywords: Activity, Analysis, China, Chinese Patent, Classification, Control, Control Technology, Data, Database, Development, Field, Force, High Speed Railway, Hotspots, Information, Institutions, Intelligence Analysis, Matrix, Patent, Patent Map, Patents, People’s Republic Of China, Policy, Property, R&D, Railway, Research, Systems, Technologies, Technology, Timing, Understanding, Vehicle, Vibration Reduction

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Full Text: [2014\Scientometrics100, 741.pdf](2014/Scientometrics100,%20741.pdf)

Abstract: As the National Science Foundation (NSF) implements new cross-cutting initiatives and programs, interest in assessing the success of these experiments in fostering interdisciplinarity grows. A primary challenge in measuring interdisciplinarity is identifying and bounding the discrete disciplines that comprise interdisciplinary work. Using statistical text-mining techniques to extract topic bins, the NSF recently developed a topic map of all of their awards issued between 2000 and 2011. These new data provide a novel means for measuring interdisciplinarity by assessing the language or content of award proposals. Using the Directorate for Social, Behavioral, and Economic Sciences as a case study and drawing on the new topic model of the NSF’s awards, this paper explores new methods for quantifying interdisciplinarity in the NSF portfolio.

Keywords: Approach, Assessing, Case Study, Challenge, Data, Disciplines, Experiments, Interdisciplinarity, Interdisciplinary, Language, Methods, Model, Network Analysis, Primary, Science, Sciences, Success, Techniques, Text Mining, Text-Mining, Topic, Topic Model, Work

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Full Text: [2014\Scientometrics100, 755.pdf](2014/Scientometrics100,%20755.pdf)

Abstract: We report progress on new developments in the breakthrough paper indicator, which allows early selection of a small group of publications which may become potential breakthrough candidates based on dynamics of publication citations and certain qualitative characteristics of citations. We used a quantitative approach to identify typical citation patterns of highly cited papers. Based on these analyses, we propose two forecasting models to select groups of breakthrough paper candidates that exceed high citation thresholds five years post-publication. Here we study whether interdisciplinarity in the subject categories or geographical diversity serve as possible measures to improve ranking of breakthrough paper candidates. We found that ranked geographical diversities of known breakthrough papers have equal or better ranks than corresponding citations ranks. This allows us to apply additional filtering for better identifications of breakthrough candidates. We studied several interdisciplinarity indices, including richness, Shannon index, Simpson index, and Rao-Stirling-Porter index. We did not find any correlations between citation ranks and ranked interdisciplinarity indices.

Keywords: Accuracy, Analyses, Approach, Bibliometrics, Breakthrough, Breakthrough Paper Indicator, Characteristics, Citation, Citation Patterns, Citation Trajectories, Citations, Collaboration, Correlations, Differentiation, Diversity, Dynamics, Forecasting, Geographical Diversity, Groups, Highly Cited, Highly Cited Papers, Highly-Cited, Impact, Index, Indicator, Indices, Interdisciplinarity, Interdisciplinarity Measures, Journals, Measures, Model, Models, Networks, Papers, Potential, Prediction, Progress, Publication, Publications, Qualitative, Ranking, Rao-Stirling-Porter Index, Research Management, Science, Science Policy, Scientometrics, Selection, Small, Thresholds

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Full Text: [2014\Scientometrics100, 767.pdf](2014/Scientometrics100,%20767.pdf)

Abstract: Topic modeling is a type of statistical model for discovering the latent “topics’’ that occur in a collection of documents through machine learning. Currently, latent Dirichlet allocation (LDA) is a popular and common modeling approach. In this paper, we investigate methods, including LDA and its extensions, for separating a set of scientific publications into several clusters. To evaluate the results, we generate a collection of documents that contain academic papers from several different fields and see whether papers in the same field will be clustered together. We explore potential scientometric applications of such text analysis capabilities.

Keywords: Allocation, Analysis, Approach, Atent Dirichlet Allocation, Bibliometrics, Clustering, Collection, Documents, Field, Learning, Machine, Machine Learning, Methods, Model, Modeling, Papers, Potential, Publications, Scientific Publications, Scientometric, Technologies, Text Analysis, Topic, Topic Modeling

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Full Text: [2014\Scientometrics100, 787.pdf](2014/Scientometrics100,%20787.pdf)

Abstract: A knowledge organization system (KOS) can help easily indicate the deep knowledge structure of a patent document set. Compared to classification code systems, a personalized KOS made up of topics can represent the technology information in a more agile, detailed manner. This paper presents an approach to automatically construct a KOS of patent documents based on term clumping, Latent Dirichlet Allocation (LDA) model, K-Means clustering and Principal Components Analysis (PCA). Term clumping is adopted to generate a better bag-of-words for topic modeling and LDA model is applied to generate raw topics. Then by iteratively using K-Means clustering and PCA on the document set and topics matrix, we generated new upper topics and computed the relationships between topics to construct a KOS. Finally, documents are mapped to the KOS. The nodes of the KOS are topics which are represented by terms and their weights and the leaves are patent documents. We evaluated the approach with a set of Large Aperture Optical Elements (LAOE) patent documents as an empirical study and constructed the LAOE KOS. The method used discovered the deep semantic relationships between the topics and helped better describe the technology themes of LAOE. Based on the KOS, two types of applications were implemented: the automatic classification of patents documents and the categorical refinements above search results.

Keywords: Allocation, Analysis, Approach, Classification, Clustering, Constructed, Documents, Elements, Empirical Study, Information, Knowledge, Knowledge Organization, Knowledge Organization System, Matrix, Model, Modeling, Organization, Patent, Patent Document, Patents, PCA, Principal Component Analysis, Structure, Systems, Technology, Term, Term Clumping, Text Clustering, Topic, Topic Model

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Full Text: [2014\Scientometrics101, 1.pdf](2014/Scientometrics101,%201.pdf)

Abstract: Transformations and applications of scientific knowledge into new technologies are usually complex interactive processes. Is it possible to detect, from bibliographic information alone, structural alterations and significant events within these processes that may indicate breakthrough discoveries? In this empirical study we focus on R&D processes leading to HIV/AIDS medicines called Integrase Inhibitors. Where scientific progress and discoveries are reflected in research papers, patents signify inventions and technological achievements. Our temporal analysis of distinctive events in this R&D area, tracing trends within both bibliographic information sources, is driven by three bibliometric indicators: (1) contributions of ‘bridging researchers’ who are also inventors, (2) ‘key papers’ that subject experts in the field considered milestones in the research process, and (3) the multidisciplinary impact of those papers. The main results indicate that a combination of key papers, bridging researchers and multidisciplinary impact might help track potential ‘Charge type’ breakthrough developments.

Keywords: Analysis, Bibliographic, Bibliometric, Bibliometric Indicators, Breakthrough, Bridging Researchers, Development, Discoveries, Drugs, Dynamics, Established Firms, Events, Experts, Exploration, Field, From, History, Hiv-1 Replication, Hiv, Aids, Hiv, Aids Drugs Development, Impact, Indicators, Information, Innovation, Inventions, Inventors, Knowledge, Multidisciplinary, Papers, Patents, Potential, Progress, R&D, R&D Dynamics, Research, Research Papers, Researchers, Science, Scientific Breakthroughs, Scientific Progress, Sources, Technologies, Technology, Temporal, Temporal Analysis, Trends

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Full Text: [2014\Scientometrics101, 17.pdf](2014/Scientometrics101,%2017.pdf)

Abstract: Journal rankings and journal ratings are important to governments, research institutes, and scientific research in general, and they frequently serve as the criteria for evaluating research performance to determine whether specific researchers will receive promotions and/or earn research grants. However, the only widely adopted journal assessment method is known as impact factor (IF), which focuses on citations in academic journals. However, IF disregards the technological applications and value of academic journals. In this article, we propose a method to rank academic journals that utilizes non-patent references in patent documents. We also compare the differences between journal rankings derived by using IF with those derived from the Intellectual Property Citation Index (IPCI) across different fields; moreover, some fields contain positive and significant correlations between IF and the IPCI. The results of this study offer a new perspective from which to assess the technological value of academic journals, particularly those in the technological and scientific fields. This study considers linkages among science and technology and the needs of the stakeholders in journal assessment to shed light on journal assessment and journal ranking methods.

Keywords: Analysis, Article, Assessment, Citation, Citation Measures, Citations, Correlations, Criteria, Documents, Evaluation Methodologies, From, General, Impact, Impact Factor, Innovation, Journal, Journal Ranking, Journal Rankings, Journals, Linkage, Management Journals, Methods, Needs, Non-Patent Reference, Operations Management, Patent, Performance, Practice, Property, Public Science, Quality, Rank, Ranking, Rankings, Reference, References, Research, Research Performance, Researchers, Science, Science and Technology, Scientific Research, Social-Sciences, Stakeholders, Technology, Value

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Full Text: [2014\Scientometrics101, 39.pdf](2014/Scientometrics101,%2039.pdf)

Abstract: Although the world has experienced rapid urbanization, rural areas have always been and are still an important research field in human geography. This paper performed a bibliometric analysis on rural geography studies based on the peer-reviewed articles concerning rural geography published in the SSCI-listed journals from 1990 to 2012. Our analysis examines publication patterns (document types and publishing languages, article outputs and their categories, major journals and their publication, most productive authors, geographic distribution and international collaboration) and demonstrates the evolution of intellectual development of rural geography by studying highly cited papers and their citation networks and temporal evolution of keywords. Our research findings include: The article number has been increasing since the 1900s, and went through three phases, and the rural geography research is dominated in size by UK and USA. The USA is the most productive in rural geography, but the UK had more impact than other countries in the terms of the average citation of articles. Three distinct but loosely linked research streams of rural geography were identified and predominated by the UK rural geographers. The keywords frequencies evolved according to contexts of rural development and academic advances of human geography, but they were loosely and scattered since the rural researches in different regions or different systems faced with different problems.

Keywords: Advances, Analysis, Article, Articles, Authors, Bibliometric, Bibliometric Analysis, Bibliometrics Analysis, Citation, Collaboration, Development, Disciplines, Distribution, Evolution, Field, From, Geographic Distribution, Geography, Highly Cited, Highly Cited Papers, Highly-Cited, Histcite, Human, Impact, International, International Collaboration, Journals, Languages, Networks, Papers, Peer-Reviewed, Publication, Publishing, Research, Rural, Rural Areas, Rural Development, Rural Geography, Scientific Visualization, Size, Streams, Systems, Temporal, UK, Urbanization, USA, World

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Full Text: [2014\Scientometrics101, 61.pdf](2014/Scientometrics101,%2061.pdf)

Abstract: This paper presents a new methodology to describe global innovations networks. Using 167,315 USPTO patents granted in 2009 and the papers they cited, this methodology shows “scientific footprints of technology” that cross national boundaries, and how multinational enterprises interact globally with universities and other firms. The data and the map of these flows provide insights to support a tentative taxonomy of global innovation networks.

Keywords: Boundaries, Citations, Data, Diffusion, Enterprises, Firms, Global, Global Innovation Networks, Innovation, Knowledge, Knowledge Flows, Linkages, Links, Methodology, Multinational Enterprises, Multinational Firms, Networks, Papers, Patent, Patent Citations, Patents, Patterns, Public Research, References, Science-And-Technology, Support, Taxonomy, Universities, Uspto

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Full Text: [2014\Scientometrics101, 85.pdf](2014/Scientometrics101,%2085.pdf)

Abstract: Evaluation has become a regular practice in the management of science, technology and innovation (ST&I) programs. Several methods have been developed to identify the results and impacts of programs of this kind. Most evaluations that adopt such an approach conclude that the interventions concerned, in this case ST&I programs, had a positive impact compared with the baseline, but do not control for any effects that might have improved the indicators even in the absence of intervention, such as improvements in the socio-economic context. The quasi-experimental approach therefore arises as an appropriate way to identify the real contributions of a given intervention. This paper describes and discusses the utilization of propensity score (PS) in quasi-experiments as a methodology to evaluate the impact on scientific production of research programs, presenting a case study of the BIOTA Program run by FAPESP, the State of So Paulo Research Foundation (Brazil). Fundamentals of quasi-experiments and causal inference are presented, stressing the need to control for biases due to lack of randomization, also a brief introduction to the PS estimation and weighting technique used to correct for observed bias. The application of the PS methodology is compared to the traditional multivariate analysis usually employed.

Keywords: Analysis, Application, Approach, Bias, Bibliometrics, Biodiversity, Biota, Biota Program, Brazil, Case Study, Context, Control, Effects, Evaluation, Impact, Impact Evaluation, Impacts, Indicators, Inference, Innovation, Intervention, Interventions, Management, Methodology, Methods, Models, Multivariate, Multivariate Analysis, Policy, Practice, Propensity Score, Quasi-Experiment, Randomization, Regular, Research, Science, Scientific Production, Technology, Utilization, Weighting

? Lin, P.H., Chen, J.R. and Yang, C.H. (2014), Academic research resources and academic quality: A cross-country analysis. *Scientometrics*, **101** (1), 109-123.

Full Text: [2014\Scientometrics101, 109.pdf](2014/Scientometrics101,%20109.pdf)

Abstract: Does devoting more academic research resources promote academic quality? This study aims to examine the influence of higher education R&D expenditure (HERD) on academic quality measured by the relative citation impact (RCI). Both the ordered Probit and panel data models are employed to implement the empirical estimation, the cross-country evidence suggests that an increase in academic R&D is positively related to academic quality. The further analyses on different academic disciplines show the HERD is more relevant to science publications. This finding is robust for various specifications.

Keywords: Academic, Academic Quality, Academic Research, Analyses, Analysis, Citation, Citation Impact, Cross-Country Analysis, Data, Data Models, Disciplines, Education, Evidence, Higher Education, Impact, Influence, Models, Nations, Ordered Probit Model, Productivity, Publications, Quality, R&D, R&D Expenditure, Relative Citation Impact, Research, Research-And-Development, Resources, Science, Sciences, Scientometric Indicators

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Full Text: [2014\Scientometrics101, 125.pdf](2014/Scientometrics101,%20125.pdf)

Abstract: An increasing demand for bibliometric assessment of individuals has led to a growth of new bibliometric indicators as well as new variants or combinations of established ones. The aim of this review is to contribute with objective facts about the usefulness of bibliometric indicators of the effects of publication activity at the individual level. This paper reviews 108 indicators that can potentially be used to measure performance on individual author-level, and examines the complexity of their calculations in relation to what they are supposed to reflect and ease of end-user application. As such we provide a schematic overview of author-level indicators, where the indicators are broadly categorised into indicators of publication count, indicators that qualify output (on the level of the researcher and journal), indicators of the effect of output (effect as citations, citations normalized to field or the researcher’s body of work), indicators that rank the individual’s work and indicators of impact over time. Supported by an extensive appendix we present how the indicators are computed, the complexity of the mathematical calculation and demands to data-collection, their advantages and limitations as well as references to surrounding discussion in the bibliometric community. The Appendix supporting this study is available online as supplementary material.

Keywords: Activity, Appendix, Application, Assessment, Author-Level Bibliometrics, Bibliometric, Bibliometric Assessment, Bibliometric Indicators, Calculation, Characteristics, Citation, Citations, Community, Complexity, Curriculum Vitaes, Data Collection, Demand, Economics, Effects, Field, Fields, Growth, Impact, Impact Factors, Indicators, Ireland, Journal, Measure, Online, Overview, Performance, Publication, Publication Activity, R-Index, Rank, References, Research Evaluation, Researcher Performance, Researchers, Review, Reviews, Science, Scientific Impact, Self-Assessment, Successive h-Indexes, Work

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Full Text: [2014\Scientometrics101, 159.pdf](2014/Scientometrics101,%20159.pdf)

Abstract: This study describes the basic methodological approach and the results of URAP-TR, the first national ranking system for Turkish universities. URAP-TR is based on objective bibliometric data resources and includes both size-dependent and size-independent indicators that balance total academic performance with performance per capita measures. In the context of Turkish national university rankings, the paper discusses the implications of employing multiple size-independent and size-dependent indicators on national university rankings. Fine-grained ranking categories for Turkish universities are identified through an analysis of ranking results across multiple indicators.

Keywords: Academic Performance, Analysis, Approach, Balance, Bibliometric, Bibliometric Data, Context, Data, First, Higher Education, Indicators, Measures, National University Ranking, Output, Performance, Ranking, Ranking Indicators, Rankings, Resources, Size Dependency, Turkey, Universities, University, World-Report

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Full Text: [2014\Scientometrics101, 179.pdf](2014/Scientometrics101,%20179.pdf)

Abstract: How has the terrorism affected the research process and findings? The author tries to answer to this question through an exploratory analysis of the impact of these tragic events on the research outputs of scientists, institutions and countries. In particular, this report provides a wide range of scientometric data related to terrorism studies over the world during the two decades from 1991 to 2011. After the September 11, 2001 events (9/11) in the United States, the concerned academicians have responded in a way that they started producing an increasing number of research publications, as if they were under the influence of some kind of a driving force, stimulating the overall academic production linked to this tragic event. However, after this trend has reached its peak in 2002, that driving force has visibly weakened, and since the mid 2000’s, the number of research publication in the field of terrorism studies has steadily decreased. Nonetheless, the number of terrorist events per year, along with the property damage and fatality rate, has continuously increased over the observed lapse of time. Using these results as a backdrop, in this paper is argued that the field of terrorism research should be explored from a critical and multi-cultural perspective, and that all scientific researchers should remain objective, for scientific research is to be independent from political systems, its contingent events in any form, and the transitory historical circumstances.

Keywords: 9, 11, Analysis, Antiterrorism, Attacks, Counterterrorism, Critical Terrorism Studies, Damage, Data, Driving, Dynamics, Ethical Issues, Events, Field, Force, From, Impact, Influence, Institutions, Life, Property, Publication, Publications, Research, Research Outputs, Researchers, Science, Scientific Research, Scientists, Scientometric, Scientometric Analysis, Security, Systems, Terrorism, Terrorist, Trend, United States, Web, World

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Full Text: [2014\Scientometrics101, 203.pdf](2014/Scientometrics101,%20203.pdf)

Abstract: By means of their academic publications, authors form a social network. Instead of sharing casual thoughts and photos (as in Facebook), authors select co-authors and reference papers written by other authors. Thanks to various efforts (such as Microsoft Academic Search and DBLP), the data necessary for analyzing the academic social network is becoming more available on the Internet. What type of information and queries would be useful for users to discover, beyond the search queries already available from services such as Google Scholar? In this paper, we explore this question by defining a variety of ranking metrics on different entities-authors, publication venues, and institutions. We go beyond traditional metrics such as paper counts, citations, and h-index. Specifically, we define metrics such as influence, connections, and exposure for authors. An author gains influence by receiving more citations, but also citations from influential authors. An author increases his or her connections by co-authoring with other authors, and especially from other authors with high connections. An author receives exposure by publishing in selective venues where publications have received high citations in the past, and the selectivity of these venues also depends on the influence of the authors who publish there. We discuss the computation aspects of these metrics, and the similarity between different metrics. With additional information of author-institution relationships, we are able to study institution rankings based on the corresponding authors’ rankings for each type of metric as well as different domains. We are prepared to demonstrate these ideas with a web site (http://pubstat.org) built from millions of publications and authors.

Keywords: Academic, Academic Social Network, Audience Factor, Authors, Citations, Co-Authors, Coauthorship Networks, Computation, Data, Exposure, Facebook, From, Google, Google Scholar, h Index, h-Index, Impact Factor, Index, Individuals, Influence, Information, Institutions, Internet, Metrics, Network, Pagerank, Papers, Publication, Publications, Publishing, Ranking, Ranking, Rankings, Reference, Science, Scientific Collaboration, Search, Selectivity, Services, Similarity, Site, Social, Social Network, Web

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Full Text: [2014\Scientometrics101, 241.pdf](2014/Scientometrics101,%20241.pdf)

Abstract: In this study we compare internationalization of academic journals in six fields of science. Internationalization was investigated through journals’ concentration on publishing papers from particular countries, relationship between the geographical distributions of editors and authors, and relationship between language of publication and the geographical distribution of papers. Having analyzed more than 1,000 journals we can state that social sciences literature in the fields considered is still nationally and linguistically fragmented more than natural sciences literature, but in some cases the gap is not so big. One of the consequences concerning research output assessment is that usefulness of international databases having national disparity in coverage is still limited in social sciences.

Keywords: Assessment, Authors, Concentration, Coverage, Databases, Disparity, Distribution, Economics, Editors, From, Humanities, Impact, International, Internationalization, Journals, Language, Literature, Natural, Natural Sciences, Output, Papers, Political Science, Publication, Publishing, Research, Research Output, Science, Sciences, Scientometrics, Social, Social Sciences, Sociology, State, Web Of Science

? Fernandes, J.M. (2014), Authorship trends in software engineering. *Scientometrics*, **101** (1), 257-271.

Full Text: [2014\Scientometrics101, 257.pdf](2014/Scientometrics101,%20257.pdf)

Abstract: This paper aims to examine authorship trends in software engineering, especially those related to the number of authors, of scientific publications. We collected and mined around 70.000 entries from DBLP for 122 conferences and journals, for the period 1971-2012, in order to process several bibliometric indicators. We provide evidence that the number of authors of articles in software engineering is increasing on average around +0.40 authors/decade. The results also indicate that until 1980, the majority of the articles have a sole author, while nowadays articles with 3 or 4 authors represent almost half of the total.

Keywords: Articles, Authors, Authorship, Bibliometric, Bibliometric Indicators, Conferences, Engineering, Evidence, From, Index, Indicators, Institutions, Journals, Number Of Authors, Proposal, Publications, Ranking, Scholars, Science, Scientific Authorship, Scientific Publication, Scientific Publications, Software, Software Engineering, Trends

? Dehdarirad, T., Villarroya, A. and Barrios, M. (2014), Research trends in gender differences in higher education and science: A co-word analysis. *Scientometrics*, **101** (1), 273-290.

Full Text: [2014\Scientometrics101, 273.pdf](2014/Scientometrics101,%20273.pdf)

Abstract: The aim of this study is to map and analyze the structure and evolution of the scientific literature on gender differences in higher education and science, focusing on factors related to differences between 1991 and 2012. Co-word analysis was applied to identify the main concepts addressed in this research field. Hierarchical cluster analysis was used to cluster the keywords and a strategic diagram was created to analyze trends. The data set comprised a corpus containing 652 articles and reviews published between 1991 and 2012, extracted from the Thomson Reuters Web of Science database. In order to see how the results changed over time, documents were grouped into three different periods: 1991-2001, 2002-2007, and 2008-2012. The results showed that the number of themes has increased significantly over the years and that gender differences in higher education and science have been considered by specific research disciplines, suggesting important research-field-specific variations. Overall, the study helps to identify the major research topics in this domain, as well as highlighting issues to be addressed or strengthened in further work.

Keywords: Analysis, Articles, Cluster, Cluster Analysis, Co-Word, Co-Word Analysis, Data, Data Set, Database, Disciplines, Documents, Education, Evolution, Field, From, Gender, Gender Differences, Higher Education, Issues, Literature, Men, Mind, Performance, Research, Research Productivity, Research Trends, Reviews, Science, Scientific Literature, Scientists, Strategic, Strategic Diagram, Structure, Students, Thomson Reuters, Thomson-Reuters, Trends, Web Of Science, Women, Work

? Zhang, G.J., Liu, L.N., Feng, Y.Q., Shao, Z. and Li, Y.L. (2014), Cext-N index: A network node centrality measure for collaborative relationship distribution. *Scientometrics*, **101** (1), 291-307.

Full Text: [2014\Scientometrics101, 291.pdf](2014/Scientometrics101,%20291.pdf)

Abstract: This paper focuses on methods to study the distribution of an author’s collaborative relationships among different communities in co-authorship networks. Based on the index of extensity centrality, we propose a new index and name it extensity centrality-Newman (Cext-N). Drawing upon a data set of three top journals (MISQ, ISR, JMIS) between 2010 and 2012 in Information Systems, we verify and describe the application and value of our approach. Due to the fact that the starting points among Cext-N and classical indices are quite different and a single index is not advocated in scientific evaluation, we can select the indices in actual application by considering their starting points to ensure the value of each index is taken into account.

Keywords: Application, Approach, Betweenness Centrality, Centrality Measure, Closeness, Co-Authorship, Co-Authorship Network, Co-Authorship Networks, Coauthorship, Collaborative Relationship Distribution, Community, Complex Networks, Data, Data Set, Distribution, Evaluation, Evolution, Fields, Impact, Index, Indices, Information, Isr, Journals, Lambda Sets, Measure, Methods, Network, Networks, Patterns, Scientific Collaboration, Social Networks, Value, Weighted Networks

? Kim, M.C., Jeong, Y.K. and Song, M. (2014), Investigating the integrated landscape of the intellectual topology of bioinformatics. *Scientometrics*, **101** (1), 309-335.

Full Text: [2014\Scientometrics101, 309.pdf](2014/Scientometrics101,%20309.pdf)

Abstract: We aim at identifying (1) whether and how various data sources influence mapping an intellectual structure of the field of bioinformatics, and (2) the landscape of bioinformatics by integrating those sources. To this end, we conduct a comprehensive bibliometric analysis by harvesting bibliographic information from DBLP, PubMed Central, and Web of Science. We then measure and compare topological characteristics of networks generated using these sources. The results show a dichotomous pattern dominated by PubMed Central and WoS. In addition, a few influential scientists in the field of bioinformatics receive very high citations from their colleagues, which is a driving force to bloom the field. These few scientists are connected to a much larger research community. Most of the researchers are intellectually linked within a few steps, in spite of the domain’s interdisciplinary characteristics. Particularly, influential authors consist of a small world. We also identify that there is not a coherent body of discipline in bioinformatics since the field is still under development. Finally, the journals and conferences indexed by each source cover different research topics, and PubMed Central is more inclusive than DBLP as an indexing database.

Keywords: Analysis, Author Cocitation Analysis, Authors, Bibliographic, Bibliometric, Bibliometric Analysis, Bibliometrics, Big Data, Bioinformatics, Characteristics, Citations, Classification, Co-Authorship, Co-Authorship Network, Co-Citation Network, Communication, Community, Complete Topology, Conferences, Data, Database, Development, Driving, Field, Force, From, Harvesting, Impact, Indexing, Influence, Information, Intellectual Structure, Interdisciplinary, International Scientific Collaboration, Journals, Landscape, Mapping, Measure, Multiple Authorship, Networks, Pattern, Patterns, Pubmed, Pubmed Central, Research, Researchers, Science, Scientists, Small, Source, Sources, Structure, Web, Web Of Science, World, Wos

? Mas-Bleda, A., Thelwall, M., Kousha, K. and Aguillo, I.F. (2014), Do highly cited researchers successfully use the social web? *Scientometrics*, **101** (1), 337-356.

Full Text: [2014\Scientometrics101, 337.pdf](2014/Scientometrics101,%20337.pdf)

Abstract: Academics can now use the web and the social websites to disseminate scholarly information in a variety of different ways. Although some scholars have taken advantage of these new online opportunities, it is not clear how widespread their uptake is or how much impact they can have. This study assesses the extent to which successful scientists have social web presences, focusing on one influential group: highly cited researchers working at European institutions. It also assesses the impact of these presences. We manually and systematically identified if the European highly cited researchers had profiles in Google Scholar, Microsoft Academic Search, Mendeley, Academia and LinkedIn or any content in SlideShare. We then used URL mentions and altmetric indicators to assess the impact of the web presences found. Although most of the scientists had an institutional website of some kind, few had created a profile in any social website investigated, and LinkedIn-the only non-academic site in the list-was the most popular. Scientists having one kind of social web profile were more likely to have another in many cases, especially in the life sciences and engineering. In most cases it was possible to estimate the relative impact of the profiles using a readily available statistic and there were disciplinary differences in the impact of the different kinds of profiles. Most social web profiles had some evidence of uptake, if not impact; nevertheless, the value of the indicators used is unclear.

Keywords: Academic, Academic Web, Assessment, Citation Analysis, Engineering, Europe, Evidence, Google, Google Scholar, Google-Scholar, Highly Cited, Highly Cited Scientists, Highly-Cited, Impact, Indicators, Informal Scholarly Communication, Information, Institutions, Journals, Life, Life Sciences, Link Analysis, Mendeley, Online, Profiles, Researchers, Sciences, Scientific Impact, Scientists, Search, Site, Site Interlinking, Social, Social Web, Uptake, Url, Url Citations, Value, Web, Web Presence, Websites

? Coursaris, C.K. and Van Osch, W. (2014), A scientometric analysis of social media research (2004-2011). *Scientometrics*, **101** (1), 357-380.

Full Text: [2014\Scientometrics101, 357.pdf](2014/Scientometrics101,%20357.pdf)

Abstract: To better understand the rapidly growing social media research domain, this study presents the findings of a scientometric analysis of the corresponding literature. We conducted a research productivity analysis and citation analysis of individuals, institutions, and countries based on 610 peer-reviewed social media articles published in journals and conference proceedings between October 2004 and December 2011. Results indicate that research productivity is exploding and that several leading authors, institutions, countries, and a small set of foundational papers have emerged. Based on the results-indicating that the social media domain displays limited diversity and is still heavily influenced by practitioners-the paper raises two fundamental challenges facing the social media domain and its future advancement, namely the lack of academic maturity and the Matthew Effect.

Keywords: Analysis, Articles, Authors, Bibliometrics, Citation, Citation Analysis, Citation Analysis, Conference Proceedings, Diversity, Effect, Impact, Indicators, Information-Systems, Institutions, Journals, Knowledge Management, Literature, Media, Online Social Networks, Papers, Peer-Reviewed, Productivity, Psychology, Research, Research Productivity, Research Productivity, Results, Science, Scientometric, Scientometric Analysis, Small, Social, Social Media, Social Network Sites, Technology

? Garcia-Romero, A. and Estrada-Lorenzo, J.M. (2014), A bibliometric analysis of plagiarism and self-plagiarism through Deja vu. *Scientometrics*, **101** (1), 381-396.

Full Text: [2014\Scientometrics101, 381.pdf](2014/Scientometrics101,%20381.pdf)

Abstract: Plagiarism is one of the most important current debates among scientific stakeholders. A separate but related issue is the use of authors’ own ideas in different papers (i.e., self-plagiarism). Opinions on this issue are mixed, and there is a lack of consensus. Our goal was to gain deeper insight into plagiarism and self-plagiarism through a citation analysis of documents involved in these situations. The Deja vu database, which comprises around 80,000 duplicate records, was used to select 247 pairs of documents that had been examined by curators on a full text basis following a stringent protocol. We then used the Scopus database to perform a citation analysis of the selected documents. For each document pair, we used specific bibliometric indicators, such as the number of authors, full text similarity, journal impact factor, the Eigenfactor, and article influence. Our results confirm that cases of plagiarism are published in journals with lower visibility and thus tend to receive fewer citations. Moreover, full text similarity was significantly higher in cases of plagiarism than in cases of self-plagiarism. Among pairs of documents with shared authors, duplicates not citing the original document showed higher full text similarity than those citing the original document, and also showed greater overlap in the references cited in the two documents.

Keywords: Analysis, Article, Authors, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Citation, Citation Analysis, Citations, Consensus, Database, Deja Vu, Documents, Duplicate Publications, Eigenfactor, Impact, Impact Factor, Indicators, Influence, Journal, Journal Impact, Journal Impact Factor, Journals, Medline, Papers, Plagiarism, Protocol, Publications, Records, References, Scientific Literature, Scopus, Scopus Database, Similarity, Stakeholders, Text Similarity, Visibility

? Song, M., Heo, G.E. and Kim, S.Y. (2014), Analyzing topic evolution in bioinformatics: Investigation of dynamics of the field with conference data in DBLP. *Scientometrics*, **101** (1), 397-428.

Full Text: [2014\Scientometrics101, 397.pdf](2014/Scientometrics101,%20397.pdf)

Abstract: In this paper we analyze topic evolution over time within bioinformatics to uncover the underlying dynamics of that field, focusing on the recent developments in the 2000s. We select 33 bioinformatics related conferences indexed in DBLP from 2000 to 2011. The major reason for choosing DBLP as the data source instead of PubMed is that DBLP retains most bioinformatics related conferences, and to study dynamics of the field, conference papers are more suitable than journal papers. We divide a period of a dozen years into four periods: period 1 (2000-2002), period 2 (2003-2005), period 3 (2006-2008) and period 4 (2009-2011). To conduct topic evolution analysis, we employ three major procedures, and for each procedure, we develop the following novel technique: the Markov Random Field-based topic clustering, automatic cluster labeling, and topic similarity based on Within-Period Cluster Similarity and Between-Period Cluster Similarity. The experimental results show that there are distinct topic transition patterns between different time periods. From period 1 to period 3, new topics seem to have emerged and expanded, whereas from period 3 to period 4, topics are merged and display more rigorous interaction with each other. This trend is confirmed by the collaboration pattern over time.

Keywords: Analysis, Bioinformatics, Cluster, Clustering, Collaboration, Conference Papers, Conferences, Data, Dynamics, Evolution, Experimental, Field, From, Information-Science, Interaction, Investigation, Journal, Labeling, Library, Markov Random Field (MRF)-Based Topic Clustering Technique For Topic Evolution (MRFTC), Medical Subject Headings (MESH), Papers, Pattern, Procedure, Procedures, Pubmed, Recent, Similarity, Source, Tf\*Idf, Topic, Topic Evolution, Tracking, Trend, Trends

? Zhu, J., Saeed-Ul, H., Mirza, H.T. and Xie, Q. (2014), Measuring recent research performance for Chinese universities using bibliometric methods. *Scientometrics*, **101** (1), 429-443.

Full Text: [2014\Scientometrics101, 429.pdf](2014/Scientometrics101,%20429.pdf)

Abstract: This paper focuses on measuring the academic research performance of Chinese universities by using Scopus database from 2007 to 2010. We have provided meaningful indicators to measure the research performance of Chinese universities as compared to world class universities of the US and the European region. Using these indicators, we first measure the quantity and quality of the research outcomes of the universities and then examine the internationalization of research by using international collaborations, international citations and international impact metrics. Using all of this data, we finally present an overall score called research performance point to measure the comprehensive research strength of the universities for the selected subject categories. The comparison identifies the gap between Chinese universities and top-tier universities from selected regions across various subject areas. We find that Chinese universities are doing well in terms of publication volume but receive less citations from their published work. We also find that the Chinese universities have relative low percentage of publications at high impact venues, which may be the reason that they are not receiving more citations. Therefore, a careful selection of publication venues may help the Chinese universities to compete with world class universities and increase their research internationalization.

Keywords: Bibliometric, Bibliometric Methods, Chinese, Chinese Universities, Citations, Collaborations, Comparison, Data, Database, European Region, First, From, Impact, Indicators, International, Internationalization, Journals, Measure, Methods, Metrics, Outcomes, Performance, Publication, Publications, Quality, Quality Of, Recent, Region, Research, Research Performance, Science-Citation-Index, Scopus, Scopus Database, Selection, Strength, Universities, Us, Volume, Work, World

? Maraut, S. and Martinez, C. (2014), Identifying author-inventors from Spain: Methods and a first insight into results. *Scientometrics*, **101** (1), 445-476.

Full Text: [2014\Scientometrics101, 445.pdf](2014/Scientometrics101,%20445.pdf)

Abstract: The purpose of this paper is twofold: methodological and empirical. Methodologically, we describe a matching and disambiguation procedure for the identification of author-inventors (researchers who publish and patent) located in the same country. Our methodology aims to maximize precision and recall rates by taking into account national name writing customs and country-specific dictionaries for person and institution names (academic and non-academic) in the name matching stage and by including a recursive validation step in the person disambiguation stage. An application of this methodology to the identification of Spanish author-inventors is described in detail. Empirically, we present the first results of applying the described methodology to the matching of all SCOPUS 2003-2008 publications of Spanish authors to all 1978-2009 EPO applications with Spanish inventors. Using this data, we identify 4,194 Spanish author-inventors. A first look at their patenting and publication patterns reveals that they make quite a significant contribution to the country’s overall scientific and technological production in the time period considered: 27 % of all EPO patent applications invented in Spain and 15 % of all SCOPUS publications authored in Spain, excluding non-technological disciplines. To our knowledge, this is the first time that a large scale identification of author-inventors from Spain has been done, with no limitation in terms of fields, regions or types of institutions. We also make available online for scientific use an anonymized subset of the database (patent applications invented by authors affiliated to Spanish public universities).

Keywords: Academic Patenting, Application, Author-Inventors, Authors, Contribution, Country, Data, Database, Disambiguation, Disciplines, Epo, Europe, First, From, Identification, Impact, Institutions, Intellectual Property-Rights, Knowledge, Limitation, Matching, Methodology, Methods, Nano-Science, Networks, Online, Patent, Patents, Patstat, Person, Precision, Procedure, Public, Publication, Publications, Purpose, Rates, Recall, Researchers, Scale, Science-Technology Links, Scopus, Spain, Technology, Time Period, Universities, Validation

? Pezzoni, M., Lissoni, F. and Tarasconi, G. (2014), How to kill inventors: Testing the MassacratorA (c) algorithm for inventor disambiguation. *Scientometrics*, **101** (1), 477-504.

Full Text: [2014\Scientometrics101, 477.pdf](2014/Scientometrics101,%20477.pdf)

Abstract: Inventor disambiguation is an increasingly important issue for users of patent data. We propose and test a number of refinements to the original Massacrator algorithm, originally proposed by Lissoni et al. (The keins database on academic inventors: methodology and contents, 2006) and now applied to APE-INV, a free access database funded by the European Science Foundation. Following Raffo and Lhuillery (Res Policy 38:1617-1627, 2009) we describe disambiguation as a three step process: cleaning&parsing, matching, and filtering. By means of sensitivity analysis, based on MonteCarlo simulations, we show how various filtering criteria can be manipulated in order to obtain optimal combinations of precision and recall (type I and type II errors). We also show how these different combinations generate different results for applications to studies on inventors’ productivity, mobility, and networking; and discuss quality issues related to linguistic issues. The filtering criteria based upon information on inventors’ addresses are sensitive to data quality, while those based upon information on co-inventorship networks are always effective. Details on data access and data quality improvement via feedback collection are also discussed.

Keywords: Access, Algorithm, Analysis, Collection, Criteria, Data, Data Access, Data Quality, Database, Errors, Improvement, Information, Innovation, Inventor, Inventors, Issues, Methodology, Mobility, Name Disambiguation, Networks, Patent, Patent Data, Policy, Precision, Productivity, Quality, Quality Improvement, Recall, Science, Sensitivity, Sensitivity Analysis, Testing, Type I and Type Ii Errors

? Kazakis, N.A. (2014), Bibliometric evaluation of the research performance of the Greek civil engineering departments in National and European context. *Scientometrics*, **101** (1), 505-525.

Full Text: [2014\Scientometrics101, 505.pdf](2014/Scientometrics101,%20505.pdf)

Abstract: Quality evaluation and its assurance in higher education institutions constitute an obligation and scope of most European Universities. To accomplish this, quantitative indices, known as bibliometrics, are recruited which are considered a useful evaluation tool particularly for academics’ and Universities’ research performance. In the present study, the research quality of the five Greek civil engineering departments (Athens, Patras, Thessaloniki, Volos, Xanthi) is assessed by means of several advanced bibliometric indices calculated separately for each academic. Statistical analysis of the data is also performed to compare the observed differences in the mean values of the calculated indices. The study is conducted both in department and academic rank level to explore how research activity is distributed among the various ranks. In addition, to evaluate the research status of the Greek departments in the European context, their research output is compared with that of London civil engineering department. To explore the dependence of bibliometrics on seniority, bibliometric analysis considering the research activity of all academics only during the last decade is also made. Finally, the temporal progress of the research productivity leads to interesting findings about the impact of the European economic crisis on research performance. In general, bibliometrics demonstrate that Patras department host academics of better quality, but Athens exhibits higher scientific activity over the last decade. Superiority of London department is evident but few bibliometrics are comparable with the ones of the Greek departments. Results also indicate that no common standards in hiring/promotion of academics are established, while the European socio-economic crisis has significant negative impact on research productivity.

Keywords: Academic Rank, Academics, Activity, Analysis, Assurance, Author Self-Citations, Bibliometric, Bibliometric Analysis, Bibliometric Evaluation, Bibliometrics, Civil Engineering, Context, Crisis, Data, Distributed, Economic, Economic Crisis, Education, Engineering, Evaluation, General, h-Index, h-Index, Higher Education, Host, Impact, Indicators, Indices, Institutions, Obligation, Performance, Productivity, Progress, Quality, Quality Of, Rank, Research, Research Evaluation, Research Output, Research Performance, Research Productivity, Research Quality, Results, Scope, Seniority, Standards, Statistical Analysis, Temporal, Universities

? Schoen, A., Heinisch, D. and Buenstorf, G. (2014), Playing the ‘Name Game’ to identify academic patents in Germany. *Scientometrics*, **101** (1), 527-545.

Full Text: [2014\Scientometrics101, 527.pdf](2014/Scientometrics101,%20527.pdf)

Abstract: Identifying academic inventors is crucial for reliable assessments of academic patenting and for understanding patent-based university-to-industry technology transfer. It requires solving the “who is who” problem at the individual inventor level. This article describes data collection and matching techniques applied to identify academic inventors in Germany. To manage the large dataset, we adjust a matching technique applied in prior research by comparing the inventor and professor names in the first step after cleaning. We also suggest a new approach for determining the similarity score. To evaluate our methodology we apply it to the EP-INV-PatStat database and compare its results to alternative approaches. For our German data, results are less sensitive to the choice of name comparison algorithm than to the specific filtering criteria employed. Restricting the search to EPO applications or identifying inventors by professor title underestimates academic patenting in Germany.

Keywords: Academic Patents, Algorithm, Alternative, Approach, Article, Assessments, Choice, Collection, Comparison, Criteria, Data, Data Collection, Database, Epo, Europe, First, German, German Universities, Germany, Kurschners Gelehrtenkalender, Methodology, Name Matching Algorithm, Patent Database, Patents, Professor, Professors, Research, Similarity, Techniques, Technology, Technology Transfer, Understanding, University

? Bogocz, J., Bak, A. and Polanski, J. (2014), No free lunches in nature? An analysis of the regional distribution of the affiliations of Nature publications. *Scientometrics*, **101** (1), 547-568.

Full Text: [2014\Scientometrics101, 547.pdf](2014/Scientometrics101,%20547.pdf)

Abstract: Nature is among the world’s most highly cited multidisciplinary science journals with one of the highest impact factors of 38.597 (Nature Publishing Group (NPG) 2013), which is used relatively often in many scientific rankings. When analysing the regional distribution of Nature publications, we found a high correlation between the expenditures and the number of local affiliations that are counted on a national basis. The same regularity can be observed for the world’s top 30 and the US’s top 50 universities; however, the correlation is now skewed by the so-called cumulative advantage or the Matthew Effect, which evidently rewards those that are ranked at the top of the Academic Ranking of World Universities. The rich get richer and the poor get poorer. Surprisingly, the amount of the endowment better determines the number of Nature publications for universities than the total research expenditure.

Keywords: Academic, Academic Ranking Of World Universities, Analysis, Correlation, Cumulative, Distribution, Economists, Effect, Expenditures, Higher Education Expenditures, Highly Cited, Highly-Cited, Impact, Impact Factors, Journals, Local, Matthew Effect, Multidisciplinary, Nature Publications, Publications, Publishing, Ranking, Rankings, Regional, Research, Science, Science Journals, Universities

? Abrizah, A., Erfanmanesh, M., Rohani, V.A., Thelwall, M., Levitt, J.M. and Didegah, F. (2014), Sixty-four years of informetrics research: Productivity, impact and collaboration. *Scientometrics*, **101** (1), 569-585.

Full Text: [2014\Scientometrics101, 569.pdf](2014/Scientometrics101,%20569.pdf)

Abstract: This paper analyses the information science research field of informetrics to identify publication strategies that have been important for its successful researchers. The study uses a micro-analysis of informetrics researchers from 5,417 informetrics papers published in 7 core informetrics journals during 1948-2012. The most productive informetrics researchers were analysed in terms of productivity, citation impact, and co-authorship. The 30 most productive informetrics researchers of all time span several generations and seem to be usually the primary authors of their research, highly collaborative, affiliated with one institution at a time, and often affiliated with a few core European centres. Their research usually has a high total citation impact but not the highest citation impact per paper. Perhaps surprisingly, the US does not seem to be good at producing highly productive researchers but is successful at producing high impact researchers. Although there are exceptions to all of the patterns found, researchers wishing to have the best chance of being part of the next generation of highly productive informetricians may wish to emulate some of these characteristics.

Keywords: Analyses, Authors, Bibliometrics, Centrality Measures, Characteristics, Citation, Citation Impact, Co-Authorship, Co-Authorship, Coauthorship, Coauthorship Network Analysis, Collaboration, Cybermetrics, Field, From, Generation, Impact, Information, Information Science, Information-Science, Informetrics, Journals, Library, Papers, Primary, Productivity, Publication, Research, Researchers, Science, Science Research, Scientific Collaboration, Scientific Productivity, Scientometrics, Scientometrics, Social Network Analysis, Us, Webometrics

? Kim, J. and Diesner, J. (2014), A network-based approach to coauthorship credit allocation. *Scientometrics*, **101** (1), 587-602.

Full Text: [2014\Scientometrics101, 587.pdf](2014/Scientometrics101,%20587.pdf)

Abstract: We introduce and evaluate a novel network-based approach for determining individual credit of coauthors in multi-authored papers. In the proposed model, coauthorship is conceptualized as a directed, weighted network, where authors transfer coauthorship credits among one another. We validate the model by fitting it to empirical data about authorship credits from economics, marketing, psychology, chemistry, and biomedicine. Also, we show that our model outperforms prior alternatives such as fractional, geometric, arithmetic, and harmonic counting in generating coauthorship credit allocations that approximate the empirical data. The results from the empirical evaluation as well as the model’s capability to be adapted to domains with different norms for how to order authors per paper make the proposed model a robust and flexible framework for studying substantive questions about coauthorship across domains.

Keywords: Allocation, Alternatives, Approach, Authors, Authorship, Authorship Credit, Bibliometrics, Biomedicine, Chemistry, Coauthor Networks, Coauthor Order, Coauthorship, Consequences, Data, Economics, Evaluation, Framework, From, h-Index, Marketing, Model, Multiauthored Publications, Multiple Authorship, Network, Norms, Order, Papers, Patterns, Promotion, Psychology, Rank, Science, Scientific Collaboration

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Full Text: [2014\Scientometrics101, 603.pdf](2014/Scientometrics101,%20603.pdf); [2014\Scientometrics101, 603-1.pdf](2014/Scientometrics101,%20603-1.pdf); [2014\Scientometrics-Ivanovic1.pdf](2014/Scientometrics-Ivanovic1.pdf); [2014\Scientometrics-Ivanovic.pdf](2014/Scientometrics-Ivanovic.pdf)

Abstract: This paper presents a bibliometric analysis of articles from the Republic of Serbia in the period 2006-2012 that are indexed in the Thomson Reuters SCI-EXPANDED database. The Republic of Serbia is a small country in Europe with about seven million citizens that became an independent country in 2006. Since 2006, Serbian science has achieved some recognition. Analysis included 14,293 articles with authors all from Serbia. Distribution of published articles in the Web of Science categories, journals, scientific-research institutions and researchers were analysed. Most cited independent research articles from Serbia were also analysed. The Y-index indicator for rating the productivity of researchers and institutions was used. This indicator takes into account the contribution of the researcher to the published results. The results showed that the productivity of articles from Serbia is significant compared to neighbouring Serbian countries, taking into account the number of researchers in these countries, their GDPs and the percentages of GDPs spent on research.

Keywords: Analysis, Articles, Authors, Bibliometric, Bibliometric Analysis, Bloch Space, Citation, Composition Operators, Contribution, Country, Database, Distribution, Europe, From, h-Index, Indicator, Indicators, Institutions, Journals, Most Cited, Productivity, Publications, Published Articles, Quality, Research, Research Output, Research Performance, Research Trends, Research Trends, Researchers, Sci-Expanded, Science, Science Citation Index, Science Citation Index Expanded, Scientific Research, Serbia, Small, Thomson Reuters, Thomson-Reuters, Unit Ball, Web Of Science, Y-Index

? Appio, F.P., Cesaroni, F. and Di Minin, A. (2014), Visualizing the structure and bridges of the intellectual property management and strategy literature: A document co-citation analysis. *Scientometrics*, **101** (1), 623-661.

Full Text: [2014\Scientometrics101, 623.pdf](2014/Scientometrics101,%20623.pdf)

Abstract: This article uses document co-citation analysis to objectively explore the underlying structure of the intellectual property research domain, taken from a managerial and strategic standpoint. The goal of this study is identifying its main research areas, understanding its current state of development and suggesting potential future directions, by analyzing the co-citations from 181 papers published between 1992 and 2011 in the most influential academic journals. Five main clusters have been identified, mapped, and labeled as follows: Economics of patent system, technological and institutional capabilities, university patenting, intellectual property exploitation, and division of labor. Their most active areas on this topic, and the most influential and co-cited papers have been identified and described. Also, intra- and inter-cluster knowledge base diversity has been assessed by using indicators stemming from the domains of information theory and biology. A t test has been performed to assess the significance of the inter-cluster diversity. The knowledge bases of these five clusters are significantly diverse, this meaning that they are five co-existing paradigms.

Keywords: Absorptive-Capacity, Active, Alliances, Analysis, Article, Biology, Cluster Analysis, Co-Citation, Co-Citation Analysis, Co-Citations, Cocitation, Collaboration, Computational Intelligence Field, Dca, Development, Diversity, Diversity Analysis, Document Co-Citation Analysis, Economics, From, Ideas, Indicators, Information, Innovation, Intellectual Property, Ip Management, Ip Strategy, Journals, Knowledge, Knowledge Base, Labor, Literature, Management, Papers, Paradigms, Patent, Potential, Property, Research, Research Areas, Science, Significance, State, Strategic, Strategy, Structure, T, Theory, Topic, Understanding, University

? Wang, Y.D., Li, J., Ning, L.T., Zeng, D.M. and Gu, X. (2014), Dynamic patterns of technology collaboration: A case study of the Chinese automobile industry, 1985-2010. *Scientometrics*, **101** (1), 663-683.

Full Text: [2014\Scientometrics101, 663.pdf](2014/Scientometrics101,%20663.pdf)

Abstract: To investigate patterns of technology collaboration within the Chinese automobile industry, this study employs a unique dataset of patent applications that reveal a record of 64,938 collaborative relations in the industry during the period from 1985 to 2010. Our results indicate that over 60 % of the total collaborations were conducted after China entered the WTO. The invention and utility types of patents account for 98 % of the total collaborations throughout the sample period. Using a network analysis method, we find that the key differences between domestic enterprises collaborating with indigenous enterprises (DD collaboration) and with foreign firms (DF collaboration) are in patent types and technology domains. The DF network is also denser and more centralized than the DD network, although the amount of nodes and links of the DD network is greater than that of the DF collaboration network. The analysis and visualization of the collaboration networks and corresponding largest components reveal that a large number of domestic enterprises prefer to collaborate with top global automobile manufacturers. We also find that a number of universities have become key players in the collaborations among industry, universities and research institutes. This study provides a deeper understanding of technology collaborations from various perspectives and also highlights several avenues for future research.

Keywords: Analysis, Automobile, Automobile Industry, Case Study, China, Chinese, Co-Authorship, Collaboration, Collaboration Networks, Collaborations, Dynamic, Enterprises, Evolution Process, From, Global, High-Tech, Knowledge Transfer, Network, Network Analysis, Network Structure, Networks, Open Innovation, Patent, Patent Data, Patents, Record, Relations, Research, Research-And-Development, Small Worlds, Social Networks, Structural Holes, Technology, Understanding, Universities, Utility, Visualization, WTO

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Full Text: [2014\Scientometrics101, 685.pdf](2014/Scientometrics101,%20685.pdf)

Abstract: An extended latent Dirichlet allocation (LDA) model is presented in this paper for patent competitive intelligence analysis. After part-of-speech tagging and defining the noun phrase extraction rules, technological words have been extracted from patent titles and abstracts. This allows us to go one step further and perform patent analysis at content level. Then LDA model is used for identifying underlying topic structures based on latent relationships of technological words extracted. This helped us to review research hot spots and directions in subclasses of patented technology in a certain field. For the extension of the traditional LDA model, another institution-topic probability level is added to the original LDA model. Direct competing enterprises’ distribution probability and their technological positions are identified in each topic. Then a case study is carried on within one of the core patented technology in next generation telecommunication technology-LTE. This empirical study reveals emerging hot spots of LTE technology, and finds that major companies in this field have been focused on different technological fields with different competitive positions.

Keywords: Allocation, Analysis, Cartography, Case Study, Citation Analysis, Co-Word Analysis, Competitive, Content Analysis, Distribution, Enterprises, Extraction, Field, From, Generation, Information, Institution-Topic Model, Intelligence Analysis, Latent Dirichlet Allocation, Library, Long Term Evolution (LTE), Model, Noun Phrases Extraction, Patent, Patent Analysis, Research, Review, Science, Technology, Topic, Topic Model (LDA), Trends

? Wu, S., Huang, Z.L. and Zhong, W.Z. (2014), Does inertia matter for parts manufacturers’ innovation? *Scientometrics*, **101** (1), 705-716.

Full Text: [2014\Scientometrics101, 705.pdf](2014/Scientometrics101,%20705.pdf)

Abstract: The current study investigates parts manufacturers’ innovative behavior from the population ecology perspective. Specifically, this paper proposes that firm level inertia and network level inertia matter in parts manufacturer’s innovation. Using data from auto parts manufacturers, we test four hypotheses, and the results show that firm level inertia indicated by age does not matter, while firm’s innovative inertia matters in parts manufacturers’ innovation. At the same time, we find that cluster can promote general parts firms’ innovation, but they will harm the innovative firms’ innovative behavior. These results contribute to our understanding of parts manufacturer’s innovation.

Keywords: Age, Behavior, Capabilities, Cluster, Clusters, Competition, Data, Ecology, Firms, From, General, Inertia, Innovation, Knowledge, Location, Model, Network, Organizations, Parts Manufacturers, Perspective, Population, Population Ecology, Understanding

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Full Text: [2014\Scientometrics101, 717.pdf](2014/Scientometrics101,%20717.pdf)

Abstract: Numerous studies have sought to uncover violations of objectivity and impartiality in peer review; however the notion of reciprocity has been absent in much of this discussion, particularly as it relates to gendered and ethnicized behaviors of peer review. The current study addresses this gap in research by investigating patterns of reciprocity (i.e., correspondences between patterns of recommendations received by authors and patterns of recommendations given by reviewers in the same social group) by perceived gender and ethnicity of reviewers and authors for submissions to the Journal of the American Society for Information Science and Technology from June 2009 to May 2011. The degree of reciprocity for each social group was examined by employing Monte Carlo resampling to extrapolate more robust patterns from the limited data available. We found that papers with female authors received more negative reviews than reviews for male authors. Reciprocity was suggested by the fact that female reviewers gave lower reviews than male reviewers. Reciprocity was also exhibited by ethnicity, although non-Western reviewers gave disproportionately more recommendations of major revision, while non-Western authors tended to receive more outright rejections. This study provides a novel theoretical and methodological basis for future studies on reciprocity in peer review.

Keywords: Authors, Bias, Data, Double-Blind, Ethnicity, Female, From, Gender, Information, Information Science, Jasist, Journal, Library, Male, Monte Carlo, Monte Carlo Resampling, Norm, Notion, Papers, Peer Review, Peer-Review, Projective Identification, Reciprocity, Recommendations, Research, Review, Reviewers, Reviews, Scholarly Communication, Science, Social, Technology, Theoretical

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Full Text: [2014\Scientometrics101, 737.pdf](2014/Scientometrics101,%20737.pdf)

Abstract: In many countries culture, practice or regulations inhibit the co-presence of relatives within the university faculty. We test the legitimacy of such attitudes and provisions, investigating the phenomenon of nepotism in Italy, a nation with high rates of favoritism. We compare the individual research performance of “children” who have “parents” in the same university against that of the “non-children” with the same academic rank and seniority, in the same field. The results show non-significant differences in performance. Analyses of career advancement show that children’s research performance is on average superior to that of their colleagues who did not advance. The study’s findings do not rule out the existence of nepotism, which has been actually recorded in a low percentage of cases, but do not prove either the most serious presumed consequences of nepotism, namely that relatives who are poor performers are getting ahead of non-relatives who are better performers. In light of these results, many attitudes and norms concerning parental ties in academia should be reconsidered.

Keywords: Advance, Attitudes, Bibliometrics, Culture, Faculty, Field, Italy, Legitimacy, Nepotism, Norms, Performance, Practice, Productivity, Rank, Rates, Regulations, Research, Research Evaluation, Research Performance, Research Productivity, Universities, University

? Yao, Q., Lyu, P.H., Yang, L.P., Yao, L. and Liu, Z.Y. (2014), Current performance and future trends in health care sciences and services research. *Scientometrics*, **101** (1), 751-779.

Full Text: [2014\Scientometrics101, 751.pdf](2014/Scientometrics101,%20751.pdf)

Abstract: Health care sciences and services research (HCSSR) has come to the fore in recent years and related research literature increased rapidly over the last few decades. The main purpose of this study is to describe the global progress and to determine the current trends on HCSSR by using a scientometrics approach to survey related literature in the Web of Science database from 1900 to 2012. The document types, languages, publication patterns, subject categories, journals, geographic and institutional distributions, top cited articles, and the distribution of keywords were thoroughly examined. The results show that HCSSR has increased rapidly over the past 20 years, most notably in the last decade. In total, there are currently 128,728 research articles in 156 journals listed in 39 WoS subject categories. The top 20 most productive countries, and institutions were analyzed in detail, and 11 frequently cited papers and research foci were identified based on citation analysis. HCSSR spans many disciplines and focuses mainly on public, environmental & occupational health and education educational research. Medical Care, Academic Medicine, Health Affairs and Journal of School Health are the core journals with both high quantity and quality. High-income countries make up the leading nations, especially G7 countries. Meanwhile, “emerging economies” are also increasingly engaging this field. American and Canadian institutions have made greater advances in productions, citations, and cooperation, with stronger and better development prospects overall. The hot topics include internet use and decision making in health care, palliative care and end of life research, health status and quality of life, quality of healthcare and patient’s satisfaction, medical education, and health communication. Also, most researchers tend to study health care sciences based on the topics of quality-of-life assessment, and their interest in quality-of-life measures has increased. Increasing attention has been paid to the developing countries, especially “emerging economies” like China. Although health research has made much progress, many questions still remain unanswered and there are few assessments of how well research systems carry out their essential functions. Hence, there is currently an urgent need for timely establishment of an effective health research system.

Keywords: Academic, Advances, Analysis, Approach, Articles, Assessment, Assessments, Attention, Bibliometric Analysis, Care, China, Citation, Citation Analysis, Citations, Communication, Continuing Medical-Education, Cooperation, Database, Decision, Decision Making, Decision-Making, Developing, Developing Countries, Development, Disciplines, Distribution, Economic Evaluations, Education, End Of Life, Environmental, Field, From, Functions, G7 Countries, Global, Global Research Trends, Global Trends, Health, Health Care, Health Care Sciences and Services Research, Health Communication, Health Research, Health Status, Information-Seeking, Institutions, Journal, Journals, Knowledge Mapping, Languages, Life, Literature, Measures, Medical, Medical Education, Medicine, Nations, Occupational, Occupational Health, Palliative Care, Papers, Patient Satisfaction, Performance, Progress, Public, Publication, Purpose, Quality, Quality Of, Quality Of Life, Quality-Of-Life, Recent, Research, Researchers, Satisfaction, Science, Sciences, Scientometric, Scientometrics, Services, Survey, Systems, Systems Research, Top-Cited, Trends, Web Of Science, Wos

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Full Text: [2014\Scientometrics101, 781.pdf](2014/Scientometrics101,%20781.pdf)

Abstract: In a bid for an eye-catching title, many writers use devices such as interrogation and exclamation marks, metaphors, double meanings and vague expressions which do not comply with accepted standards in style manuals of scientific writing. The purpose of this article is to analyse the lack of accuracy of titles in articles on bibliometrics published in biomedical journals and to discuss the effect this may have on the reader. A corpus of 1,505 titles included in PubMed and Web of Science between 2009 and 2011 and retrieved under the MeSH major topic “bibliometrics” and other related terms was analyzed. Different types of inaccuracy were identified and a classification was developed and used for this particular study. 23.4 % of the titles contain inaccuracies of some kind. Editorial titles show a higher percentage of these (11.43 %) than original articles (8.83 %) and letters (3.2 %), the most frequent being the inclusion of a question in the title (seen in 30.9 % of the papers), followed by vague and imprecise expressions (17.8 %), acronyms (16.4 %) and double meanings (14 %). Many titles fail to comply with the conventions of scientific writing. A descriptive title accurately reflecting the content of an article would give readers a better idea of its content, help them to decide more rapidly whether they want to read it and facilitate retrieval from bibliographic databases.

Keywords: Accuracy, Accuracy Of Titles, Article, Articles, Bibliographic, Bibliographic Databases, Bibliometrics, Biomedical, Biomedical Journals, Classification, Databases, Descriptive Study, From, Journals, Papers, Pubmed, Purpose, Research Articles, Science, Scientific Journals, Standards, Topic, Web Of Science, Writing Style

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Full Text: [2014\Scientometrics101, 793.pdf](2014/Scientometrics101,%20793.pdf)

Abstract: This study investigates whether academics can capitalize on their external prominence (measured by the number of pages indexed on Google, TED talk invitations or New York Times bestselling book successes) and internal success within academia (measured by publication and citation performance) in the speakers’ market. The results indicate that the larger the number of web pages indexing a particular scholar, the higher the minimum speaking fee. Invitations to speak at a TED event, or making the New York Times Best Seller list is also positively correlated with speaking fees. Scholars with a stronger internal impact or success also achieve higher speaking fees. However, once external impact is controlled, most metrics used to measure internal impact are no longer statistically significant.

Keywords: Academic Labor-Market, Academic Performance, Academics, Book Bestsellers, Book Prizes, Citation, Economics, External and Internal Influence, Faculty Salaries, Google, h-Index, Impact, Indexing, Influence, Market, Measure, Metrics, Minimum, New York, Performance, Productivity, Publication, Research Performance, Salary Differentials, Scholarly Importance, Science Communication, Scientific Communication, Social Importance Of Scientists, Success, Ted Talks, Web, Web Impact

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Full Text: [2014\Scientometrics101, 819.pdf](2014/Scientometrics101,%20819.pdf)

Abstract: The main objective of this study was to analyze research productivity originating from Middle East Arab (MEA) countries in the field of diabetes mellitus (DM). Data from January 1, 1996 till December 31, 2012 were searched for documents with specific words in diabetes as a “source title” and a list of 13 MEA countries as affiliation country. Research productivity was evaluated based on number of publications, citation analysis, indexing in Institute for Scientific Information and impact factor (IF). The 13 MEA countries published a total of 479 documents in 41 diabetes journals. This number represents 0.75 % of the total documents produced globally in the field of DM. The number of published documents increased by around fivefold from early 2000 to 2012. Of the 41 journal titles retrieved, 24 (58.5 %) had their IF listed in the journal citation reports 2012. Forty-two documents (14.5 %) were published in journals that had no official IF. The total number of citations for documents published from MEA countries in the field of DM, at the time of data analysis, was 5,565 with an h index of 35. The median (inter-quartile range) citation for documents from the 13 MEA countries was 4 (1-11). The top productive institution in the field of DM was United Arab Emirates University with 51 documents (10.6 %). Authors from MEA countries collaborated mostly with authors in countries like United Kingdom, USA, and Germany. The present data show promising and relatively good diabetes research productivity in MEA countries especially after 2008.

Keywords: Affiliation, Analysis, Arab Countries, Authors, Bibliometric, Bibliometric Analysis, Citation, Citation Analysis, Citations, Classification, Country, Data, Data Analysis, Diabetes, Diabetes Mellitus, Diagnosis, Documents, Field, From, Germany, Google-Scholar, h Index, h-Index, Impact, Impact Factor, Impaired Glucose-Tolerance, Index, Indexing, Information, Institute For Scientific Information, Journal, Journal Citation, Journals, Metabolic Syndrome, Middle Eastern Arab, Prevalence, Productivity, Publications, Research, Research Collaboration, Research Output, Research Productivity, Science, Scopus, Scopus, Till, United Arab Emirates, United Kingdom, University, USA, Web

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Full Text: [2014\Scientometrics101, 833.pdf](2014/Scientometrics101,%20833.pdf)

Abstract: Citation analysis has become an essential tool for research and academic effectiveness evaluation of universities. However, authorship identity has long been difficult to resolve in bibliometric analyses for many scientific fields, where performance of algorithms against human judgment is far from universal. Now with the boom of authors with compound names (mainly, Latino researchers and from Portuguese language countries) in scientific publications, clustering methods continue lowering their performance, due to completely forgetting the context and order of names (first name”s” and last name”s”) of each author in the publication (authorship identity). These kinds of mistakes affect visualization of publications, decreasing the likelihood of finding a given article by a specific author and generating bad quotations in the online systems. This has led to an unsuitable registration and unsuitable grouping of author names “ambiguous authorship identity” of each scientific publication. This process requires more work, time, attention, and accountability on the part of authors, reviewers, journal editors, and providers of bibliographic databases. These errors can be corrected by cross-referencing with each full original article, using manual checks and without ignoring the names issue at the moment of drafting and/or reviewing a manuscript. This paper seeks to raise awareness on how to write author names, highlighting the way in which they are being cited and self-citing the name of authors and co-authors in the publications.

Keywords: Accountability, Affect, Algorithms, Analyses, Analysis, Article, Attention, Authors, Authorship, Awareness, Bibliographic, Bibliographic Databases, Bibliometric, Bibliometric Analyses, Cataloguing Rule, Citation, Citation Analysis, Clustering, Co-Authors, Context, Databases, Editors, Effectiveness, English, Errors, Evaluation, First, From, Help, Human, Identification, Journal, Journal Editors, Journals, Language, Latin-American, Manuscript, Methods, Online, Performance, Providers, Publication, Publications, Quotation, Research, Researchers, Reviewers, Scientific Publication, Scientific Publications, State, Systematics, Systems, Trend, Universities, Visualization, Work

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Full Text: [2014\Scientometrics101, 847.pdf](2014/Scientometrics101,%20847.pdf)

Abstract: This study examines the research performance and international research collaborations (IRC) of ASEAN nations in the area of economics. Over the last 3 decades international collaborated papers have increased in the region, while locally-co-authored papers have declined. Singapore towered among ASEAN nations in research efficiency based on geographical area, population and GDP. Vietnam performed relatively better in research efficiency than research productivity (number of papers produced), while Indonesia performed poorly. Overall, internationally co-authored papers were cited twice as often as locally authored papers except that both The Philippines and Indonesia exhibited almost no difference in how their local and internationally co-authored papers were cited. The study also examined IRC from the perspective of social networks. Centrality had a strong correlation with research performance; however, vertex tie-strength (a result of repeat collaboration) showed maximum correlation with research performance. While Malaysia emerged as the nation with the highest betweenness centrality or ‘bridging’ power, the US emerged as the most favoured international partner of ASEAN nations. However, collaboration between ASEAN countries accounted for just 4 % of all international collaborations. Increased academic mobility and more joint scientific works are suggestions to consider to boost educational co-operation among the ASEAN nations.

Keywords: Asean, Centrality, Collaboration, Collaborations, Cooperation, Correlation, Countries, Economics, Education, Efficiency, Field, From, Gdp, Indonesia, International, International Research Collaborations, Local, Malaysia, Mobility, Nations, Networks, Papers, Partner, Patterns, Performance, Philippines, Population, Power, Productivity, Region, Research, Research Efficiency, Research Performance, Research Productivity, Science, Scientific Co-Authorship, Singapore, Social, Social Networks, Us, Vietnam

? Rodriguez-Sanchez, R., Garcia, J.A. and Fdez-Valdivia, J. (2014), Evolutionary games between subject categories. *Scientometrics*, **101** (1), 869-888.

Full Text: [2014\Scientometrics101, 869.pdf](2014/Scientometrics101,%20869.pdf)

Abstract: Here we examine the evolution of journal sharing between scientific subject categories, using evolutionary game theory. We assume that there is journal sharing between subject categories if they share common scholarly journals. In this paper, the Prisoners’ dilemma (within evolutionary game theory) is used as a metaphor for the problems surrounding the evolution of journal sharing between scientific subject categories. Using evolutionary games, here we show that connections between categories (that share common journals) can enable journal sharing to persist indefinitely on stationary configurations. The conclusion is that journal sharing between subject categories is an evolutionary advantage. Using a set of experiments, we have explored the asymptotic behaviour of this system for various values of the model’s parameter and the results seem robust. Subject categories are described in terms of graphs, such that categories occupy the vertices. Sharing categories are connected through the edges of those graphs. The combination of evolutionary game theory and graph theory provides the flexibility for carrying out more realistic simulations.

Keywords: Behaviour, Evolution, Evolutionary Advantage, Evolutionary Games, Experiments, Flexibility, Game Theory, Graph Theory, Journal, Journal Sharing, Journals, Scholarly Journals, Science, Scientific Subject Categories, Subject Categories, Theory

? Prathap, G. (2014), A three-dimensional bibliometric evaluation of research in polymer solar cells. *Scientometrics*, **101** (1), 889-898.

Full Text: [2014\Scientometrics101, 889.pdf](2014/Scientometrics101,%20889.pdf)

Abstract: The science of polymer solar cells and the technology based on it is now pursued as a very exciting and promising area of research at leading universities, national laboratories, and companies throughout the world. In this paper, we conduct a comprehensive and in-depth bibliometric analysis of this area that breaks down scholarly performance into three components-quantity, quality and consistency. The citation data is retrieved from the Web of Science. We identify the most productive organisations, countries, authors and also the most influential journals in which this newly emerging area is published using these criteria.

Keywords: Analysis, Authors, Bibliometric, Bibliometric Analysis, Bibliometric Evaluation, Bibliometrics, Citation, Consistency, Criteria, Data, Evaluation, From, Index, Indicators, Journal Impact Factor, Journals, Performance, Polymer, Polymer Solar Cells, Quality, Quantity, Research, Science, Solar Cells, Technology, Three-Dimensional, Three-Dimensional Evaluation, Universities, Web Of Science, World

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Full Text: [2014\Scientometrics101, 899.pdf](2014/Scientometrics101,%20899.pdf)

Abstract: If peer review has been and is continuing to be an acceptable approach for evaluation, Science and technology (S&T) metrics have been demonstrated to be a more accurate and objectively independent tools for evaluation. This article provides insights from an example of a relevant use of S&T metrics to assess a national research policy and subsequently universities achievements within this policy. One of the main findings were that just by setting S&T metrics as objective indicators there was an increasing research outputs: productivity, impact, and collaboration. However, overall productivity is still far low when brought to academic staff size and that a huge difference exists among universities achievements. The reliability of scientometric evaluation’s use as a performance tool is increasing in universities and the culture of this evaluation usefulness in research policy has widely spread. Surprisingly, this evaluation shows that even if S&T metrics have substantially increased, funds execution as means of rate of payment on total budget was less than 15 % due mainly to the high and unusual increase in funding allocations than was before the policy, a fact to which universities were managerially not well prepared. Finally, future evaluation should follow in the very short-term to quantify the impact extent of the policy revealed in this annual evaluation.

Keywords: Approach, Article, Bibliometric Methods, Budget, Collaboration, Culture, Dissertation, Evaluation, Experience, From, Funding, Google-Scholar, Graduate, Impact, Indicators, Metrics, Morocco, Peer Review, Peer-Review, Performance, Phd, Policy, Productivity, Quality, Reliability, Research, Research Outputs, Research Policy, Review, Science, Science and Technology, Scientometric, Scopus, Size, Technology, Universities, Web

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Full Text: [2014\Scientometrics101, 917.pdf](2014/Scientometrics101,%20917.pdf)

Abstract: Recently, national governments have tried to improve technology ecology, by formulating research and development (R&D) policies and investing in R&D programs. For strategically designed national R&D plans, analytic approaches that identify and assess the impact of each technology from short-term and long-term perspectives are necessary. Further, in methodological perspective, the approaches should be able to synthetically consider the most recent technological information, the direct and hidden impacts among technologies, and the relative impacts of the focal technology in globally-linked technological relationship from the overall perspective. However, most previous studies based patent citation networks are insufficient for these requirements. As a remedy, we present a combined approach for constructing a technology impact network and identifying the impact and intermediating capability of technology areas from the perspective of a national technology system. To construct and analyze the technology impact network, our method integrates three network techniques: patent co-classification (PCA), decision making trial and evaluation laboratory (DEMATEL), and social network analysis (SNA). The advantages of the proposed method are threefold. First, it identifies the directed technological knowledge flows from the most recent patents, by employing PCA. Second, the proposed network contains both the direct and indirect impacts among different technology areas, by applying the DEMATEL method. Third, using SNA, the method can analyze the characteristics of the technologies in terms of the comprehensive impacts and the potential brokerage capabilities. The method is illustrated using all of the recent Korean patents (58,279) in the United States patent database from 2008 to 2012. We expect that our method can be used to provide input to decision makers for effective R&D planning.

Keywords: Analysis, Application, Approach, Characteristics, Citation, Citation Network, Convergence, Database, Decision, Decision Making, Decision-Making, Dematel, Development, Development Programs, Ecology, Evaluation, From, Fuzzy Dematel, Impact, Impacts, Information, Knowledge, Laboratory, Long Term, Long-Term, Model, Network, Network Analysis, Networks, Patent, Patent Analysis, Patent Co-Classification Analysis, Patents, PCA, Planning, Policies, Potential, R&D, R&D Planning, Recent, Research, Research and Development, Science, Social, Social Network, Social Network Analysis, Strategy, Techniques, Technological Knowledge, Technologies, Technology, Technology Impact Network, Trial, United States

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Full Text: [2014\Scientometrics101, 937.pdf](2014/Scientometrics101,%20937.pdf)

Keywords: Conference, Informetrics, International, Nov, Scientometrics

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Full Text: [2014\Scientometrics101, 939.pdf](2014/Scientometrics101,%20939.pdf)

Abstract: The analysis of the high end of citation distributions represented by its tail provides important supplementary information on the citation profile of the unit under study. In a previous study by Glänzel (Scientometrics 97: 13-23, 2013a), a parameter-free solution providing four performance classes has been proposed. Unlike in methods based on pre-set percentiles, this method is not sensitive to ties and ensures needless integration of measures of outstanding and even extreme performance into the standard tools of scientometric performance assessment. The applicability of the proposed method is demonstrated for both subject analysis and the combination of different subjects at the macro and meso level.

Keywords: Analysis, Application, Assessment, Characteristic Scores, Characteristic Scores and Scales, Citation, Citation Distributions, Comparison, Crossnational, Distributions, Impact, Information, Institutional Assessment, Integration, Measures, Methods, Multidisciplinary, Nov, Percentiles, Performance, Performance Classes, Research, Research Assessment, Scales, Scientometric, Scientometrics, Solution, Standard, Tail

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Full Text: [2014\Scientometrics101, 953.pdf](2014/Scientometrics101,%20953.pdf)

Abstract: Co-authorship has become common practice in most science and engineering disciplines and, with the growth of co-authoring, has come a fragmentation of norms and practices, some of them discipline-based, some institution-based. It becomes increasingly important to understand these practices, in part to reduce the likelihood of misunderstanding in collaborations among authors from different disciplines and fields. Moreover, there is also evidence of widespread satisfaction with collaborative and co-authoring experiences. In some cases the dissatisfactions are more in the realm of bruised feelings and miscommunication but in others there is clear exploitation and even legal disputes about, for example, intellectual property. Our paper is part of a multiyear study funded by the U. S. National Science Foundation (NSF) and draws its data from a representative national survey of scientists working in 108 Carnegie Doctoral/Research Universities-Very High Research Activity (n = 641). The paper tests hypotheses about the determinants of collaboration effectiveness. Results indicate that having an explicit discussion about co-authorship reduces the odds of a bad collaboration on a recent scholarly article. Having co-authors from different universities also reduces the odds of a bad collaboration, while large numbers of co-authors have the reverse effect. The results shed some systematic, empirical light on research collaboration practices, including not only norms and business-as-usual, but also routinely bad collaborations.

Keywords: Activity, Article, Authors, Co-Authors, Co-Authorship, Co-Authorship Crediting, Coauthorship, Collaboration, Collaborations, Conflict, Credit, Data, Disciplines, Dynamics, Effectiveness, Engineering, Ethical, Ethical Issues, Ethics, Evidence, Faculty, Fragmentation, From, Growth, Impact, Intellectual Property, Issues, Journals, Legal, Multiple Authorship, National Survey, Norms, Nov, Practice, Practices, Property, Recent, Research, Research Collaboration, Responsibility, Results, Rights, S, Satisfaction, Scholarship, Science, Scientific Collaborations, Scientists, Survey, Systematic, U, Universities, University-Research Centers

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Full Text: [2014\Scientometrics101, 963.pdf](2014/Scientometrics101,%20963.pdf)

Abstract: The goal of this paper is introducing the citer-success-index (cs-index), i.e. an indicator that uses the number of different citers as a proxy for the impact of a generic set of papers. For each of the articles of interest, it is defined a comparison term-which represents the number of citers that, on average, an article published in a certain period and scientific field is expected to “infect”-to be compared with the actual number of citers of the article. Similarly to the recently proposed success-index (Franceschini et al. Scientometrics 92(3): 621-6415, 2011), the cs-index allows to select a subset of “elite” papers. The cs-index is analyzed from a conceptual and empirical perspective. Special attention is devoted to the study of the link between the number of citers and cited authors relating to articles from different fields, and the possible correlation between the cs- and the success-index. Some advantages of the cs-index are that (i) it can be applied to multidisciplinary groups of papers, thanks to the field-normalization that it achieves at the level of individual paper and (ii) it is not significantly affected by self citers and recurrent citers. The main drawback is its computational complexity.

Keywords: Article, Articles, Attention, Authors, Citation Propensity, Citations, Cited Authors, Citers, Comparison, Complexity, Correlation, Field, Field-Normalization, From, Groups, Impact, Impact, Indicator, Multidisciplinary, Nov, Papers, Publications, Recurrent, References, Scientometrics, Self, Success-Index

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Full Text: [2014\Scientometrics101, 985.pdf](2014/Scientometrics101,%20985.pdf)

Abstract: Author co-citation analysis (ACA) was an important method for discovering the intellectual structure of a given scientific field. There was sufficient experience that ACA would work with almost any user data that lent itself to co-occurrence. While most of the current researches still relied on the data of scientific literatures. In this study, in order to provide useful information for better enterprise management, the idea and method of ACA was applied to analyze the information interaction intensity and contents of enterprise web users. Firstly, the development of ACA was briefly introduced. Then the sample data and method used in this study were given. Three QQ groups’ instant messages of a Chinese company were selected as the raw data and the concepts and model of user interaction intensity (UII) were proposed by referring the ACA theory. Social network analysis method, combined with in-deep interview method were used to analyze the information interaction intensity and contents of enterprise users. Operatively, Excel, Ucinet, Pajek, Netdraw and VOSviewer software were combined to analyze them quantitatively and visually. Finally, it concluded that UII model was relatively reasonable and it could nicely measure the information interaction intensity and contents of enterprise web users.

Keywords: Analysis, Author Co-Citation Analysis, Author Cocitation Analysis, Case Study, Chinese, Citation-Index, Co-Citation, Co-Citation Analysis, Cocitation, Data, Development, Enterprise Management, Experience, Field, Groups, Information, Information Visualization, Information-Science, Instant Messaging, Intellectual Structure, Intensity, Interaction, Management, Maps, Measure, Model, Network, Network Analysis, Nov, Pathfinder Networks, Social Network, Social Network Analysis, Software, Structure, Theory, Usage Metrics, Vosviewer, Web, Webometrics, Work

? Shirabe, M. (2014), Identifying SCI covered publications within non-patent references in US utility patents. *Scientometrics*, **101** (2), 999-1014.

Full Text: [2014\Scientometrics101, 999.pdf](2014/Scientometrics101,%20999.pdf)

Abstract: In order to evaluate approaches for identifying science citation index (SCI) covered publications within non-patent references (NPRs), the author employs a computer science method that uses two key indicators, recall and precision, to evaluate the relevance of information retrieval systems. There are two primary reasons that this method is adequate: in contrast to the retrievability ratios used previously, first, this method can evaluate two dimensions of matching accuracy, and second, results of its evaluation are independent of the intermediate outcome. The author then proposes an approach for identifying SCI publications within NPRs that consists of five steps: (1) data collection, (2) creation of supervised and test data, (3) selection and execution of matching algorithms, (4) evaluation of algorithms and optimization of their combinations, and (5) evaluation of optimized combinations. A comparison of the proposed and conventional approaches showed that the proposed approach works well, with results far better (99 % precision and 95 % recall) than the target implicitly set in previous studies. The author also applied the approach to comprehensive NPR data in U.S. utility patents registered between 1992 and 2012 and checked the performance. Results showed that the approach could identify SCI publications from within millions of NPRs in an acceptable time (i.e., within a couple of weeks) and that it performs as expected from the evaluation in step 5. On the basis of these results, the proposed approach is considered of value in studies on relations and/or interactions between science publications and patents.

Keywords: Accuracy, Algorithms, Approach, Automated Matching, Citation, Citation Index, Collection, Comparison, Computer Science, Conventional, Couple, Data, Data Collection, Evaluation, First, From, Index, Indicators, Information, Information Retrieval, Non-Patent References, Nov, Optimization, Outcome, Patents, Performance, Precision, Primary, Publications, Recall, References, Relations, Relevance, Results, Sci, Science, Science Citation, Science Citation Index, Selection, Systems, Technology, Us, Us Utility Patents, Utility, Value

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Full Text: [2014\Scientometrics101, 1015.pdf](2014/Scientometrics101,%201015.pdf)

Abstract: Counts of hyperlinks between websites can be unreliable for webometrics studies so researchers have attempted to find alternate counting methods or have tried to identify the reasons why links in websites are created. Manual classification of individual links in websites is infeasible for large webometrics studies, so a more efficient approach to identifying the reasons for link creation is needed to fully harness the potential of hyperlinks for webometrics research. This paper describes a machine learning method to automatically classify hyperlink source and target page types in university websites. 78 % accuracy was achieved for automatically classifying web page types and up to 74 % accuracy for predicting link target page types from link source page characteristics.

Keywords: Accuracy, Approach, Attempted, Characteristics, Classification, Counts, Decision Tree Induction, Framework, From, Hyperlink, Information, Learning, Link Analysis, Link Classification, Machine, Machine Learning, Methods, Nov, Potential, Research, Researchers, Site Interlinking, Source, Supervised Learning, Support Vector Machines, University, Web, Webometrics, Websites

? Holmberg, K. and Thelwall, M. (2014), Disciplinary differences in Twitter scholarly communication. *Scientometrics*, **101** (2), 1027-1042.

Full Text: [2014\Scientometrics101, 1027.pdf](2014/Scientometrics101,%201027.pdf)

Abstract: This paper investigates disciplinary differences in how researchers use the microblogging site Twitter. Tweets from selected researchers in ten disciplines (astrophysics, biochemistry, digital humanities, economics, history of science, cheminformatics, cognitive science, drug discovery, social network analysis, and sociology) were collected and analyzed both statistically and qualitatively. The researchers tended to share more links and retweet more than the average Twitter users in earlier research and there were clear disciplinary differences in how they used Twitter. Biochemists retweeted substantially more than researchers in the other disciplines. Researchers in digital humanities and cognitive science used Twitter more for conversations, while researchers in economics shared the most links. Finally, whilst researchers in biochemistry, astrophysics, cheminformatics and digital humanities seemed to use Twitter for scholarly communication, scientific use of Twitter in economics, sociology and history of science appeared to be marginal.

Keywords: Altmetrics, Analysis, Biochemistry, Cognitive, Communication, Disciplinary Differences, Disciplines, Discovery, Drug, Drug Discovery, Economics, From, History, History Of Science, Humanities, Impact, Network, Network Analysis, Nov, Research, Researchers, Scholarly Communication, Science, Site, Social, Social Media, Social Network, Social Network Analysis, Sociology, Twitter, Webometrics

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Full Text: [2014\Scientometrics101, 1043.pdf](2014/Scientometrics101,%201043.pdf)

Abstract: Download indicators are of major potential interest because the great quantity of readily available download data means that any statistical inferences drawn from them will be of robust significance. We study the relationship between citation and downloads at the journal and paper levels, and the influence of language on that relationship. The data used were taken from the Scopus (citations) and ScienceDirect (downloads) databases. The results showed that downloads have limited utility as predictors of citation since it is in the early years when any correlations have the least significance. The relationship between downloads and citation also differs from one discipline to another. The relationship at the paper level is considerably weaker than at the journal level. This may be indicative of the number of downloads depending largely on the diffusion of the journal. In francophone regions, downloading from journals is proportionately less than citations to those same journals. There seems to be a part of citations to non-English-language journals which is invisible to Scopus. This makes the number of downloads proportionately greater than that of citations, leading to a lack of correlation between downloads and citations in that class of journal.

Keywords: Books, Careers, Citation, Citation Indicators, Citations, Correlation, Correlations, Data, Databases, Diffusion, Disciplines, Download, Download Indicator, From, Humanities, Iceberg Hypothesis, Impact, Indicators, Influence, Journal, Journals, Language, Language Influence, Nov, Potential, Predictors, Rankings, Scholarship, Sciencedirect, Scientometric Indicators, Scopus, Significance, Sociology, Utility

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Full Text: [2014\Scientometrics101, 1067.pdf](2014/Scientometrics101,%201067.pdf)

Abstract: Increasing pressure on budgets of funding bodies has led to discussion of how to make financial resources go further, and to the concern that some researchers take more money from funding bodies for a particular project than needed, a practice that has been termed “double-dipping”. Some evidence has emerged that this might be occurring, and in this context of suddenly increased funding scarcity, albeit in a system with greater forms of support, a proposal has been made that funding bodies monitor and manage individual researcher portfolios to optimize resource use. Our paper provides evidence relevant to both the “double dipping” issue and the proposal to manage portfolios. We show that where certain pre-conditions for “double dipping” are met (i.e. when funding comes from more than organisation, and the organisations fund research in a very similar area), and where therefore an argument to monitor researcher portfolios might be applicable, the research produced under these conditions has greater citation impact. We query the claim that when more funding is acknowledged this is inherently undesirable and we express our doubts that subjecting the allocation of funding to researchers to a bureaucratic management process will necessarily increase the impact of research.

Keywords: Allocation, Analysis, Bibliometrics, Bodies, Citation, Citation Impact, Context, Data, Evidence, Forms, From, Funding, Funding Acknowledgement, Impact, Lead, Management, Nov, Optimization, Practice, Pressure, Research, Research Policy, Researchers, Resource Use, Resources, Support, Waste

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Full Text: [2014\Scientometrics101, 1077.pdf](2014/Scientometrics101,%201077.pdf)

Abstract: This study puts an emphasis on the disciplinary differences observed for the behaviour of citations and downloads. This was exemplified by studying citations over the last 10 years in four selected fields, namely, arts and humanities, computer science, economics, econometrics, and finance, and oncology. Differences in obsolescence characteristics were studied using synchronic as well as diachronic counts. Furthermore, differences between document types were taken into consideration and correlations between journal impact and journal usage measures were calculated. The number of downloads per document remains almost constant for all four observed areas within the last four years, varying from approximately 180 (oncology) to 300 (economics). The percentage of downloaded documents is higher than 90 % for all areas. The number of citations per document ranges from one (arts and humanities) to three (oncology). The percentages of cited documents range from 40 to 56 %. According to our study, 50-140 downloads correspond to one citation. A differentiation according to document type reveals further download- and citation-specific characteristics for the observed subject areas. This study points to the fact that citations can only measure the impact in the ‘publish or perish’ community; however, this approach is neither applicable to the whole scientific community nor to society in general. Downloads may not be a perfect proxy to estimate the overall usage. Nevertheless, they measure at least the intention to use the downloaded material, which is invaluable information in order to better understand publication and communication processes. Usage metrics should consider the unique nature of downloads and ought to reflect their intrinsic differences from citations.

Keywords: Approach, Articles In Press, Behaviour, Characteristics, Citation, Citation Metrics, Citations, Communication, Community, Computer Science, Correlations, Differences, Differentiation, Disciplinary Differences, Documents, Download, Downloads, Downloads, Econometrics, Economics, From, General, Humanities, Impact, Impact Factor, Information, Intrinsic, Journal, Journal Impact, Journal Usage, Measure, Measures, Metrics, Nov, Obsolescence, Oncology, Publication, Publish Or Perish, Science, Scientific Community, Society, Statistics, Usage Factor, Usage Metrics

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Full Text: [2014\Scientometrics101, 1097.pdf](2014/Scientometrics101,%201097.pdf)

Abstract: In this study, we evaluated future trends of worldwide patenting in nanotechnology and its domains using logistic growth curves while the patent activity from the main countries, technological domains and subdomains were assessed in four different contexts: worldwide, patents filed in the United States Patent and Trademark Office (USPTO), and patents applications in the triadic (TRIAD) and in the tetradic (TETRAD) countries. The indicators were developed based on a set of records recovered from the Derwent Innovation Index database. Nanotechnology has recently emerged as a new research field, with logistic trend behaviors generating interesting discussions since they suggest that technological development in nanotechnology and its domains has reached an initial maturation stage. Future scenarios were compiled due to the difficult to establish upper limits to forecasting curves. Although China’s share of patents is small in some cases, it was the only country to constantly increase the number of patents from a worldwide perspective. In contrast, the USA and the EU were the most active in the USPTO, TRIAD and TETRAD cases, followed by Japan and Korea. The technological subdomains of main interest from countries/region changed according to the perspective adopted, even though there was a clear bias towards semiconductors, surface treatments, electrical components, macromolecular chemistry, materials-metallurgy, pharmacy-cosmetics and analysis-measurement-control subdomains. We conclude that monitoring nanotechnology advances should be constantly reviewed in order to confirm the evidence observed and forecasted.

Keywords: Active, Activity, Advances, Analysis, Bias, Bibliometrics, Chemistry, Country, Database, Development, Eu, Evidence, Field, Forecasting, From, Growth, Growth Curves, Indicators, Innovation, Institution, Japan, Korea, Maturation, Monitoring, Nanoscience, Nanotechnology, Nov, Patent, Patents, Records, Research, S-Shaped Curves, Scenarios, Science, Semiconductors, Small, Surface, Technological Forecasting, Technology Field, Trend, Trends, Triad, United States, USA, Uspto

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Full Text: [2014\Scientometrics101, 1113.pdf](2014/Scientometrics101,%201113.pdf)

Abstract: In our article we compare downloads from ScienceDirect, citations from Scopus and readership data from the social reference management system Mendeley for articles from two information systems journals (“Journal of Strategic Information Systems” and “Information and Management”) published between 2002 and 2011. Our study shows a medium to high correlation between downloads and citations (Spearman r = 0.77/0.76) and between downloads and readership data (Spearman r = 0.73/0.66). The correlation between readership data and citations, however, was only medium-sized (Spearman r = 0.51/0.59). These results suggest that there is at least “some” difference between the two usage measures and the citation impact of the analysed information systems articles. As expected, downloads and citations have different obsolescence characteristics. While the highest number of downloads are usually made in the publication year and immediately afterwards, it takes several years until the citation maximum is reached. Furthermore, there was a re-increase in the downloads in later years which might be an indication that citations also have an effect on downloads to some degree.

Keywords: Article, Article Decay, Articles, Characteristics, Citation, Citation Impact, Citations, Comparison, Correlation, Data, Downloads, From, Impact, Indication, Information, Information Systems, Information Systems Journals, Journals, Library, Management, Measures, Mendeley, Metrics, Nov, Obsolescence, Publication, Readership, Reference, Sciencedirect, Scopus, Social, Systems, Usage Data

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Full Text: [2014\Scientometrics101, 1129.pdf](2014/Scientometrics101,%201129.pdf)

Abstract: Productivity is the quintessential indicator of efficiency in any production system. It seems it has become a norm in bibliometrics to define research productivity as the number of publications per researcher, distinguishing it from impact. In this work we operationalize the economic concept of productivity for the specific context of research activity and show the limits of the commonly accepted definition. We propose then a measurable form of research productivity through the indicator “Fractional Scientific Strength (FSS)”, in keeping with the microeconomic theory of production. We present the methodology for measure of FSS at various levels of analysis: individual, field, discipline, department, institution, region and nation. Finally, we compare the ranking lists of Italian universities by the two definitions of research productivity.

Keywords: Activity, Analysis, Authors, Bibliometrics, Citations, Concept, Context, Definition, Economic, Efficiency, Field, From, Fss, Impact, Indicator, Italian Universities, Life Sciences, Measure, Methodology, Nations, Nov, Order, Productivity, Publications, Ranking, Region, Research, Research Evaluation, Research Performance, Research Productivity, Theory, Time, Universities, University Rankings, Work

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Full Text: [2014\Scientometrics101, 1145.pdf](2014/Scientometrics101,%201145.pdf)

Abstract: Altmetrics, indices based on social media platforms and tools, have recently emerged as alternative means of measuring scholarly impact. Such indices assume that scholars in fact populate online social environments, and interact with scholarly products in the social web. We tested this assumption by examining the use and coverage of social media environments amongst a sample of bibliometricians examining both their own use of online platforms and the use of their papers on social reference managers. As expected, coverage varied: 82 % of articles published by sampled bibliometricians were included in Mendeley libraries, while only 28 % were included in CiteULike. Mendeley bookmarking was moderately correlated (.45) with Scopus citation counts. We conducted a survey among the participants of the STI2012 participants. Over half of respondents asserted that social media tools were affecting their professional lives, although uptake of online tools varied widely. 68 % of those surveyed had LinkedIn accounts, while Academia.edu, Mendeley, and ResearchGate each claimed a fifth of respondents. Nearly half of those responding had Twitter accounts, which they used both personally and professionally. Surveyed bibliometricians had mixed opinions on altmetrics’ potential; 72 % valued download counts, while a third saw potential in tracking articles’ influence in blogs, Wikipedia, reference managers, and social media. Altogether, these findings suggest that some online tools are seeing substantial use by bibliometricians, and that they present a potentially valuable source of impact data.

Keywords: Adoption, Alternative, Altmetrics, Articles, Bibliometric, Citation, Citation Analysis, Citation Counts, Citeulike, Community, Coverage, Data, Download, Download Counts, Impact, Indices, Influence, Media, Mendeley, Nov, Online, Opinions, Papers, Potential, Reference, Reference Managers, Scholarly Impact, Scopus, Social, Social Media, Social Media Presence, Source, Sources, Survey, Twitter, Uptake, Web

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Full Text: [2014\Scientometrics101, 1165.pdf](2014/Scientometrics101,%201165.pdf)

Abstract: Using Chinese National Knowledge Infrastructure as the data resource, this paper searched some papers about open access (OA). Some Visual Basic for Applications programs were developed to generate the co-word matrix, compute the E-index value of keywords as well as the density and centrality of thematic clusters. Callon’s clustering method was also used to generate keywords clusters. Then, co-word analysis method and strategic diagrams were utilized to detect the main research themes as well as explore the development situation and status of these research themes. Furthermore, author-themes coupling network was mapped with the help of Netdraw in order to detect the relationship between core authors and research themes of OA as well as the core authors’ influence on these themes. Based on this, some conclusions were got in the end.

Keywords: Access, Analysis, Authors, Authors’ Influence, China, Chinese, Clustering, Co-Word, Co-Word Analysis, Data, Density, Development, Influence, Knowledge, Matrix, Network, Nov, Open, Open Access, Papers, Research, Research Themes, Social Network Analysis (SNA), Strategic, Strategic Diagram, Value

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Full Text: [2014\Scientometrics101, 1179.pdf](2014/Scientometrics101,%201179.pdf)

Abstract: This micro-level study explores the extent that citation analysis provides an accurate and representative assessment of the use and impact of bioinformatics e-research infrastructure. The bioinformatic e-research infrastructure studied offers common tools used by life scientists to analyse and interpret genetic and protein sequence information. These e-resources therefore provide an interesting example with which to explore how representative citations are as acknowledgements of knowledge in the life sciences. The examples presented here suggest that there is a relation between number of visits to these databases and number of citations; however, a parallel finding shows how citation analysis frequently underestimates acknowledged use of the resources offered on this e-research infrastructure. The paper discusses the implications of the findings for various aspects of impact measurement and also considers how appropriate citation analysis is as a measurement of knowledge claims.

Keywords: Acknowledgements, Analysis, Approach, Assessment, Behavior, Bioinformatics, Citation, Citation Analysis, Citations, Database, Databases, E-Resources, Evaluation, Genetic, Impact, Indicators, Information, Infrastructure, Knowledge, Life, Life Sciences, Measurement, Model, Nov, Protein, Research Infrastructure, Resources, Science, Sciences, Scientific Impact, Scientists, Tools

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Full Text: [2014\Scientometrics101, 1195.pdf](2014/Scientometrics101,%201195.pdf)

Abstract: Publications that are not indexed by citation indices such as Web of Science (WoS) or Scopus are called “non-source items”. These have so far been neglected by most bibliometric analyses. The central issue of this study is to investigate the characteristics of non-source items and the effect of their inclusion in bibliometric evaluations in the social sciences, specifically German political science publications. The results of this study show that non-source items significantly increase the number of publications (+1,350 %) and to a lesser extent the number of citations from SCIE, SSCI, and A&HCI (+150 %) for evaluated political scientists. 42 % of non-source items are published as book chapters. Edited books and books are cited the most among non-source items. About 40 % of non-source items are in English, while 80 % of source items are in English. The citation rates of researchers taking non-source items into account are lower than those from source items, partially as a result of the limited coverage of WoS. In contrast, the H-indices of researchers taking only non-source items into account are higher than those from source items. In short, the results of this study show that non-source items should be included in bibliometric evaluations, regardless of their impact or the citations from them. The demand for a more comprehensive coverage of bibliometric database in the social sciences for a higher quality of evaluations is shown.

Keywords: Analyses, Behavioral-Sciences, Bibliometric, Bibliometric Analyses, Bibliometrics, Case Study, Characteristics, Citation, Citation Analysis, Citation Rates, Citations, Coverage, Database, Demand, Edited Books, English, From, German, Germany, Humanities, Impact, Indicators, Indices, Non-Source Items, Nov, Output, Political Science, Publication Patterns, Publication Patterns, Publications, Quality, Quality Of, Rates, Research Evaluation, Research Performance, Researchers, Role, Scie, Science, Sciences, Scientists, Scopus, Social, Social Sciences, Sociology, Source, Ssci, Web Of Science, Wos

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Full Text: [2014\Scientometrics101, 1215.pdf](2014/Scientometrics101,%201215.pdf)

Abstract: The purpose of this article is to map the evolving patterns of patent assignees’ collaboration networks and build a latent collaboration index (LCI) model for evaluating the collaboration probability among assignees. The demonstration process was carried on the field of industrial biotechnology (IB) from 2000 to 2010. The results show that the number of assignees in the field of IB grew steadily, while the number of patents decreased slowly year by year after it reached peak in 2002 and 2003. Densification and growth analysis, average degree, density and components analysis showed that the collaboration networks tended to density. Especially the diameter analysis indicated that the IB field had come into a mature mode after finishing the topological transition occurred in about 2002 or 2003. The nodes had degree k followed a power law distribution, which implied a preferential linking feature of the network evolving and thus provided a foundation for link prediction from the aspect of network evolving. Basing on this, two network-related factors had been brought into the LCI model, which were degree and network distance. Their values were positive and negative for link prediction respectively. In addition, types of assignees, geographical distances and topics similarities had also been added into the LCI model. Different types of assignees had also different probabilities to be linked, such as corporations had been collaborated more frequently, while universities ranked lowest based on collaborations. Assignees from the same countries seemed to be likely to collaborate to each other. It have to been noted that the LCI model is flexible that can be adjusted of the factors or their weights according to different subjects, time or data. For instance, the topics similarities between assignees would be removed from the LCI model for link prediction in the field of IB because of the poor inference from topics similarities to collaborations. Actually, many promising pairs of assignees that seemed to have the potential to collaborate to each other according to one or more of these factors have never collaborated. One possible reason might be that collaboration is not popular behaviours among assignees during the process of patent application or maintain. Another reason could be the competitions between assignees. Many a time the promising pairs are competing pairs. Therefore, it was hard to carry out regression analysis basing on those four factors to get usable coefficients set of the four factors. The LCI model could only be used to make qualitative analysis on collaboration potential when it was revised.

Keywords: Analysis, Application, Article, Biotechnology, Collaboration, Collaboration Networks, Collaborations, Data, Density, Distribution, Evolving, Feature, Field, From, Growth, Ib, Identification, Index, Industrial Biotechnology, Inference, Law, Lci, Mapping, Mode, Model, Network, Network Analysis, Networks, Nov, Patent, Patents, Potential, Power, Power Law, Prediction, Purpose, Qualitative, Qualitative Analysis, Regression, Regression Analysis, Strategy, Trends, Universities

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Full Text: [2014\Scientometrics101, 1233.pdf](2014/Scientometrics101,%201233.pdf)

Abstract: Researchers typically pay greater attention to scientific papers published within the last 2 years, and especially papers that may have great citation impact in the future. However, the accuracy of current citation impact prediction methods is still not satisfactory. This paper argues that objective features of scientific papers can make citation impact prediction relatively accurate. The external features of a paper, features of authors, features of the journal of publication, and features of citations are all considered in constructing a paper’s feature space. The stepwise multiple regression analysis is used to select appropriate features from the space and to build a regression model for explaining the relationship between citation impact and the chosen features. The validity of this model is also experimentally verified in the subject area of Information Science & Library Science. The results show that the regression model is effective within this subject.

Keywords: Accuracy, Analysis, Articles, Attention, Authors, Biomedical Literature, Citation, Citation Impact, Citation Impact Prediction, Citations, Counts, Feature, Feature Space, From, Gender, Impact, Impact Prediction, Information, Information Science, Journal, Journals, Methods, Model, Models, Multiple Regression, Nov, Papers, Prediction, Publication, Regression, Regression Analysis, Regression Model, Researchers, Science, Scientific Paper, Validity

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Full Text: [2014\Scientometrics101, 1253.pdf](2014/Scientometrics101,%201253.pdf)

Abstract: Understanding the evolution of research topics is crucial to detect emerging trends in science. This paper proposes a new approach and a framework to discover the evolution of topics based on dynamic co-word networks and communities within them. The NEViewer software was developed according to this approach and framework, as compared to the existing studies and science mapping software tools, our work is innovative in three aspects: (a) the design of a longitudinal framework based on the dynamics of co-word communities; (b) it proposes a community labelling algorithm and community evolution verification algorithms; (c) and visualizes the evolution of topics at the macro and micro level respectively using alluvial diagrams and coloring networks. A case study in computer science and a careful assessment was implemented and demonstrating that the new method and the software NEViewer is feasible and effective.

Keywords: Algorithm, Algorithms, Approach, Assessment, Case Study, Co-Word, Co-Word Analysis, Community, Community Structure, Complex Networks, Computer Science, Design, Dynamic, Dynamics, Emerging Trend Detection, Emerging Trends, Evolution, Framework, Longitudinal, Mapping, Network Communities, Networks, Nov, Research, Science, Science Mapping, Software, Topic Evolution, Trends, Verification, Work

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Full Text: [2014\Scientometrics101, 1273.pdf](2014/Scientometrics101,%201273.pdf)

Abstract: This paper analyses the following seven sub-fields of Sustainable Energy Research with respect to the influence of proceedings papers on citation patterns across citing and cited document types, overall sub-field and document type impacts and citedness: the Wind Power, Renewable Energy, Solar and Wave Energy, Geo-thermal, Bio-fuel and Bio-mass energy sub-fields. The analyses cover peer reviewed research and review articles as well as two kinds of proceeding papers from conferences published 2005-2009 in (a) book series or volumes and (b) special journal issues excluding meeting abstracts cited 2005-2011 through Web of Science. Central findings are: The distribution across document types of cited versus citing documents is highly asymmetric. Predominantly proceedings papers from both proceeding volumes as well as published in journals cite research articles (60-76 %). Largely, journal-based proceedings papers are cited rather than papers published in book series or volumes and have field impacts corresponding to research articles. With decreasing proceedings paper dominance in research fields the ratio of proceeding paper volumes over journal-based proceedings papers decreases significantly and the percentage of proceedings papers in journals citing journal-based proceedings papers over all publications citing journal-based proceedings papers decreases significantly (from 26.3 % in Wind Power to 4 % in Bio Fuel). Further, the segment of all kinds of proceedings papers (the combined proceedings paper types) citing all proceedings papers over all publications citing all kinds of proceedings papers decreases significantly (from 36.1 % in Wind Power to 11.3 % in Bio Fuel). Simultaneously the field citedness increases across the seven research fields. The distribution of citations from review articles shows that novel knowledge essentially derives directly from research articles (53-72 %)-to a much less extent from proceedings publications published in journals (9-13 %).

Keywords: Analyses, Articles, Biofuel, Biomass, Biomass Energy, Citation, Citation Impact, Citation Patterns, Citations, Citedness, Conferences, Distribution, Document Types, Documents, Energy, Field, From, Geothermal, Impact, Impacts, Influence, Issues, Journal, Journals, Knowledge, Nov, Papers, Peer-Reviewed, Proceedings Papers, Publications, Renewable Resources, Research, Research Articles, Review, Review Articles, Science, Solar, Sustainable, Sustainable Energy Research, Web Of Science, Wind

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Full Text: [2014\Scientometrics101, 1293.pdf](2014/Scientometrics101,%201293.pdf)

Abstract: While the citation context of a reference may provide detailed and direct information about the nature of a citation, few studies have specifically addressed the role of this information in retrieving relevant documents from the literature primarily due to the lack of full text databases. In this paper, we design a retrieval system based on full texts in the PubMed Central database. We constructed two modules in the retrieval system. One is a reference retrieval module based on citation contexts. Another is a citation context retrieval module for searching the citation contexts of a specific paper. The results of comparisons show that the reference retrieval module performed better than Google Scholar and PubMed database in terms of finding proper references based on topic words extracted from citation context. It also performed very well on searching highly cited papers and classic papers. The citation context retrieval module visualizes the topics of citation contexts as tag clouds and classifies citation contexts based on cue words in citation contexts.

Keywords: Citation, Citation Context, Citation Context Classification, Citing Statements, Classic Papers, Cocitation, Computer Recognition, Constructed, Context, Database, Databases, Design, Documents, From, Google, Google Scholar, Highly Cited, Highly Cited Papers, Highly-Cited, Information, Literature, Literature Retrieval, Module-Based, Modules, Nov, Papers, Pubmed, Pubmed Central, Reference, References, Role, Tag Cloud, Topic

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Full Text: [2014\Scientometrics101, 1309.pdf](2014/Scientometrics101,%201309.pdf)

Abstract: The great importance international rankings have achieved in the research policy arena warns against many threats consequence of the flaws and shortcomings these tools present. One of them has to do with the inability to accurately represent national university systems as their original purpose is only to rank world-class universities. Another one has to do with the lack of representativeness of universities’ disciplinary profiles as they usually provide a unique table. Although some rankings offer a great coverage and others offer league tables by fields, no international ranking does both. In order to surpass such limitation from a research policy viewpoint, this paper analyzes the possibility of using national rankings in order to complement international rankings. For this, we analyze the Spanish university system as a study case presenting the I-UGR Rankings for Spanish universities by fields and subfields. Then, we compare their results with those obtained by the Shanghai Ranking, the QS Ranking, the Leiden Ranking and the NTU Ranking, as they all have basic common grounds which allow such comparison. We conclude that it is advisable to use national rankings in order to complement international rankings, however we observe that this must be done with certain caution as they differ on the methodology employed as well as on the construction of the fields.

Keywords: Basic, Comparison, Construction, Context, Coverage, From, Index, Institutions, International, International Rankings, Iugr, Limitation, Methodology, National Rankings, Nov, Policy, Profiles, Purpose, Rank, Ranking, Rankings, Research, Research Evaluation, Research Performance, Research Policy, Shanghai, Shanghai Ranking, Spain, Spanish Universities, Systems, Universities, University

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Full Text: [2014\Scientometrics101, 1325.pdf](2014/Scientometrics101,%201325.pdf)

Abstract: This paper analyses the patterns of Danish research productivity, citation impact and (inter) national collaboration across document types 2000-2012, prior to and after the introduction of the Norwegian publication point-based performance indicator in 2008. Document types analysed are: research articles; conference proceedings papers excluding meeting abstracts; and review articles. The Danish Research & Innovation Agency’s basic statistics combined with Web of Science (WoS) are used for data collection and analyses. Findings demonstrate that the research article productivity increases steeply (37 %) after the start of the performance indicator and the citation impact progresses linearly over the entire period, regardless the introduction of the performance indicator. Academic staff progression is only 24 % during the same time period. The collaboration ratio between purely Danish and internationally cooperated research articles remains stable during the period, the number of collaborative countries increases while the ratio declines significantly for proceedings papers. The citation impact of internationally cooperated research articles increases since 2009 but drops for proceedings papers; also their productivity declines slightly from 2009 according to Research Agency statistics. Since 2006 the WoS indexing of proceedings papers is fast declining; as a consequence the ratio between Danish proceedings papers and research articles declines in WoS. According to Research Agency statistics a decline likewise takes place, starting from 2009. The positive growth in research articles mainly derives from the Science and Technology fields published in prestigious Level 2 journals; the development of articles published in less prestigious Level 1 journals derives from all fields. Three of the eight Danish universities have significantly altered their research publication profiles since 2009. The publication performance model is regarded as the significant accelerator of these processes in recent years.

Keywords: Academic, Academic Staff, Agency, Analyses, Article, Article Productivity, Articles, Basic, Bibliometric Methods, Citation, Citation Analyses, Citation Impact, Collaboration, Collection, Conference Proceedings, Data, Data Collection, Denmark, Development, Document Types, From, Growth, Humanities, Impact, Indexing, Indicator, Influence, Innovation, Journals, Model, Norway, Nov, Papers, Performance, Proceedings Papers, Productivity, Profiles, Progression, Publication, Publication Patterns, Publication Patterns, Publication Performance, Publication Performance Indicator, Recent, Research, Research Articles, Research Productivity, Review, Review Articles, Science, Social-Sciences, Statistics, Technology, Time Period, Universities, Web Of Science, Wos

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Full Text: [2014\Scientometrics101, 1345.pdf](2014/Scientometrics101,%201345.pdf)

Abstract: This paper introduces author-level bibliometric co-occurrence network by discussing its history and contribution to the analysis of scholarly communication and intellectual structure. The difference among various author co-occurrence networks, which type of network shall be adapted in different situations, as well as the relationship among these networks, however, remain not explored. Five types of author co-occurrence networks were proposed: (1) co-authorship (CA); (2) author co-citation (ACC); (3) author bibliographic coupling (ABC); (4) words-based author coupling (WAC); (5) journals-based author coupling (JAC). Networks of 98 high impact authors from 30 journals indexed by 2011 version of Journal Citation Report-SSCI under the Information Science & Library Science category are constructed for study. Social network analysis and hierarchical cluster analysis are applied to identify sub-networks with results visualized by VOSviewer software. QAP test is used to find potential correlation among networks. Cluster analysis results show that all the five types of networks have the power for revealing intellectual structure of sciences but the revealed structures are different from each other. ABC identified more sub-structures than other types of network, followed by CA and ACC. WAC result is easily affected and JAC result is ambiguous. QAP test result shows that ABC network has the highest proximity with other types of networks while CA network has relatively lower proximity with other networks. This paper will provide a better comprehension of author interaction and contribute to cognitive application of author co-occurrence network analysis.

Keywords: All-Author, Analysis, Application, Author Bibliographic Coupling, Author Co-Citation Analysis, Authors, Bibliographic, Bibliographic Coupling, Bibliographic-Coupling Analysis, Bibliometric, Bibliometrics, Citation, Cluster, Cluster Analysis, Co-Authorship, Co-Authorship Analysis, Co-Citation, Coauthorship, Coauthorship Networks, Cocitation, Cocitation Analysis, Cognitive, Communication, Comparative, Constructed, Contribution, Correlation, Correlation Analysis, From, Hierarchical Cluster Analysis, History, Impact, Information, Information Science, Information-Science, Intellectual Space, Intellectual Structure, Interaction, Journal, Journals, Network, Network Analysis, Networks, Nov, Pearsons Correlation-Coefficient, Potential, Power, Scholarly Communication, Science, Sciences, Scientific Collaboration, Social Network, Social Network Analysis, Software, Structure, Version, Vosviewer

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Full Text: [2014\Scientometrics101, 1361.pdf](2014/Scientometrics101,%201361.pdf)

Abstract: This study adopts a bibliometric approach to quantitatively assess current research trends in nanofiltration membrane technology (NFM), a new membrane separation technology widely used in various fields. It analyses scientific papers published between 1988-2011 in all journals contained in the Science Citation Index and patent data with the same time span from the Derwent patent database. The study examines developments in basic NFM research and technological innovations. Over the past 24 years, there has been a notable growth in publication outputs. Compared with other countries, China exhibited a rapid growth, particularly from 2000-2011, with its total number of papers ranking second only to the United States (US). Chinese NFM papers focus on energy and agriculture, while the US focuses on biochemistry and molecular biology. China holds the most global NFM patents, with rapid growth in patent numbers from 2005-2011. China, the US and Japan together hold 78% of the total global NFM patents and have a strong technological advantage in water treatment and separation technology. Although there are four Chinese institutions in the top 10 patentee list, most are application patents that focus on the integrated application of existing nanofiltration membrane. In contrast the patents owned by foreign patentees are mostly research patents involving technology innovations of the nanofiltration membrane itself. Therefore, NFM research capacity in China should be further strengthened to maximize the advantages gained via research to date.

Keywords: Agriculture, Analyses, Application, Approach, Basic, Bibliometric, Bibliometric Analysis, Bibliometric Analysis, Biochemistry, Biology, Capacity, China, Chinese, Citation, Comparative Study, Data, Database, Energy, From, Global, Growth, Institutions, Integrated, International, Japan, Journals, Leachate, Membrane, Membrane Technology, Molecular Biology, Nanofiltration, Nanofiltration Membrane (NFM), Nov, Output Of Science and Technology, Papers, Patent, Patents, Publication, Publications, Ranking, Research, Research Trends, Science, Science Citation Index, Scientific Papers, Separation, Technology, Treatment, Trends, United States, Us, Water, Water Treatment

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Full Text: [2014\Scientometrics101, 1375.pdf](2014/Scientometrics101,%201375.pdf)

Abstract: Competitive technical intelligence addresses the landscape of both opportunities and competition for emerging technologies, as the boom of newly emerging science & technology (NEST)-characterized by a challenging combination of great uncertainty and great potential-has become a significant feature of the globalized world. We have been focusing on the construction of a “NEST Competitive Intelligence’’ methodology that blends bibliometric and text mining methods to explore key technological system components, current R&D emphases, and key players for a particular NEST. This paper emphasizes the semantic TRIZ approach as a useful tool to process “Term Clumping’’ results to retrieve “problem & solution (P&S)’’ patterns, and apply them to technology roadmapping. We attempt to extend our approach into NEST Competitive Intelligence studies by using both inductive and purposive bibliometric approaches. Finally, an empirical study for dye-sensitized solar cells is used to demonstrate these analyses.

Keywords: Analyses, Approach, Bibliometric, Case Study, Competition, Competitive, Competitive Intelligence, Construction, Disruptive Technology, Dsscs, Dye-Sensitized Solar Cells, Emerging Technologies, Feature, Landscape, Methodology, Methods, Mining, Nov, Patents, Pattern, R&D, Science, Semantic Triz, Solar Cells, Solution, System, Technical Intelligence, Technologies, Technology, Technology Roadmapping, Term, Text Mining, Text-Mining, Trade, Trends, Triz, Uncertainty, Visualization, World

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Full Text: [2014\Scientometrics101, 1391.pdf](2014/Scientometrics101,%201391.pdf)

Abstract: The Relative Specialization Index (RSI) is an indicator that measures the research profile of a country by comparing the share of a given field in the publications of a given country with the share of the same field in the world total of publications. If measured over time, this indicator may be influenced in the world total by the increased representation of certain other countries with different research profiles. As a case, we study the effect on the RSI for The Netherlands of the increased representation of China in the ISI Web of Science. Although the booming of China is visible in the RSI for The Netherlands, especially in the last decade and in fields where the countries have opposite specializations, the basic research profile as measured by the RSI remains the same. We conclude that the indicator is robust with regard to booming countries, and that it may suffice to observe the general changes in the research profile of the database if the RSI for a country is studied over time.

Keywords: Activity Index, Basic, Basic Research, Changes, China, China, Country, Database, Field, General, Index, Indicator, Indicators, Isi, Isi Web Of Science, Measures, Nov, Profiles, Publication Indicators, Publications, Relative, Relative Specialization Index, Representation, Research, Science, Scientific Specialisation, Specialization, The Netherlands, Web Of Science, World

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Full Text: [2014\Scientometrics101, 1403.pdf](2014/Scientometrics101,%201403.pdf)

Abstract: The study of science at the individual scholar level requires the disambiguation of author names. The creation of author’s publication oeuvres involves matching the list of unique author names to names used in publication databases. Despite recent progress in the development of unique author identifiers, e. g., ORCID, VIVO, or DAI, author disambiguation remains a key problem when it comes to large-scale bibliometric analysis using data from multiple databases. This study introduces and tests a new methodology called seed ? expand for semi-automatic bibliographic data collection for a given set of individual authors. Specifically, we identify the oeuvre of a set of Dutch full professors during the period 1980-2011. In particular, we combine author records from a Dutch National Research Information System (NARCIS) with publication records from the Web of Science. Starting with an initial list of 8,378 names, we identify ‘seed publications’ for each author using five different approaches. Subsequently, we ‘expand’ the set of publications in three different approaches. The different approaches are compared and resulting oeuvres are evaluated on precision and recall using a ‘gold standard’ dataset of authors for which verified publications in the period 2001-2010 are available.

Keywords: Analysis, Area, Author Disambiguation, Authors, Bibliographic, Bibliometric, Bibliometric Analysis, Collection, Data, Data Collection, Databases, Development, Dutch, Filter, From, General, Gold, Information, Methodology, Nov, Output, Precision, Professors, Progress, Publication, Publication Oeuvre, Publications, Recall, Recent, Records, Research, Researchers, Scalable Methods, Science, Standard, Vivo, Web Of Science

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Full Text: [2014\Scientometrics101, 1419.pdf](2014/Scientometrics101,%201419.pdf)

Abstract: The prospects of altmetrics are especially encouraging for research fields in the humanities that currently are difficult to study using established bibliometric methods. Yet, little is known about the altmetric impact of research fields in the humanities. Consequently, this paper analyses the altmetric coverage and impact of humanities-oriented articles and books published by Swedish universities during 2012. Some of the most common altmetric sources are examined using a sample of 310 journal articles and 54 books. Mendeley has the highest coverage of journal articles (61%) followed by Twitter (21%) while very few of the publications are mentioned in blogs or on Facebook. Books, on the other hand, are quite often tweeted while both Mendeley’s and the novel data source Library Thing’s coverage is low. Many of the problems of applying bibliometrics to the humanities are also relevant for altmetric approaches; the importance of non-journal publications, the reliance on print as well the limited coverage of non-English language publications. However, the continuing development and diversification of methods suggests that altmetrics could evolve into a valuable tool for assessing research in the humanities.

Keywords: Altmetrics, Analyses, Articles, Assessing, Bibliometric, Bibliometric Methods, Bibliometrics, Books, Citation Analysis, Coverage, Data, Development, Facebook, Humanities, Impact, Journal, Journal Articles, Language, Library Thing, Mendeley, Methods, Nov, Publications, Research, Research Impact, Social-Sciences, Source, Sources, Twitter, Universities

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Full Text: [2014\Scientometrics101, 1431.pdf](2014/Scientometrics101,%201431.pdf)

Abstract: In this article barycenters of the places of publication of monographs, edited books and book chapters are used to represent the internationalization of research in the Social Sciences and Humanities (SSH) as practiced at universities in Flanders (Belgium). Our findings indicate that, in terms of places of publication, the distance between peer reviewed and non-peer reviewed SSH book literature is growing. Whereas peer reviewed books are increasingly published abroad and in English, non-peer reviewed book literature remains firmly domestic and published in the Dutch language. This divergence is more the case for the Social Sciences than for the Humanities. For Law we have found a pattern along the lines of the Social Sciences. We discuss these findings in view of the two main readerships of SSH publications: international academia on the one hand, and a mostly domestic intelligentsia on the other.

Keywords: Article, Barycenter, Belgium, Citation Index, Dutch, English, Enlightenment Literature, Flanders, Historians, Humanities, International, Internationalization, Language, Law, Literature, Monographs, Nov, Pattern, Peer Review, Peer-Reviewed, Publication, Publications, Publishers, Research, Sciences, Social Sciences, Social Sciences and Humanities, Universities

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Full Text: [2014\Scientometrics101, 1445.pdf](2014/Scientometrics101,%201445.pdf)

Abstract: To evaluate the usefulness of a full-text database as a source for assessing obliteration by incorporation (OBI), 3,707 article records including the catchphrases “bounded rationality” and/or “boundedly rational” (connected with the work of H. A. Simon) in the article text were retrieved from JSTOR, a full-text database with broad disciplinary coverage. Two subsets were analyzed-a 10 % systematic sample of all records and a set of all articles in Economics journals (with the addition of the Journal of Economic Theory). A majority of articles in the 10 % sample came from Economics and Management journals, while Psychology was poorly represented. In the 10 % sample, based on the percentage of true implicit citations between 1992 and 2009 in the 80 % of records that had a catchphrase in the body of the article, rather than just in the reference list, annual OBI ranged from 0 to 70 % (mean 33 %) with no discernible trend. The Economics articles showed a narrower range of OBI-fluctuating around 40 % implicit citations over the same time period. In both data sets, a large proportion of indirect citations were to sources that themselves cited a relevant work by Simon. Over 90 % of the articles in both the 10 % sample and the economics journal set would not have been retrieved with a database record search because they lacked the catchphrase in the record fields.

Keywords: Article, Articles, Assessing, Citation Analysis, Citation-In-Context Analysis, Citations, Concept, Coverage, Cumulative Advantage, Data, Database, Documents, Economics, Eponymy, From, Full-Text Databases, Journal, Journals, Management, Nov, Obliteration By Incorporation, Psychology, Publication, Record, Records, Reference, Science, Source, Sources, Systematic, Theory, Time Period, Trend, Work

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Full Text: [2014\Scientometrics101, 1461.pdf](2014/Scientometrics101,%201461.pdf)

Abstract: We introduce a method to predict or recommend high-potential future (i.e., not yet realized) collaborations. The proposed method is based on a combination of link prediction and machine learning techniques. First, a weighted co-authorship network is constructed. We calculate scores for each node pair according to different measures called predictors. The resulting scores can be interpreted as indicative of the likelihood of future linkage for the given node pair. To determine the relative merit of each predictor, we train a random forest classifier on older data. The same classifier can then generate predictions for newer data. The top predictions are treated as recommendations for future collaboration. We apply the technique to research collaborations between cities in Africa, the Middle East and South-Asia, focusing on the topics of malaria and tuberculosis. Results show that the method yields accurate recommendations. Moreover, the method can be used to determine the relative strengths of each predictor.

Keywords: Africa, Cities, Classifier, Co-Authorship, Coauthorship, Coauthorship Network, Collaboration, Collaborations, Constructed, Data, Facilitator Cities, Forest, Learning, Link Prediction, Linkage, Machine, Machine Learning, Malaria, Measures, Network, Networks, Nov, Prediction, Predictions, Predictor, Predictors, Random Forest Classifiers, Recommendation, Recommendations, Research, Results, South Asia, Techniques, Tuberculosis, Web, Weighted Networks

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Full Text: [2014\Scientometrics101, 1475.pdf](2014/Scientometrics101,%201475.pdf)

Abstract: Using curriculum vitae (CVs) or Short Bios in published resources such as the Internet enables us to analyze many issues concerning researchers’ careers. However, analysis of CVs or Short Bios concerning researchers’ life history, such as movement between countries, has rarely been conducted. In this paper, we pursue two purposes: to demonstrate which conditions (citation impact, countries or sectors) are favorable for the analysis, and to show structures of production of highly cited papers. To grasp more obvious tendencies, we compare two ``extreme’’ samples: highly cited and uncited papers. First, we assess the identification rates of researchers’ origin broken down by researchers’ affiliation (countries and sectors). Then, we analyze the influence of these researchers’ international movement based on their origin. The results show the full landscape of the movement’s influence on national publication, the characteristics of each country in terms of researchers’ countries of origin and the research experience of both internationally moved and domestic researchers. Moreover, we analyze the contributions of researchers who returned from abroad to their home countries. Finally, we assess the limitations of our research method and the topic to be addressed concerning this method.

Keywords: Affiliation, Analysis, Brain-Drain, Careers, Characteristics, Citation, Citation Impact, Comparison, Country, Curriculum, Curriculum Vitae, Experience, From, Highly Cited, Highly Cited Papers, Highly-Cited, History, Identification, Impact, Influence, International, Internet, Issues, Landscape, Life, Movement, Nov, Origin, Papers, Productivity, Publication, Rates, Research, Research Method, Researchers, Researchers’ International Migration, Resources, Returnee, Scientists, Short Bios, Topic, Vitae

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Full Text: [2014\Scientometrics101, 1491.pdf](2014/Scientometrics101,%201491.pdf)

Abstract: In this paper an analysis of the presence and possibilities of altmetrics for bibliometric and performance analysis is carried out. Using the web based tool Impact Story, we collected metrics for 20,000 random publications from the Web of Science. We studied both the presence and distribution of altmetrics in the set of publications, across fields, document types and over publication years, as well as the extent to which altmetrics correlate with citation indicators. The main result of the study is that the altmetrics source that provides the most metrics is Mendeley, with metrics on readerships for 62.6% of all the publications studied, other sources only provide marginal information. In terms of relation with citations, a moderate spearman correlation (r = 0.49) has been found between Mendeley readership counts and citation indicators. Other possibilities and limitations of these indicators are discussed and future research lines are outlined.

Keywords: Alternative, Altmetrics, Analysis, Bibliometric, Bibliometric Indicators, Citation, Citation Analysis, Citation Indicators, Citations, Correlation, Distribution, From, Impact, Impact Story, Indicators, Information, Journal Use, Mendeley, Metrics, Nov, Performance, Publication, Publications, Research, Research Evaluation, Research Performance, Science, Scientific Publications, Source, Sources, Web, Web Of Science

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Full Text: [2014\Scientometrics101, 1515.pdf](2014/Scientometrics101,%201515.pdf)

Abstract: To survive worldwide competitions of research and development in the current rapid increase of information, decision-makers and researchers need to be supported to find promising research fields and papers. But finding those fields from an available data in too much heavy flood of information becomes difficult. We aim to develop a methodology supporting to find emerging leading papers with a bibliometric approach. The analyses in this work are about four academic domains using our time transition analysis. In the time transition analysis, after citation networks are constructed, centralities of each paper are calculated and their changes are tracked. Then, the centralities are plotted, and the features of the leading papers are extracted. Based on the features, we proposed ways to detect the leading papers by focusing on in-degree centrality and its transition. This work will contribute to finding the leading paper, and it is useful for decision-makers and researchers to decide the worthy research topic to invest their resources.

Keywords: Analyses, Analysis, Approach, Bibliometric, Changes, Citation, Citation Network, Constructed, Data, Detection, Development, Emerging Technologies, Flood, From, Impact, Indexes, Information, Methodology, Network Centrality, Networks, Nov, Papers, Research, Research and Development, Research Fronts, Researchers, Resources, Science, Scientific Publications, Time-Series Analysis, Topic, Work

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Full Text: [2014\Scientometrics101, 1535.pdf](2014/Scientometrics101,%201535.pdf)

Abstract: Historically, science of science (Sci2) studies have been performed by single investigators or small teams. As the size and complexity of data sets and analyses scales up, a “Big Science’’ approach (Price, Little science, big science, 1963) is required that exploits the expertise and resources of interdisciplinary teams spanning academic, government, and industry boundaries. Big Sci2 studies utilize “big data’’, i.e., large, complex, diverse, longitudinal, and/or distributed datasets that might be owned by different stake-holders. They apply a systems science approach to uncover hidden patterns, bursts of activity, correlations, and laws. They make available open data and open code in support of replication of results, iterative refinement of approaches and tools, and education. This paper introduces a database-tool infrastructure that was designed to support big Sci2 studies. The open access Scholarly Database (http://sdb.cns.iu.edu) provides easy access to 26 million paper, patent, grant, and clinical trial records. The open source Sci2 tool (http://sci2.cns.iu.edu) supports temporal, geospatial, topical, and network studies. The scalability of the infrastructure is examined. Results show that temporal analyses scale linearly with the number of records and file size, while the geospatial algorithm showed quadratic growth. The number of edges rather than nodes determined performance for network based algorithms.

Keywords: Access, Activity, Algorithm, Algorithms, Analyses, Approach, Big Data, Big Science, Boundaries, Clinical, Clinical Trial, Complexity, Correlations, Data, Database, Distributed, Education, Growth, Infrastructure, Interdisciplinary, Laws, Longitudinal, Network, Nov, Open, Open Access, Open Data, Open Source, Patent, Performance, Price, Records, Replication, Resources, Results, Scalability, Scale, Scales, Science, Science Studies, Size, Small, Source, Stakeholders, Support, Systems, Temporal, Topical, Trial, Visualization Software, Workflows

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Full Text: [2014\Scientometrics101, 1553.pdf](2014/Scientometrics101,%201553.pdf)

Abstract: Collaboration is believed to be influential on researchers’ productivity. However, the impact of collaboration relies on factors such as disciplines, collaboration patterns, and collaborators’ characters. In addition, at different career stages, such as the growth or the establishment career stages of scientists, collaboration is different in scale and scope, and its effect on productivity varies. In this paper, we study the relationships between collaboration and productivity in four disciplines, Organic Chemistry, Virology, Mathematics and Computer Science. Our studyfound that the productivity is correlated with collaboration in general, but the correlation could be positive or negative on the basis of which aspect of collaboration to measure, i.e., the scale or scope of the collaboration. The correlation becomes stronger as individual scientists progress through various stages of their career. Furthermore, experimental disciplines, such as Organic Chemistry and Virology, have shown stronger correlation coefficients than theoretical ones such as Mathematics and Computer Science.

Keywords: Academic Career Age, Areas, Chemistry, Co-Authorship, Collaboration, Collaboration Patterns, Computer Science, Correlation, Costs, Disciplines, Experimental, General, Growth, Impact, Mathematics, Measure, Networks, Nov, Patterns, Productivity, Progress, Researchers, Scale, Science, Scientists, Scope, Theoretical, Virology

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Full Text: [2014\Scientometrics101, 1565.pdf](2014/Scientometrics101,%201565.pdf)

Abstract: Each co-author (CA) of any scientist can be given a rank of importance according to the number of joint publications which the authors have together. In this paper, the Zipf-Mandelbrot-Pareto law, i.e. is shown to reproduce the empirical relationship between and and shown to be preferable to a mere power law, . The CA core value, i.e. the core number of CAs, is unaffected, of course. The demonstration is made on data for two authors, with a high number of joint publications, recently considered by Bougrine (Scientometrics, 98(2): 1047-1064, 2014) and for seven authors, distinguishing between their “journal” and “proceedings” publications as suggested by Miskiewicz (Physica A, 392(20), 5119-5131, 2013). The rank-size statistics is discussed and the and exponents are compared. The correlation coefficient is much improved (0.99, instead of 0.92). There are marked deviations of such a co-authorship popularity law depending on sub-fields. On one hand, this suggests an interpretation of the parameter . On the other hand, it suggests a novel model on the (likely time dependent) structural and publishing properties of research teams. Thus, one can propose a scenario for how a research team is formed and grows. This is based on a hierarchy utility concept, justifying the empirical Zipf-Mandelbrot-Pareto law, assuming a simple form for the CA publication/cost ratio, . In conclusion, such a law and model can suggest practical applications on measures of research teams. In Appendices, the frequency-size cumulative distribution function is discussed for two sub-fields, with other technicalities.

Keywords: Authors, Cities, Co-Author, Co-Author Core, Co-Authorship, Coauthors, Coauthorship, Concept, Correlation, Correlation Coefficient, Course, Cumulative, Cumulative Distribution, Data, Distribution, Distributions, Function, Law, Measures, Model, Peer Review Journals, Power, Power Law, Power Laws, Proceedings, Properties, Publications, Publishing, Rank, Ranking, Research, Research Topics, Scenario, Scientometrics, Size, Statistics, Time-Dependent, Utility, Value, Zipf-Mandelbrot-Pareto Law

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Full Text: [2014\Scientometrics101, 1587.pdf](2014/Scientometrics101,%201587.pdf)

Abstract: This study employs social network analysis to identify institutions with strong international collaborative relationships in astronomical research. We find that the strongest ties tend to link institutions across continents in research collaboration. However, the effect of geographic factors is still notable in light of the fact that most of the institutions in the largest subgroup are located in Europe. Examination of the network position, measured by degree centrality, indicates that homophily is more common than heterophily in the network. A relatively high number of relational ties are observed among institutions that have similar levels of network centrality. Mutual relations are prevalent among central institutions, while strong mutual solidarity exists between institutions on the periphery of the network. This study shows a general unstable international collaborative relationship among astronomical institutions. While more and more institutions have linked up in research collaboration, many of them keep relatively weak ties. Institutions tend not remain in the same subgroup, but link to different partners over time.

Keywords: Analysis, Co-Authorship Network, Coauthorship Networks, Cohesive Subgroups, Collaboration, Collaborative Relationship, Cooperation, Developing-Countries, Europe, European Countries, Examination, Factors, General, Impact, Institutions, International, International Collaboration, Latin-America, Network, Network Analysis, Patterns, Periphery, Position, Relations, Research, Research Collaboration, Science, Scientific Co-Authorship, Social, Social Network, Social Network Analysis, Solidarity, Trends

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Full Text: [2014\Scientometrics101, 1609.pdf](2014/Scientometrics101,%201609.pdf)

Abstract: This paper provides useful insights for the design of networks that promote research productivity. The results suggest that the different dimensions of social capital affect scientific performance differently depending on the area of knowledge. Overall, dense networks negatively affect the creation of new knowledge. In addition, the analysis shows that a division of labor in academia, in the sense of interdisciplinary research, increases the productivity of researchers. It is also found that the position in a network is critical. Researchers who are central tend to create more knowledge. Finally, the findings suggest that the number of ties have a positive impact on future productivity. Related to areas of knowledge, Exact Sciences is the area in which social capital has a stronger impact on research performance. On the other side, Social and Humanities, as well as Engineering, are the ones in which social capital has a lesser effect. The differences found across multiple domains of science suggest the need to consider this heterogeneity in policy design.

Keywords: Academia, Affect, Analysis, Areas Of Knowledge, Citation, Design, Engineering, Heterogeneity, Humanities, Impact, Interdisciplinary, Interdisciplinary Research, Knowledge, Knowledge Creation, Labor, Mexico, Network, Networks, Performance, Policy, Position, Productivity, Research, Research Output, Research Performance, Research Productivity, Researchers, Science, Sciences, Scientific Collaboration, Scientific Performance, Scientific Productivity, Social, Social Capital, Strength, Structural Holes, Universities

? Graziotin, D., Wang, X.F. and Abrahamsson, P. (2014), A framework for systematic analysis of open access journals and its application in software engineering and information systems. *Scientometrics*, **101** (3), 1627-1656.

Full Text: [2014\Scientometrics101, 1627.pdf](2014/Scientometrics101,%201627.pdf)

Abstract: This article is a contribution towards an understanding of open access (OA) publishing. It proposes an analysis framework of 18 core attributes, divided into the areas of bibliographic information, activity metrics, economics, accessibility, and predatory issues. The framework has been employed in a systematic analysis of 30 OA journals in software engineering (SE) and information systems (IS), which were selected from among 386 OA journals in Computer Science from the Directory of OA Journals. An analysis was performed on the sample of the journals, to provide an overview of the current situation of OA journals in the fields of SE and IS. The journals were then compared between-group, according to the presence of article processing charges. A within-group analysis was performed on the journals requesting article processing charges from authors, in order to understand what is the value added according to different price ranges. This article offers several contributions. It presents an overview of OA definitions and models. It provides an analysis framework born from the observation of data and the existing literature. It raises the need to study OA in the fields of SE and IS while offering a first analysis. Finally, it provides recommendations to readers of OA journals. This paper highlights several concerns still threatening the adoption of OA publishing in the fields of SE and IS. Among them, it is shown that high article processing charges are not sufficiently justified by the publishers, which often lack transparency and may prevent authors from adopting OA.

Keywords: Access, Activity, Adoption, Age, Analysis, Application, Article, Authors, Bibliographic, Computer Science, Contribution, Data, Economics, Engineering, First, Framework, From, Impact, Information, Information Systems, Is, Issues, Journals, Literature, Metrics, Models, Observation, Open, Open Access, Overview, Perceptions, Predatory Publishers, Prevent, Publishers, Publishing, Recommendations, Record, Research, Science, Se, Software, Software Engineering, Systematic, Systematic Analysis, Systems, Transparency, Understanding, Value

? Zhai, L., Li, X.J., Yan, X.B. and Fan, W.G. (2014), Evolutionary analysis of collaboration networks in the field of information systems. *Scientometrics*, **101** (3), 1657-1677.

Full Text: [2014\Scientometrics101, 1657.pdf](2014/Scientometrics101,%201657.pdf)

Abstract: In recent years, collaborations between scholars have drastically increased in all fields. Using individual and country collaboration data from the past 30 years, this paper studies the evolution and trend of collaboration networks in the field of information systems. Our research shows that individual scholars and all countries display the “long tail” phenomenon in article publishing. Average collaboration degree and co-authorship ratio of articles over time are on the rise overall. Evolutionary analysis of collaboration networks manifest that the network development is basically mature although it has not yet reached a stable status. International collaborations have shown a gradual increase, with the increase in participating countries distributed mainly in Europe and Asia and increase in collaborations mainly in North America and Europe, especially the United States, England and Canada.

Keywords: Analysis, Article, Articles, Asia, Canada, Centrality, Co-Authorship, Coauthorship, Collaboration, Collaboration Ability, Collaboration Network, Collaboration Networks, Collaborations, Country, Data, Development, Distributed, England, Europe, Evolution, Evolutionary Analysis, Field, From, Index, Information, Information Systems, International, International Collaborations, Management Research, Network, Networks, North, North America, Preferential Attachment, Publishing, Recent, Research, Scholars, Scientific Collaboration, Social Network, Systems, Trend, United States

? Zhang, Z.H., Cheng, Y. and Liu, N.C. (2014), Comparison of the effect of mean-based method and z-score for field normalization of citations at the level of Web of Science subject categories. *Scientometrics*, **101** (3), 1679-1693.

Full Text: [2014\Scientometrics101, 1679.pdf](2014/Scientometrics101,%201679.pdf)

Abstract: Field normalization is a necessary step in a fair cross-field comparison of citation impact. In practice, mean-based method (m-score) is the most popular method for field normalization. However, considering that mean-based method only utilizes the central tendency of citation distribution in the normalization procedure and dispersion is also a significant characteristic, an open and important issue is whether alternative normalization methods which take both central tendency and variability into account perform better than mean-based method. With the aim of collapsing citation distributions of different fields into a universal distribution, this study compares the normalization effect of m-score and z-score based on 236 Web of Science (WoS) subject categories. The results show that both m-score and z-score have remarkable normalization effect as compared with raw citations, but neither of them can realize the ideal goal of “universality of citation distributions”. The results also suggest that m-score is generally preferable to z-score. The essential cause that m-score has an edge over z-score as a whole has a direct relationship with the characteristics of skewed citation distributions in which case m-score is more applicable than z-score.

Keywords: Alternative, Characteristics, Charts, Citation, Citation Distribution, Citation Impact, Citations, Comparison, Crown Indicator, Dispersion, Distribution, Distributions, Field, Field Normalization, Field-Normalization, Impact, Mean-Based Method, Methods, Normalization, Normalization Effect, Open, Practice, Procedure, Relative Indicators, Research Performance, Science, Universality, Variability, Web, Web Of Science, Wos, Z-Score

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Full Text: [2014\Scientometrics101, 1695.pdf](2014/Scientometrics101,%201695.pdf)

Abstract: The ProQuest Dissertations and Theses database contains records for approximately 2.3 million dissertations conferred at 1,490 research institutions across 66 countries. Despite the scope of the Dissertations and Theses database, no study has explicitly sought to validate the accuracy of the ProQuest SCs. This research examines the degree to which ProQuest SCs serve as proxies for disciplinarity, the relevance of doctoral work to doctoral graduates’ current work, and the permeability of disciplines from the perspective of the mismatch between SCs and disciplinarity. To examine these issues we conducted a survey of 2009-2010 doctoral graduates, cluster-sampled from Economics, Political Science, and Sociology ProQuest SCs. The results from the survey question the utility of traditional disciplinary labels and suggest that scholars may occupy a post-interdisciplinary space in which they move freely across disciplinary boundaries and identify with topics instead of disciplines.

Keywords: Accuracy, Boundaries, Categories, Database, Disciplinarity, Disciplines, Dissertations, Economics, From, Institutions, Issues, Permeability, Political Science, Proquest, Records, Reference, Relevance, Research, Research Institutions, Science, Sciences, Scope, Social, Social Sciences, Sociology, Subject Categories, Survey, Theses, Utility, Work

? Moksony, F., Hegedus, R. and Csaszar, M. (2014), Rankings, research styles, and publication cultures: A study of American sociology departments. *Scientometrics*, **101** (3), 1715-1729.

Full Text: [2014\Scientometrics101, 1715.pdf](2014/Scientometrics101,%201715.pdf)

Abstract: Rankings have become a major form of quality assessment in higher education over the past few decades. Most rankings rely, to varying extent, on bibliometric indicators intended to capture the quantity and quality of the scientific output of institutions. The growing popularity of this practice has raised a number of concerns, one of the most important being whether evaluations of this sort treat different work styles and publication habits in an unbiased manner and, consequently, whether the resulting rankings properly respect the particular modes of research characteristic of various disciplines and subdisciplines. The research reported in this paper looked at this issue, using data on more than one hundred US sociology departments. Our results showed that institutions that are more quantitative in character are more likely to favor journals over books as the dominant form of scientific communication and fare, in general, considerably better on the National Research Council’s assessment than their qualitative equivalents. After controlling for differences in publication practices, the impact of research style declined but remained statistically significant. It thus seems that the greater preference of qualitative departments for books over articles as publication outlets puts them at a disadvantage as far as quality assessments are concerned, although their lagging behind their quantitative counterparts cannot fully be explained by this factor alone.

Keywords: Academic Publishing, Articles, Assessment, Assessments, Bibliometric, Bibliometric Indicators, Communication, Contested Discipline, Data, Disciplines, Economics, Education, General, Google Scholar, h-Index, Higher Education, Impact, Indicators, Institutions, Journals, Organizational Reputation, Practice, Practices, Preference, Publication, Qualitative, Quality, Quality Of, Rankings, Research, Research Methods, Science, Scientific Communication, Scientific Output, Scientific Paradigm, Sociology, Sociology Of Science, Subject Matter, Universities, University Rankings, Us, Work, World-Report

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Full Text: [2014\Scientometrics101, 1731.pdf](2014/Scientometrics101,%201731.pdf)

Abstract: Measuring scientific performance is currently a common practice of funding agencies, fellowship evaluations and hiring institutions. However, as has already been recognized by many authors, comparing the performance in different scientific fields is a difficult task due to the different publication and citation patterns observed in each field. In this article, we defend that scientific performance of an individual scientist, laboratory or institution should be analysed within the corresponding context and we provide objective tools to perform this kind of comparative analysis. The usage of the new tools is illustrated by using two control groups, to which several performance measurements are referred: one group being the Physics and Chemistry Nobel laureates from 2007 to 2012, the other group consisting of a list of outstanding scientists affiliated to two different institutions.

Keywords: Analysis, Article, Authors, Chemistry, Citation, Citation Patterns, Context, Control, Control Groups, Criterion, Fellowship, Field, Fields, From, Funding, Groups, h-Index, Hiring, Impact, Indicators, Institutions, Laboratory, Performance, Physics, Practice, Publication, Relative Measurements, Scientific Performance, Scientists

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Full Text: [2014\Scientometrics101, 1747.pdf](2014/Scientometrics101,%201747.pdf)

Abstract: New institutions are coming to the fore as stakeholders in research, particularly hospitals and clinical departments involved in providing health care. As a result, new environments for research are gaining importance. This study aims to investigate how different individual characteristics, together with collective and contextual factors, affect the activity and performance of researchers in the particular setting of hospitals and research centres affiliated with the Spanish National Health System (NHS). We used a combination of quantitative science indicators and perception-based data obtained through a survey of researchers working at NHS hospitals and research centres. Inbreeding and involvement in clinical research is the combination of factors with the greatest influence on scientific productivity, because these factors are associated with increased scientific output both overall as well as in high-impact journals. Ultimately, however, satisfaction with human resources in research group combined with gender (linked in turn to leadership) is the combination of factors associated most clearly with the most relevant indicator of productivity success, i.e. the number of articles in high-impact journals as principal author. Researchers’ competitiveness in obtaining research funding as principal investigator is associated with a combination of satisfaction with research autonomy and involvement in clinical research. Researchers’ success is not significantly related with their age, seniority and international experience. The way health care institutions manage and combine the factors likely to influence research may be critical for the development and maintenance of research-conducive environments, and ultimately for the success of research carried out in hospitals and other settings within the national public health system.

Keywords: Academic Scientists, Activity, Affect, Age, Articles, Autonomy, Biomedical, Biomedical Research, Care, Care Research, Characteristics, Clinical, Clinical Research, Competitiveness, Data, Determinants, Development, Environment, Experience, Factors, Faculty, Funding, Gender, Gender-Differences, Health, Health Care, Health System, Hospitals, Human, Indicator, Indicators, Influence, Institutions, International, Journals, Leadership, National-Research-Council, Nhs, Perception Survey, Performance, Productivity, Public, Public Health, Public Healthcare Sector, Publication Productivity, Research, Research Centres, Research Competitiveness, Research Funding, Research Performance, Research Success, Researchers, Resources, Satisfaction, Science, Science Indicators, Science Research, Scientific Output, Scientific Productivity, Scientific Productivity, Social Integration, Stakeholders, Success, Survey, Translational Research

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Full Text: [2014\Scientometrics101, 1781.pdf](2014/Scientometrics101,%201781.pdf)

Abstract: In this paper, we look at the issue of the high-end of research performance which is captured in the tail of a citation distribution. As the mean is insufficient to capture the skewness of such distributions, a consistency or concentration measure is the additional parameter needed. We show that the h-index is only approximately a heuristic mock of a composite indicator built from three primary indicators which are the number, mean and consistency term. The z-index is able to sense the change in consistency in the distribution due to the outliers in the tail of the distribution.

Keywords: Bibliometric, Citation, Composite, Concentration, Consistency, Distribution, Extreme Values, From, h Index, h-Index, Indicator, Indicators, Indices, Journal Impact Factor, Mean, Measure, Outliers, Performance, Primary, Quantity, Research, Research Performance, Scientometric Distributions, Term, Z-Index

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Full Text: [2014\Scientometrics101, 1789.pdf](2014/Scientometrics101,%201789.pdf)

Abstract: It is widely accepted that biotechnology is a globally significant and growing research field. Because of its biodiversity, Colombia has a comparative advantage to innovate and commercialize biotechnological products and services. The aim of this study is to obtain a research profile and intellectual structure of the country in the biotechnology field by using bibliometric methods. These methods are needed to monitor the capacities and the compliance of national policies in biotechnology. By using records extracted from the ISI WoK database, this study describes the biotechnology publication trend, productivity and collaboration among institutions and countries, preferred journals, and the intellectual structure at the research subject area. Although, a growing trend in biotechnology publication was observed, the productivity is still low when compared to other countries in the region and the world. On the other hand, researchers seem to show a preference for international over domestic collaboration. The results suggest two elements: first, policy has not had the expected outcome in the short term, and second, a lack of internal collaboration could therefore reflect low endogenous capacities. The bibliometric methods used in this study can be applied to a wide range of research fields other than biotechnology.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometric Methods, Biodiversity, Biotechnology, Citation Impact, Collaboration, Colombia, Compliance, Countries, Country, Database, Domestic Collaboration, Dynamics, Field, First, From, Indicators, Industry, Innovation, Institutions, Intellectual Structure, International, Isi, Journals, Methods, Microbiology, Outcome, Policies, Policy, Preference, Productivity, Profile, Publication, Records, Region, Research, Researchers, Science, Services, Structure, Systems, Term, Trend, Wok, World

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Full Text: [2014\Scientometrics101, 1805.pdf](2014/Scientometrics101,%201805.pdf)

Abstract: Digital preservation of scientific papers enables their wider accessibility, but also provides a valuable source of information that can be used in a longitudinal scientometric study. The Electronic Library of the Mathematical Institute of the Serbian Academy of Sciences and Arts (eLib) digitizes the most prominent mathematical journals printed in Serbia. In this paper, we study a co-authorship network which represents collaborations among authors who published their papers in the eLib journals in an 80 year period (from 1932 to 2011). Such study enables us to identify patterns and long-term trends in scientific collaborations that are characteristic for a community which mainly consists of Serbian (Yugoslav) mathematicians. Analysis of connected components of the network reveals a topological diversity in the network structure: the network contains a large number of components whose sizes obey a power-law, the majority of components are isolated authors or small trivial components, but there is also a small number of relatively large, non-trivial components of connected authors. Our evolutionary analysis shows that the evolution of the network can be divided into six periods that are characterized by different intensity and type of collaborative behavior among eLib authors. Analysis of author metrics shows that betweenness centrality is a better indicator of author productivity and long-term presence in the eLib journals than degree centrality. Moreover, the strength of correlation between productivity metrics and betweenness centrality increases as the network evolves suggesting that even more stronger correlation can be expected in the future.

Keywords: Analysis, Author Metrics, Author Productivity, Authors, Authorship, Behavior, Co-Authorship, Co-Authorship Network, Coauthorship, Coauthorship Network, Coauthorship Networks, Collaboration, Collaborations, Collaborative Behaviour, Community, Connected Components, Correlation, Digital, Digital Library, Diversity, Evolution, Evolutionary Trends, From, Graph, Indicator, Information, Intensity, Journals, Law, Long Term, Long-Term, Longitudinal, Metrics, Network, Papers, Patterns, Power Law, Preservation, Productivity, Science, Sciences, Scientific Collaboration, Scientometric, Serbia, Serbian Mathematical Journals, Small, Small-World Networks, Source, Strength, Structure, Trends

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Full Text: [2014\Scientometrics101, 1831.pdf](2014/Scientometrics101,%201831.pdf)

Abstract: Many webometric studies have used hyperlinks to investigate links to or between specific collections of websites to estimate their impact or identify connectivity patterns. Whilst major commercial search engines have previously been used to identify hyperlinks for these purposes, their hyperlink search facilities have now been shut down. In response, a range of alternative sources of link data have been suggested, but all have limitations. This article introduces a new type of link that can be identified from commercial search engines, linked title mentions. These can be found by querying title mentions in a search engine and then removing those not associated with a relevant hyperlink. Results of a proof of concept test on 51 U.S. library and information science schools and four other sets of schools suggest that linked title mentions may tend to give better results than title mentions in some cases when used for site inlinks but may not always be an improvement on URL citations. For links between or co-inlinks to specified pairs of academic websites, linked title mentions do not generally provide an improvement over title mentions, but they do over URL citations in some cases. Linked title mentions may also be useful for sets of non-academic websites when the alternatives give too few or misleading results.

Keywords: Alternative, Alternatives, Article, Citations, Collaboration, Communication, Concept, Connectivity, Data, Engine, Engines, Facilities, From, Hyperlink, Impact, Improvement, Information, Information Science, Library and Information Science, Link Analysis, Response, Results, Science, Search Engine, Site, Sites, Sources, UK, Url, Url Citations, Web Impact, Web Impact Factors, Web Network, Webometrics, Webometrics, Websites

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Full Text: [2014\Scientometrics101, 1851.pdf](2014/Scientometrics101,%201851.pdf)

Abstract: Patents and licenses are foundational to successful technology transfer in universities. In this article, the activities and performance of university patenting and licensing are studied to gauge the effectiveness of the Bayh-Dole Act (the “Act”), the most influential piece of US legislation on university technology transfer (UTT). Based on raw data from five sources, the annual numbers of patents granted, licenses signed, startup companies launched, and research expenditures are analyzed. Correlations are performed for all data presented to quantify trends over different time periods. We found that patenting and licensing activities in US universities slowed down greatly after 2000 and remained flat until the period from 2010 to 2012, when activities recover to the level of strength characterizing the period before 2000 and after the enactment of the Act. We identify that economic recessions is the major cause to the flatness of the patenting activities during 2000s. We also explain some of the differences found among different data sources and time periods.

Keywords: Act, Article, Bayh-Dole Act, Data, Economic, Effectiveness, Expenditures, From, Impact, Legislation, License, Licensing, Patent, Patents, Performance, Research, Sources, Startup, Strength, Technology, Technology Transfer, Trends, Universities, University, Us

? Cassi, L., Mescheba, W. and de Turckheim, E. (2014), How to evaluate the degree of interdisciplinarity of an institution? *Scientometrics*, **101** (3), 1871-1895.

Full Text: [2014\Scientometrics101, 1871.pdf](2014/Scientometrics101,%201871.pdf)

Abstract: The Stirling index of the set of references of the corpus documents is widely used in the literature on interdisciplinary research and is defined as the integration score of the corpus under study. Such an indicator is relevant at the scale of a research institution, however, there is a gap between the integration scores of individual documents, and a global score computed on the whole set of references. The difference between the global index and the average of individual document indexes carries another relevant information about the corpus: it measures the diversity between the reference profiles of the corpus documents. It is, therefore, named between article index whereas the average of the individual article indexes is called within article index. The statistical properties of these two indexes as well as of the global index are derived from a general approximation method for distributions and lead to statistical tests which can be used to make meaningful comparisons between an institution indexes and benchmark values. The two dimensions of the global index provide a more acute information on the interdisciplinary practices of an institution researchers in a given research domain and is, therefore, likely to contribute to strategic and management issues.

Keywords: Article, Asymptotic Distribution Of Indicators, Diversity, Documents, From, General, Global, Index, Indicator, Indicators, Inertia Of A Set Of Weighted Points, Information, Integration, Interdisciplinarity, Interdisciplinary, Interdisciplinary Research, Issues, Lead, Literature, Management, Measures, Practices, Profiles, Properties, Reference, References, Research, Researchers, Scale, Science, Statistical Tests, Stirling Index Decomposition, Strategic

? Radosevic, S. and Yoruk, E. (2014), Are there global shifts in the world science base? Analysing the catching up and falling behind of world regions. *Scientometrics*, **101** (3), 1897-1924.

Full Text: [2014\Scientometrics101, 1897.pdf](2014/Scientometrics101,%201897.pdf)

Abstract: This paper explores the changing role of world regions (North America, EU15, South EU, Central and Eastern Europe (CEE), Former-USSR, Latin America, Asia Pacific and the Middle East) in science from 1981 to 2011. We use bibliometric data extracted from Thomson Reuter’s National Science Indicators (2011) for 21 broad disciplines, and aggregated the data into the four major science areas: life, fundamental, applied and social sciences. Comparing three sub-periods (1981-1989, 1990-2000 and 2001-2011), we investigate (i) over time changes in descriptive indicators such as publications, citations, and relative impact; (ii) static specialization measured by revealed comparative advantage (RCA) in citations and papers; and (iii) dynamic specialization measured by absolute growth in papers. Descriptive results show a global shift in science largely in quantity (papers) and much less in impact (citations). We argue this should be interpreted as a shift in science’s absorptive capacity but not necessarily a shift of knowledge generation at the world science frontier, which reflects the nature of science systems operating with high inertia and path dependency in areas of their historically inherited advantages and disadvantages. In view of their common historical legacy in science we are particularly interested in the process of convergence/divergence of the catching-up/transition regions with the world frontier regions. We implement an interpretative framework to compare regions in terms of their static and dynamic specialization from 1981-1989 to 2001-2011. Again, our analysis shows that while science systems are mostly characterised by strong inertia and historically inherited (dis)advantages, Asia Pacific, Latin America and CEE show strong catching-up characteristics but largely in the absorptive capacity of science.

Keywords: Absorptive Capacity, Absorptive Capacity In Science Base, Advantage, Analysis, Asia, Asia Pacific, Bibliometric, Bibliometric Analysis, Bibliometric Data, Bibliometrics, Capacity, Central and Eastern Europe, Changes, Characteristics, Citations, Collaboration, Countries, Data, Dependency, Disciplinary Structure, Disciplines, Dynamic, Dynamic Scientific Specialization, Eastern Europe, Eu, Europe, Framework, From, Generation, Global, Growth, Impact, Indicators, Innovation, Knowledge, Knowledge-Generation, Latin America, Life, North, North America, Output, Papers, Patterns, Publications, Revealed Comparative Advantage, Role, Science, Sciences, Social, Social Sciences, Static Scientific Specialization, Systems, Technology, World, World Regions

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Full Text: [2014\Scientometrics101, 1925.pdf](2014/Scientometrics101,%201925.pdf)

Abstract: A bibliometric analysis was applied in this work to evaluate Antarctic research from 1993 to 2012 based on the Science Citation Index database. According to samples of 30,024 articles related to Antarctica, this study reveals the evolution of the scientific outputs on Antarctic research from the aspects of subject categories, major journals, international collaboration, and temporal trends in keywords focus. Antarctic research has developed rapidly in the past two decades, with an increasing amount of article output, references and citations. Geosciences multidisciplinary, oceanography, ecology, meteorology and atmospheric sciences and geography physical were the most popular subject categories. Among the 20 major journals related to Antarctic research, Polar Biology, Geophysical Research Letters and Journal of Geophysical Research-Atmospheres ranked as the top three. With the largest quantity of articles and high citations, USA was the leading contributor to global Antarctic research and had a dominant position in collaborative networks. In addition, a keywords analysis determined that climate change, sea ice and krill were the topics that generated the most interest and concern. Because this paper reveals underlying patterns in scientific outputs, research subjects and academic collaboration, it may serve as a summary of global research history on Antarctica and a potential basis for future research.

Keywords: 8 Glacial Cycles, Analysis, Antarctic Research, Antarctica, Article, Articles, Bibliometric, Bibliometric Analysis, Biology, Citation, Citation Analysis, Citations, Climate, Climate Change, Collaboration, Collaboration Network, Database, Ecology, Evolution, From, Geography, Global, History, Ice, Ice Core, International, International Collaboration, Journal, Journals, Keywords Analysis, Multidisciplinary, Networks, Oceanography, Performance, Physical, Position, Potential, Productivity, Quantitative Analysis, References, Research, Research Trends, Research Trends, Science, Science Citation Index, Sciences, Scientific Outputs, Sea Ice, Sea-Ice, Temperature, Temporal, Trends, USA, Work

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Full Text: [2014\Scientometrics101, 1941.pdf](2014/Scientometrics101,%201941.pdf)

Abstract: The study demonstrates an integrated method of forecasting the trend of a country’s publications. In this context the paper examines international collaboration in a country’s overall publication and forecasts its future trend. The integrated method is based on regression and scaling relationship. India is taken as a case study for this examination. The study shows some interesting features of India’s publication pattern based on time-series data. One observes exponential nature of her publication growth from 2002 onwards. International collaboration also exhibits exponential growth roughly from the same period. Also one observes the faster growth of international collaborative papers than the overall growth of research papers. The study predicts values of number of internationally collaborative papers for the years 2015 and 2020. The robustness of the method is also demonstrated.

Keywords: Case Study, Co-Authorship, Collaboration, Context, Data, Diffusion, Evolutionary Model, Examination, Exponential Growth Models, Forecasting, From, Growth, India, Innovation, Integrated, International, International Collaboration, Method Of Forecasting, Papers, Pattern, Publication, Publications, Regression, Research, Research Papers, Robustness, Scaling, Scaling Relationship, Scientific Collaboration, Technology Forecasting, Time Series, Trend

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Full Text: [2014\Scientometrics101, 1955.pdf](2014/Scientometrics101,%201955.pdf)

Abstract: The name ambiguity problem presents many challenges for scholar finding, citation analysis and other related research fields. To attack this issue, various disambiguation methods combined with separate disambiguation features have been put forward. In this paper, we offer an unsupervised Dempster-Shafer theory (DST) based hierarchical agglomerative clustering algorithm for author disambiguation tasks. Distinct from existing methods, we exploit the DST in combination with Shannon’s entropy to fuse various disambiguation features and come up with a more reliable candidate pair of clusters for amalgamation in each iteration of clustering. Also, some solutions to determine the convergence condition of the clustering process are proposed. Depending on experiments, our method outperforms three unsupervised models, and achieves comparable performances to a supervised model, while does not prescribe any hand-labelled training data.

Keywords: Algorithm, Analysis, Author Disambiguation, Citation, Citation Analysis, Clustering, Data, Dempster-Shafer Theory Of Evidence, Dst, Entropy, Experiments, From, Hierarchical Clustering, Methods, Model, Models, Name Disambiguation, Research, Solutions, Theory, Training, Unsupervised

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Full Text: [2014\Scientometrics101, 1973.pdf](2014/Scientometrics101,%201973.pdf)

Abstract: This study illustrates scientists’ referencing (mis)behavior by structuring the dissemination network of referencing errors. The sample set consists of 16,622 referencing errors of a highly cited paper published by Laemmli, UK in Nature in 1970. Dissemination networks of thirteen types of volume-page double errors and one type of page-only error are constructed and analyzed. Focusing on papers which carry the same volume-page double error, or the same page error, the citing-cited relationship between any two of them was identified and author bylines were compared to find common author(s). Our investigation results in three disseminating routes of referencing errors. Route 1: Citing a paper and copying its reference; Route 2: Copying a reference from another paper but without citing this paper; Route 3: Copying references from an earlier paper published by the author himself (herself) without rechecking the accuracy of the reference. The first two routes reflect scientists’ referencing misbehavior while the third calls attention to self-copying of references.

Keywords: Accuracy, Attention, Constructed, Copying References, Dissemination, Dissemination Network Of Referencing Errors, Error, Errors, Ethics In Science, First, From, Highly Cited, Highly-Cited, Improvement, Investigation, Network, Networks, Papers, Reference, References, Referencing, Referencing Behavior, Scientists, Uk

? Moed, H. and Halevi, G. (2014), A bibliometric approach to tracking international scientific migration. *Scientometrics*, **101** (3), 1987-2001.

Full Text: [2014\Scientometrics101, 1987.pdf](2014/Scientometrics101,%201987.pdf)

Abstract: A bibliometric approach is explored to tracking international scientific migration, based on an analysis of the affiliation countries of authors publishing in peer reviewed journals indexed in Scopus (TM). The paper introduces a model that relates base concepts in the study of migration to bibliometric constructs, and discusses the potentialities and limitations of a bibliometric approach both with respect to data accuracy and interpretation. Synchronous and asynchronous analyses are presented for 10 rapidly growing countries and 7 scientifically established countries. Rough error rates of the proposed indicators are estimated. It is concluded that the bibliometric approach is promising provided that its outcomes are interpreted with care, based on insight into the limits and potentialities of the approach, and combined with complementary data, obtained, for instance, from researchers’ Curricula Vitae o, survey or questionnaire- based data. Error rates for units of assessment with indicator values based on sufficiently large numbers are estimated to be fairly below 10 %, but can be expected to vary substantially among countries of origin, especially between Asian countries and Western countries.

Keywords: Accuracy, Affiliation, Analyses, Analysis, Approach, Asian, Assessment, Authors, Bibliometric, Bibliometrics, Care, Complementary, Data, Error, From, Indicator, Indicators, International, Journals, Migration, Model, Origin, Outcomes, Peer Reviewed Journals, Peer-Reviewed, Publishing, Questionnaire, Rates, Researchers, Scientific Collaboration, Scientific Migration, Scopus, Survey, Synchronous

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Full Text: [2014\Scientometrics101, 2003.pdf](2014/Scientometrics101,%202003.pdf)

Abstract: Person identification based on iris recognition is getting more and more attention among the modalities used for biometric recognition. This fact is due to the immutable and unique characteristics of the iris. Therefore it is of utmost importance for researchers interested in this discipline to know who and what is relevant in this area. This paper presents a comprehensive overview of the field of iris recognition research using a bibliometric approach. Besides, this article provides historical records, basic concepts, current progress and trends in the field. With this purpose in mind, our bibliometric study is based on 1,354 documents written in English, published between 2000 and 2012. Scopus was used to perform the information retrieval. In the course of this study, we synthesized significant bibliometric indicators on iris recognition research in order to evaluate to what extent this particular field has been explored. Thereby, we focus on foundations, temporal evolution, leading authors, most cited papers, significant conventions, leading journals, outstanding research topics and enterprises and patents. Research topics are classified into three main categories: ongoing, emerging, and decreasing according to their corresponding number of publications over the period under study. An analysis of these indicators suggests there has been major advances in iris recognition research and also reveals promising new avenues worthy of investigation in the future. This study will be useful to future investigators in the field.

Keywords: Advances, Analysis, Approach, Article, Attention, Authors, Basic, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Bibliometric Study, Biometric Recognition, Characteristics, Citation, Course, Documents, English, Enterprises, Evolution, Field, Identification, Images, Index, Indicators, Information, Information Retrieval, Investigation, Iris Biometrics, Iris Recognition, Journals, Modalities, Output, Overview, Papers, Patents, Progress, Publications, Purpose, Rankings, Records, Research, Research Topics, Researchers, Science, Scopus, Temporal, Trends, Web

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Full Text: [2014\Scientometrics101, 2035.pdf](2014/Scientometrics101,%202035.pdf)

Abstract: An original cross-sectional dataset referring to a medium-sized Italian university is implemented in order to analyze the determinants of scientific research production at individual level. The dataset includes 942 permanent researchers of various scientific sectors for a 3-year time-span (2008-2010). Three different indicators-based on the number of publications and/or citations-are considered as response variables. The corresponding distributions are highly skewed and display an excess of zero-valued observations. In this setting, the goodness-of-fit of several Poisson mixture regression models are explored by assuming an extensive set of explanatory variables. As to the personal observable characteristics of the researchers, the results emphasize the age effect and the gender productivity gap-as previously documented by existing studies. Analogously, the analysis confirms that productivity is strongly affected by the publication and citation practices adopted in different scientific disciplines. The empirical evidence on the connection between teaching and research activities suggests that no univocal substitution or complementarity thesis can be claimed: a major teaching load does not affect the odds to be a non-active researcher and does not significantly reduce the number of publications for active researchers. In addition, new evidence emerges on the effect of researchers administrative tasks-which seem to be negatively related with researcher’s productivity-and on the composition of departments. Researchers’ productivity is apparently enhanced by operating in department filled with more administrative and technical staff, and it is not significantly affected by the composition of the department in terms of senior/junior researchers.

Keywords: Academic Research Productivity, Academic Scientists, Active, Affect, Age, Age Effect, Analysis, Binomial Regression, Characteristics, Citation, Composition, Count Data, Cross-Sectional, Cycle Research Productivity, Disciplines, Evidence, Gender, Gender Productivity Gap, Gender-Differences, Hurdle Models, Individual Scientific Performance, Life-Cycle, Load, Models, Observations, Performance, Permanent, Poisson Mixture Distributions, Practices, Productivity, Publication, Publication Productivity, Publications, Regression, Regression-Model, Research, Researchers, Response, Science, Scientific Performance, Scientific Research, Scientist Productivity, Sichel Model, Substitution, Teaching, Thesis, University, Waring Model, Zero-Inflated Models, Zero-Inflated Poisson

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Full Text: [2014\Scientometrics101, 2063.pdf](2014/Scientometrics101,%202063.pdf)

Abstract: Results from self-observation of the working time distribution of a university teacher for a period of 45 years (starting from the very beginning of his carrier till two years after retirement) are reported classified in (i) teaching; (ii) scientific; (iii) administrative, organizational, technical; (iv) social/other activities. For the whole period, the teaching take 19 %, scientific work-22 % and various kinds of administrative, organizational and technical activities-52 % of the overall working time. The latter varies within the limits of 6.1-14.5 h per calendar day (mean values for an year) and in average is 10 h per calendar day for the entire 45-years-period. The changes of the working time distribution and the working day duration during the years are shown. The time consumed in fulfillment of obligations as head of research institution and of university units is revealed. The data are accompanied with information for the growth of the scientific production of the observed person. It is appeared that the latter as well as the growth of the citations of his papers can be depicted by the well known exponential law describing the accelerated development of the science.

Keywords: Budget, Changes, Citations, Data, Development, Distribution, Duration, From, Growth, Information, Law, Obligations, Organizational, Papers, Person, Publications Rate, Research, Results, Science, Scientific Production, Teaching, Till, University, University Teacher, Working Time

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Full Text: [2014\Scientometrics101, 2071.pdf](2014/Scientometrics101,%202071.pdf)

Abstract: We give mathematical explanations of some empirical results obtained by Campanario in Scientometrics 99(2):289-298, (2014).

Keywords: Citations, Computation, Decimal Places, Factors, Impact, Impact Factor, Impact Factors, Journal, Journal Impact, Journal Impact Factors, Scientometrics, Significance

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Full Text: [2014\Scientometrics101, 2077.pdf](2014/Scientometrics101,%202077.pdf)

Keywords: Article, Articles, Qualitative, Review, Scientometrics

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Full Text: [2014\Scientometrics101, 2079.pdf](2014/Scientometrics101,%202079.pdf)

Keywords: Article, Articles, Comments, Indicators, Qualitative, Response, Review

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Full Text: [2014\Scientometrics101, 2081.pdf](2014/Scientometrics101,%202081.pdf)

Keywords: Technology

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Full Text: [2015\Scientometrics102, 1.pdf](2015/Scientometrics102,%201.pdf)

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Full Text: [2015\Scientometrics102, 5.pdf](2015/Scientometrics102,%205.pdf)

Abstract: Ranking journals is an important exercise in academia. While several approaches to rank journals exist, an inherent assumption of these approaches is that there is indeed a hierarchy of journals, which is captured by the methods used for ranking them. We address a more fundamental question: Is there a linear hierarchy within journals? In this article, we introduce the dominance ranking approach that investigates the extent of hierarchy in a given set of objects by examining the extent of intransitivity in the system of interactions. We test the efficacy of the approach to ranking information systems journals based on citation data spanning a 3 year period from 2009 to 2011. Results indicate that the approach is very effective in identifying the extent of hierarchy within journals, and subsequently in ranking the journals. With its statistical underpinnings, the approach brings greater objectivity to the ranking of journals than prior approaches.

Keywords: Approach, Article, Citation, Citation Network, Data, Dominance Hierarchy, Efficacy, Exercise, From, Information, Information Systems, Is, Is Journals, Journal Ranking, Journals, Linearity, Methods, Perceptions, Procedure, Rank, Ranking, Ranking Journals, Results, Systems

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Full Text: [2015\Scientometrics102, 25.pdf](2015/Scientometrics102,%2025.pdf)

Abstract: Bibliometric studies often measure and compare scholarly performance, but they rarely investigate why universities, departments, and research groups do have different performance. In this paper we try to explain differences in scholarly performance of research groups in terms of organizational variables. In order to do this, we extensively review the relevant literature, and develop a model using two theoretical approaches. A multivariate analysis shows which of the independent variables do play a role in the various scholarly performance dimensions. The study shows what organizational strategies may help in optimizing performance in various dimensions. Implications are discussed.

Keywords: Academic Scientists, Analysis, Bibliometric, Bibliometric Studies, Biomedical, Biomedical Research, European University, Factors, Groups, Literature, Measure, Model, Multivariate, Multivariate Analysis, Networking, Organizational, Performance, Project Performance, Publication Productivity, Research, Research Collaboration, Research Environment, Research Leadership, Research Management, Research Performance, Research Productivity, Research-And-Development, Resource Dependence, Review, Role, Scholarly Performance Indicators, Scientific Productivity, Task Characteristics, Task Group Effectiveness, Theoretical, Universities

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Full Text: [2015\Scientometrics102, 51.pdf](2015/Scientometrics102,%2051.pdf)

Abstract: Technology management (TM) is multidisciplinary in nature. This paper investigates the multidisciplinary characteristics of TM through journal citation network analysis. The TM network composed of ten TM specialty journals and relevant journals of other disciplines is constructed based on their citation relationships. In particular, the relatedness index is employed to capture the citation relationships between journals with consideration of different journal sizes. Scrutinizing the network reveals what disciplines have contributed to TM and to what disciplines TM has contributed. The role of TM journals in exchanging knowledge with other disciplines is also identified by using brokerage analysis. TM is shown to have a high degree of interaction with six disciplines: Business and Management, Marketing, Economics, Planning and Development, Information Science, and Industrial Engineering and Operations Research. It is shown that visualizing and analyzing the TM network can provide an excellent overview of its multidisciplinary structure in terms of knowledge flow. This can help TM researchers easily grasp the historical development and fundamental features of TM.

Keywords: Analysis, Brokerage Analysis, Business, Centrality, Characteristics, Citation, Citation Network, Cocitation Analysis, Communication, Constructed, Development, Disciplines, Economics, Engineering, Field, Flow, Index, Information, Information Science, Intellectual Structure, Interaction, Interdisciplinary, Journal, Journal Citation, Journal Citation Network, Journals, Knowledge, Knowledge Flow, Management, Multidisciplinary, Network, Network Analysis, Overview, Product-Innovation-Management, Research, Researchers, Role, Science, Scientific Journals, Specialty, Structure, Technology, Technology Management, Visualization

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Full Text: [2015\Scientometrics102, 77.pdf](2015/Scientometrics102,%2077.pdf)

Abstract: Patent search is a substantial basis for many operational questions and scientometric evaluations. We consider it as a sequence of distinct stages. The “patent wide search” involves a definition of system boundaries by means of classifications and a keyword search producing a patent set with a high recall level (see Schmitz in Patentinformetrie: Analyse und Verdichtung von technischen Schutzrechtsinformationen, DGI, Frankfurt (Main), 2010 with an overview of searchable patent meta data). In this set of patents a “patent near search” takes place, producing a patent set with high(er) precision. Hence, the question arises how the researcher has to operate within this patent set to efficiently identify patents that contain paraphrased descriptions of the sought inventive elements in contextual information and whether this produces different results compared to a conventional search. We present a semiautomatic iterative method for the identification of such patents, based on semantic similarity. In order to test our method we generate an initial dataset in the course of a patent wide search. This dataset is then analyzed by means of the semiautomatic iterative method as well as by an alternative method emulating the conventional process of keyword refinement. It thus becomes obvious that both methods have their particular “raison d’tre”, and that the semiautomatic iterative method seems to be able to support a conventional patent search very effectively.

Keywords: Alternative, Boundaries, Citation Analysis, Conventional, Course, Data, Definition, Identification, Information, Keyword Search, Meta, Methods, N-Grams, Networks, Overview, Patent, Patent Search, Patents, Precision, Recall, Scientometric, Semantic Search, Similarity, Similarity Measurement, Support, Technology, Text Mining, Trends

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Full Text: [2015\Scientometrics102, 97.pdf](2015/Scientometrics102,%2097.pdf)

Abstract: Research output and impact metrics derived from commercial citation databases such as Web of Science and Scopus have become the de facto indicators of scholarly performance across different disciplines and regions. However, it has been pointed out that the existing metrics are largely inadequate to reflect scholars’ overall peer-mediated performance, especially in the social sciences and humanities (SSH) where publication channels are more diverse. In this paper alternative metrics exploring a variety of formal and informal communication channels were proposed, with the aim of better reflecting SSH scholarship. Data for a group of SSH scholars in Taiwan on these metrics were collected. Principal component analysis revealed four underlying dimensions represented by the 18 metrics. Multiple-regression analyses were then performed to examine how well each of these dimensions predicted the academic standing of the scholars, measured by the number of public grants awarded and prestigious research awards received. Differences in the significance of the predictors were found between the social sciences and humanities. The results suggest the need to consider disciplinary differences when evaluating scholarly performance.

Keywords: Alternative, Altmetrics, Analyses, Analysis, Bibliometric Indicators, Bibliometrics, Citation, Citation Databases, Communication, Data, Databases, Differences, Disciplines, Evaluation Metrics, From, Humanities, Impact, Indicators, Metrics, Multiple Regression, Performance, Predictors, Principal Component Analysis, Public, Publication, Research, Research Evaluation, Research Output, Scholarship, Science, Sciences, Scopus, Significance, Social, Social Sciences, Taiwan, Web, Web Of Science, Webometrics

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Full Text: [2015\Scientometrics102, 113.pdf](2015/Scientometrics102,%20113.pdf)

Abstract: Certain scholarly publications or patent publications may signal breakthroughs in basic scientific research or radical new technological developments. Are there bibliographical indicators that enable an analysis of R&D dynamics to help identify these ‘local revolutions’ in science and technology? The focus of this paper is on early stage identification of potential breakthroughs in science that may evolve into new technology. We analyse bibliographic information for a typical example of such a breakthrough to pinpoint information that has the potential to be used as bibliographic indicator. The typical example used is the landmark research paper by Novoselov et al. (Science 306(5696): 666-669, 2004) concerning graphene. After an initial accumulation of theoretical knowledge about graphene over a period of 50 years this publication of the discovery of a method to produce graphene had an immediate and significant impact on the R&D community; it provides a link between theory, experimental verification, and new technological applications. The publication of this landmark discovery marks a sharp rise in the number of scholarly publications, and not much later an increase in the number of filings for related patent applications. Noticeable within 2 years after publication is an above average influx of researchers and of organisations. Changes in the structure of co-citation term maps point to renewed interest from theoretical physicists. The analysis uncovered criteria that can help in identifying at early stage potential breakthroughs that link science and technology.

Keywords: Accumulation, Analysis, Basic, Bibliographic, Breakthrough, Co-Citation, Cocitation, Community, Criteria, Discovery, Dynamics, Early Stage, Emergence, Experimental, Foresight, From, Graphene, Identification, Impact, Indicator, Indicators, Information, Interface, Knowledge, Landmark, Local, Models, Patent, Patterns, Potential, Publication, Publications, R&D, R&D Dynamics, Research, Researchers, Science, Science and Technology, Science-Technology Interface, Scientific Research, Sharp, Structure, Technology, Term, Theoretical, Theory, Verification, Weak Signals

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Full Text: [2015\Scientometrics102, 135.pdf](2015/Scientometrics102,%20135.pdf)

Abstract: Scholarly publications reify fruitful collaborations between co-authors. A branch of research in the science studies focuses on analyzing the co-authorship networks of established scientists. Such studies tell us about how their collaborations developed through their careers. This paper updates previous work by reporting a transversal and a longitudinal studies spanning the lifelong careers of a cohort of researchers from the DBLP bibliographic database. We mined 3,860 researchers’ publication records to study the evolution patterns of their co-authorships. Two features of co-authors were considered: (1) their expertise, and (2) the history of their partnerships with the sampled researchers. Our findings reveal the ephemeral nature of most collaborations: 70 % of the new co-authors were only one-shot partners since they did not appear to collaborate on any further publications. Overall, researchers consistently extended their co-authorships (1) by steadily enrolling beginning researchers (i.e., people who had never published before), and (2) by increasingly working with confirmed researchers with whom they already collaborated.

Keywords: Academic, Academic Careers, Age, Bibliographic, Careers, Co-Authors, Co-Authorship, Co-Authorship Networks, Coauthorship, Cohort, Cohort Study, Collaborations, Computer Science, Database, Dblp, Evolution, From, History, Impact, Longitudinal, Longitudinal Studies, Longitudinal Study, Networks, Partnership Ability, Partnerships, Patterns, Performance, Publication, Publications, Records, Reporting, Research, Research Careers, Research Collaboration, Research Collaboration, Research Productivity, Researchers, Scholarly Publications, Science, Science Studies, Scientific Collaborations, Scientists, Social Network, Transversal Study, Work

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Full Text: [2015\Scientometrics102, 151.pdf](2015/Scientometrics102,%20151.pdf)

Abstract: The scientific problem of this study is the analysis of the portfolio of outputs by public research labs in the presence of hybrid funding scheme based on public and market-oriented financing mechanisms. Research institutes are considered Decision Making Units, which produce two different kinds of scientific outputs using inputs. We consider some scientific outputs with more international visibility (High Visibility Outputs-HVOs) than others called Low Visibility Outputs (LVOs). We confront this problem by a scientometric approach applying models of the Directional Output Distance Function, which endeavours to measure and analyze the effects of hybrid financing of public research labs in terms of potential loss in high quality scientific outputs, in particular when the share of market-oriented funds is beyond a specific threshold. Results, considering R&D organizations of “hard sciences”, seem to show that a hybrid financing scheme, too market-oriented for supporting operation (and survival) of research labs, tends to affect scientific output portfolio by lowering scientific performances and HVOs. The study here also proposes a preliminary analysis of the optimal level of market financing in relation to total financial resources for a fruitful co-existence of market and public funding scheme to maximize the scientific output (publications) of R&D labs. The findings show main differences across scientific departments and some critical weaknesses points and threats by public research labs for production of scientific outputs.

Keywords: Academic Research, Affect, Analysis, Approach, Decision, Decision Making, Directional Distance Functions, Effects, Efficiency, Financing, Function, Funding, Hybrid, Impact, International, Market, Market Funding, Measure, Mechanisms, Models, National-Research-Council, Operation, Potential, Productivity, Public, Public Research Labs, Publications, Quality, R&D, R&D Organizations, Research, Research Institutes, Research Units, Resources, Results, Scientific Output, Scientific Portfolio, Scientometric, Scientometric Analysis, Strategic Change, Strategic Change, Survival, Technology-Transfer, Threshold, Universities, Visibility

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Full Text: [2015\Scientometrics102, 169.pdf](2015/Scientometrics102,%20169.pdf)

Abstract: International collaboration has become a strategic policy initiative for building scientific competency in different countries. This is driven by increasing realisation that no country possess all the wherewithal to address complexities of scientific research, dedicate huge funding, and confront global challenges. Varied institutional mechanisms have been created by different countries for strategising international collaboration such as signing bilateral agreements, initiating dedicated programs with partner countries in different S&T areas. Some countries have further deepened their relationship by creating bilateral S&T organisations/specialised centres. The role of bilateral organisation in strengthening inter-country research and innovation partnership is not explicitly underscored in collaboration studies. The present study addresses this issue by taking up the case study of a bilateral organisation IFCPAR/CEFIPRA (Indo-French Centre for Promotion of Advanced Research/Centre Franco-Indien pour la Promotion de la Recherche Avanc,e) which was established by India and France in 1987 to support their science and technology partnership. Through this case study the paper draws insight of inter-country collaboration in S&T and show how its dynamics and structural aspects are affected by a bilateral organisation.

Keywords: Bilateral, Bilateral Organisation, Building, Case Study, Cefipra, China, Collaboration, Competency, Country, Dynamics, France, Funding, Global, India, Innovation, International, International Collaboration, Mechanisms, Partner, Policy, Promotion, Research, Role, S&T Collaboration, Science, Science and Technology, Scientific Research, Strategic, Support, Technology

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Full Text: [2015\Scientometrics102, 195.pdf](2015/Scientometrics102,%20195.pdf)

Abstract: The article discusses the scientific output of the three South Caucasus republics: Armenia, Azerbaijan and Georgia (Armenia, Azerbaijan and Georgia are widely referred to as Transcaucasia Republics or South Caucasus Republics). It focuses on the scientific publications of Armenia, Azerbaijan and Georgia indexed in the Web of Science international database. The article first examines the role of the three republics in Soviet science and the scientific papers they produced during the last decade of the Union of Soviet Socialist Republics. The article then studies the scientific situation in Armenia, Azerbaijan and Georgia after the restoration of their independence in 1991, reviewing the three republics’ scientific publications, their citations and their scientific cooperation, as well as other scientific indicators.

Keywords: Analysis, Armenia, Article, Azerbaijan, Bibliometric Analysis, Citations, Comparative, Comparative Analysis, Cooperation, Database, First, Georgia, Indicators, International, Papers, Publications, Restoration, Role, Science, Scientific Cooperation, Scientific Indicators, Scientific Output, Scientific Publications, South Caucasus, Transcaucasia, Web, Web Of Science

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Full Text: [2015\Scientometrics102, 213.pdf](2015/Scientometrics102,%20213.pdf)

Abstract: Many studies have found that co-authored research is more highly cited than single author research. This finding is policy relevant as it indicates that encouraging co-authored research will tend to maximise citation impact. Nevertheless, whilst the citation impact of research increase as the number of authors increases in the sciences, the extent to which this occurs in the social sciences is unknown. In response, this study investigates the average citation level of articles with one to four authors published in 1995, 1998, 2001, 2004 and 2007 in 19 social science disciplines. The results suggest that whilst having at least two authors gives a substantial citation impact advantage in all social science disciplines, additional authors are beneficial in some disciplines but not in others.

Keywords: Articles, Authors, Citation, Citation Analysis, Citation Impact, Co-Authorship, Co-Authorship, Collaboration, Determinants, Disciplines, Highly Cited, Highly-Cited, Impact, Impact Factor, Indicators, International Collaboration, Molecular-Biology, Networks, Policy, Research, Researchers, Response, Science, Science Research, Sciences, Scientific Collaboration, Scientometrics, Social, Social Sciences, University

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Full Text: [2015\Scientometrics102, 227.pdf](2015/Scientometrics102,%20227.pdf)

Abstract: This pioneering approach to the subject area of Information Literacy Assessment in Higher Education (ILAHE) aims at gaining further knowledge about its scope from a terminological-spatial perspective and also at weighting and categorizing relevant terms on the basis of levels of similarity. From a retrospective and selective search, the bibliographic references of scientific literature on ILAHE were obtained from the most representative databases (LISA, ERIC and WOS), comprising the period 2000-2011 and restricting results to English language. Keywords in titles, descriptors and abstracts of the selected items were labelled and extracted with Atlas.ti software. The main research topics in this field were determined through a co-words analysis and graphically represented by the software VOSviewer. The results showed two areas of different density and five clusters that involved the following issues: evaluation-education, assessment, students-efficacy, learning-research, and library. This method has facilitated the identification of the main research topics about ILAHE and their degree of proximity and overlapping.

Keywords: Abstracts, Analysis, Approach, Assessment, Bibliographic, Co-Words Analysis, Databases, Density, Education, English, Field, From, Higher Education, Identification, Information, Information Literacy, Issues, Keywords, Knowledge, Language, Literature, Overlapping, References, Research, Research Topics, Retrospective, Scientific Literature, Scope, Similarity, Software, States, Vosviewer, Weighting, Wos

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Full Text: [2015\Scientometrics102, 247.pdf](2015/Scientometrics102,%20247.pdf)

Abstract: This paper provides a comprehensive comparative analysis of the South East European countries scientific output and impact by Frascati fields of science in the period of 2005-2010. The aim is to determine the volume of scientific output in the mentioned period, level of development of certain scientific fields in selected countries and quality of scientific publication production. SEE countries’ scientific performance is examined on several indicators including total number of country publications per full time equivalent researcher, revealed publication advantage, the h index and top cited articles. Results of the study could be especially significant to the planners and policy-makers because they provide facts important for the long term S&T planning of the country.

Keywords: Analysis, Articles, Country, Development, Frascati, Geography, h Index, h-Index, Impact, Index, Indicators, Long Term, Long-Term, Performance, Planning, Publication, Publications, Qualitative, Quality, Quality Of, Results, Revealed Publication Advantage, Science, Scientific Output, Scientific Performance, Scientific Productivity, Scientific Publication, Scientific Publication Impact, Term, The h Index, Top-Cited, Volume

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Full Text: [2015\Scientometrics102, 267.pdf](2015/Scientometrics102,%20267.pdf)

Abstract: Research dissemination in the Computer Science domain depends heavily on conference publications. The review processes of major conferences is rigorous and the work presented in those venues have more visibility and more citations than many journals, with the advantage of a faster dissemination of ideas. We consider that any evaluation system in the Computer Science domain must take into account conferences as having the same importance as journals. This makes the evaluation of venues an important issue. While journals are usually evaluated through their Impact Factor, there is no widely accepted method for evaluating conferences. In our work we analyzed the possibility of using Machine learning techniques to extend an existing ranking to new conferences, based on a set of measurements that are available for the majority of venues. Our proposal consists on the application of a Machine learning technique-self-organizing maps-with some extensions in order to classify new conferences based on an existing ranking. We also try to estimate the theoretical maximal accuracy that can be obtained using statistical learning techniques.

Keywords: Accuracy, Application, Citations, Computer Science, Conference Ranking, Conferences, Dynamic, Evaluation, Impact, Impact Factor, Journals, Learning, Machine Learning, Publications, Ranking, Research, Review, Science, Self-Organizing Maps, Statistical Learning, Techniques, Theoretical, Visibility, Work

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Full Text: [2015\Scientometrics102, 285.pdf](2015/Scientometrics102,%20285.pdf)

Abstract: In this exploratory study, we analyze co-authorship networks of collaborative cancer research in India. The complete network is constructed from bibliometric data on published scholarly articles indexed in two well-known electronic databases covering two 6-year windows from 2000 to 2005 and 2006 to 2011 inclusive. Employing a number of important metrics pertaining to the underlying topological structures of the network, we discusses implications for effective policies to enhance knowledge generation and sharing in cancer research in the country. With some modifications, our methods can be applied without difficulty to examine policy structure of related disciplines in other countries of the world.

Keywords: Articles, Bibliometric, Bibliometric Data, Cancer, Cancer Research, Co-Authorship, Co-Authorship Networks, Coauthorship, Collaboration, Collaboration Network, Complete, Complex Networks, Constructed, Country, Data, Databases, Disciplines, Evidence, From, Functions, Generation, India, Information, Knowledge, Knowledge-Generation, Methods, Metrics, Network, Network Analysis, Networks, Policies, Policy, Research, Research Collaboration, Scientific Collaboration, Structure, World

? Schubert, A. (2015), X-centage: A Hirsch-inspired indicator for distributions of percentage-valued variables and its use for measuring heterodisciplinarity. *Scientometrics*, **102** (1), 307-332.

Full Text: [2015\Scientometrics102, 307.pdf](2015/Scientometrics102,%20307.pdf)

Abstract: The present paper introduces two independent concepts. X-centage is a statistical indicator characterizing distributions of percentage-valued variables in a vein similar to Hirsch’s h-index. Heterodisciplinarity is a measure of polydisciplinarity using the disciplinary categorization of references and/or citations. The Journal Citation Reports database is used for an empirical study of using the X-centage for measuring reference heterodisciplinarity of science fields.

Keywords: Accounting Research, Categorization, Citation, Citations, Database, h Index, h-Index, H-Type Indices, Heterodisciplinarity, Hirsch’S h-Index, Indicator, Journal, Journal Citation Reports, Journal Quality, Management, Measure, Multidisciplinarity, Perceptions, Ranking, Reference, References, Researchers, Science, X-Centage

? Guan, J.C., Yan, Y. and Zhang, J.J. (2015), How do collaborative features affect scientific output? Evidences from wind power field. *Scientometrics*, **102** (1), 333-355.

Full Text: [2015\Scientometrics102, 333.pdf](2015/Scientometrics102,%20333.pdf)

Abstract: The aim of this study is to examine how scientific collaborative features influence scientific collaboration networks and then affect scientific output. In order to explore the influence of scientific collaboration, we define three collaborative features: inertia, diversity and strength. The data are collected from Scopus and the Web of Science databases. Using technique for order preference by similarity to an ideal solution method, we firstly combine h-index, impact factor and SCImago journal rank to rank journals in the field of wind power. Then we construct the collaboration network of institutions and use structural equation model-partial least square to examine the relationship among collaborative features, network structure, and scientific output. The results show that collaborative diversity and strength have positive effects on scientific output, while collaborative inertia has a negative effect. Both of centrality and structural holes fully account for (mediate) the relationships between collaborative features and outputs. The findings have some important policy implications to scientific collaboration: (1) research institutions should actively participate in diverse collaborations; (2) rather than only collaborating with previous partners, they should seek more new partners; and (3) collaborative features are important antecedents of scientific networks.

Keywords: Affect, Centrality, Co-Authorship Networks, Collaboration, Collaboration Network, Collaboration Networks, Collaborations, Data, Databases, Diversity, Effects, Field, From, h Index, h-Index, Impact, Impact Factor, Index, Inertia, Influence, Innovation, Institutions, Journal, Journals, Negative, Network, Networks, Policy, Power, Preference, Rank, Research, Research Impact, Research Institutions, Research Performance, Science, Scientific Collaboration, Scientific Collaborative Features, Scientific Networks, Scientific Output, Scimago, Scopus, Search Behavior, Sem-Pls, Similarity, Small World, Solution, Strength, Structural Holes, Structure, Topsis, Two-Mode Network, Web, Web Of Science, Web Of Science Databases, Wind Power Field

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Full Text: [2015\Scientometrics102, 357.pdf](2015/Scientometrics102,%20357.pdf)

Abstract: The global number of papers in different areas has increased over the years. Additionally, changes in academic production scenarios, such as the decrease in the relative number of single-authored (SA) papers, have been observed. Thus, the aims of this study are to assess the trend of SA papers in four subareas of biology and also to estimate the year when 0.1 % of papers in these subareas will be SA (considering two adjusted models). The subareas investigated were Ecology, Genetics, Zoology and Botany. Our hypothesis is that all subareas show a decay in the number of SA papers. However, this pattern is more pronounced in subareas that were originally interdisciplinary (Genetics and Ecology) than in disciplinary areas (Zoology and Botany). In fact, SA papers have declined over the years in all subareas of biology, and according to the best model (Akaike Criteria), the first area that will have 0.1 % SA papers is Genetics, followed by Ecology. A partial regression indicates that the decrease in SA papers can be related to the increase in the number of authors and number of citations, suggesting the greater scientific impact of interdisciplinary research. However, other variables (e.g., political, linguistic and behavioral) can contribute to the decrease in SA papers. We lastly conclude that the number of SA papers in all subareas of biology in the coming years might continue decreasing and becoming rare, perhaps even to the point of extinction (to use a very common term in biology). In addition, all subareas of biology have become more interdisciplinary, combining the knowledge of various authors (and perhaps authors from different areas). The consequence of this approach is increasingly collaborative work, which may facilitate the increased success of the group.

Keywords: Approach, Authors, Biological, Biology, Botany, Changes, Citations, Collaboration, Collaborative Work, Combining, Discovery, Ecology, First, From, Genetics, Global, Impact, Interdisciplinary, Interdisciplinary Research, Knowledge, Model, Models, Non-Linear Models, Obsession, Papers, Pattern, Patterns, Quantity, Regression, Research, Scenarios, Science, Scientific Impact, Success, Term, Trend, Work, Zoology

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Full Text: [2015\Scientometrics102, 365.pdf](2015/Scientometrics102,%20365.pdf)

Abstract: With the study on 2,217,047 references of 280,280 source articles in Chinese Social Science Citation Index in year 2006-2008, we discovered the overall aging phenomenon of humanities and social sciences by means of synchronous citation analysis, and compared the aging law of seven disciplines. The results reveal that the aging speed of seven disciplines roughly descend as follows: Management, Economics, Education, Law, Literature, Philosophy, History. This is due to the reasons that the aging speed of humanities is slower than social sciences and the dependence of History and Philosophy on archival literature is the strongest. Moreover, each discipline of humanities and social sciences follows a basic function: half life (H) x Price Index (P) = constant C, C is 2.6 or so. Furthermore, the maximum citation age of humanities and social sciences at this stage is found to be about 3 years.

Keywords: Academic Citation Age, Age, Aging, Analysis, Articles, Basic, China, Chinese, Chinese Social Science Citation Index, Citation, Citation Analysis, Comparative, Cssci, Discipline Obsolescence, Disciplines, Economics, Education, Function, Growth, Half-Life, History, Humanities, Humanities and Social Sciences, Law, Life, Literature, Management, Obsolescence, P, Philosophy, Price, References, Science, Science Citation Index, Sciences, Social, Social Science Citation Index, Social Sciences, Source, Web

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Full Text: [2015\Scientometrics102, 389.pdf](2015/Scientometrics102,%20389.pdf)

Abstract: Rare earth elements (REE) are needed to produce many cutting-edge products, and their depletion is a major concern. In this paper, we identify unique characteristics of REE-related patents granted from 1975 to 2013 in five large patent offices around the world. Through topic detection and clustering of patent text, we found that purification processes related to oxides, nitrogen oxide, and exhaust gas were highlighted in the Korean Intellectual Property Office and Japan Patent Office (JPO). Molecular sieve, dispersion, and preparation methods involving yttrium, cerium, methane, zirconium, and ammonia were prominent in the China Patent and Trademark Office (CPTO) in the areas of performing operation and transporting. Quadratic assignment procedure correlation analysis was performed for IPC co-occurrence among REE patents in different offices, and the United States Patent and Trademark Office showed significantly different patterns than the CPTO and JPO. Furthermore, using betweenness centrality as an indicator of technology transition, the manufacture and treatment of nanostructures, nanotechnology for materials and surface science, and electrodes were identified as important REE technologies to be protected in Korea. In Japan, the technological areas identified as important for protection were the apparatuses and processes of manufacturing or assembling devices, compounds of iron, and materials. Our study results offer insights into national strategies for REE-related technologies in each country.

Keywords: Ammonia, Analysis, Association Rule, Centrality, Cerium, Characteristics, China, Clustering, Correlation, Correlation Analysis, Country, Data, Data Mining, Data-Mining, Detection, Dispersion, Exhaust, From, Indicator, Ipc, Iron, Japan, Korea, Manufacturing, Methods, Mining, Nanostructures, Nanotechnology, Nitrogen, Operation, Oxide, Oxides, Patent, Patent Network Analysis, Patents, Preparation, Procedure, Property, Protection, Purification, Quadratic Assignment Procedure (Qap), Rare Earth, Rare Earth Elements, Science, Surface, Technologies, Technology, Text Mining, Topic, Topic Detection, Treatment, United States, World

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Full Text: [2015\Scientometrics102, 411.pdf](2015/Scientometrics102,%20411.pdf)

Abstract: Null hypothesis statistical significance tests (NHST) are widely used in quantitative research in the empirical sciences including scientometrics. Nevertheless, since their introduction nearly a century ago significance tests have been controversial. Many researchers are not aware of the numerous criticisms raised against NHST. As practiced, NHST has been characterized as a ‘null ritual’ that is overused and too often misapplied and misinterpreted. NHST is in fact a patchwork of two fundamentally different classical statistical testing models, often blended with some wishful quasi-Bayesian interpretations. This is undoubtedly a major reason why NHST is very often misunderstood. But NHST also has intrinsic logical problems and the epistemic range of the information provided by such tests is much more limited than most researchers recognize. In this article we introduce to the scientometric community the theoretical origins of NHST, which is mostly absent from standard statistical textbooks, and we discuss some of the most prevalent problems relating to the practice of NHST and trace these problems back to the mix-up of the two different theoretical origins. Finally, we illustrate some of the misunderstandings with examples from the scientometric literature and bring forward some modest recommendations for a more sound practice in quantitative data analysis.

Keywords: Analysis, Article, Community, Data, Data Analysis, Fallacy, Fisher’S Significance Test, From, Inference, Information, Intrinsic, Literature, Medical Statistics, Models, Neyman-Pearson’S Hypothesis Test, Null Hypothesis Significance Test, P-Values, Practice, Probabilities, Progress, Psychological-Research, Quantitative Research, Recommendations, Research, Research Assessments, Researchers, Sciences, Scientometric, Scientometrics, Significance, Sound, Standard, Statistical Inference, Statistical Significance, Testing, Textbooks, Theoretical

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Full Text: [2015\Scientometrics102, 433.pdf](2015/Scientometrics102,%20433.pdf)

Abstract: The paper investigates interdisciplinarity of scientific fields based on graph of collaboration between the researchers. A new measure for interdisciplinarity is proposed that takes into account graph content and structure. Similarity between science categories is estimated based on text similarity between their descriptions. The proposed new measure is applied in exploratory analysis of research community in Slovenia. We found that Biotechnology and Natural sciences are the most interdisciplinary in their publications and collaborations on research projects. In addition evolution of interdisciplinarity of scientific fields in Slovenia is observed, showing that over the last decade interdisciplinarity increases the fastest in Medical sciences mainly due to collaborations with Natural and Technical sciences.

Keywords: Analysis, Bibliometric Analysis, Biotechnology, Collaboration, Collaborations, Community, Content, Diversity, Evolution, Interdisciplinarity, Interdisciplinary, Measure, Medical, Medical Sciences, Natural Sciences, Network Analysis, Publications, Research, Researchers, Science, Sciences, Scientific Collaboration, Similarity, Slovenia, Structure, Text Similarity, Topical Analysis

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Full Text: [2015\Scientometrics102, 455.pdf](2015/Scientometrics102,%20455.pdf)

Abstract: In recent years, numerous studies have been published which have used bibliometric data to look at collaborations in research. This study presents a proposal with which the topical connections of the institutions of an organization can be investigated through analysis of co-authorships, direct citation links, and co-citations. Based on various bibliometric data sets for an organization whose institutions are used as an example, this study illustrates the possibility of comparing the self-perception of institutions of this organization (co-authorships, direct citation links) with a view to (possible) mutual collaboration with the external perception (co-citations). This comparison is made firstly for the whole organization with the aid of network graphs; secondly, the comparison is presented in a table for a specific institution and its (possible) collaborations in the organization. Particularly the tabular breakdown of the links between the institutions can provide concrete indications of possible further collaboration between the institutions which have not yet manifested themselves in co-authorships.

Keywords: Analysis, Bibliometric, Bibliometric Data, Business, Citation, Co-Authorship Network, Co-Citation Network, Co-Citations, Collaboration, Collaborations, Comparison, Concrete, Data, Direct Citation, Direct Citation Network, Indications, Institutions, Network, Networks, Organization, Perception, Recent, Research, Research Collaboration, Science, Social Network Analysis, Topical

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Full Text: [2015\Scientometrics102, 465.pdf](2015/Scientometrics102,%20465.pdf)

Abstract: Concepts and methods of complex networks have been employed to uncover patterns in a myriad of complex systems. Unfortunately, the relevance and significance of these patterns strongly depends on the reliability of the datasets. In the study of collaboration networks, for instance, unavoidable noise pervading collaborative networks arises when authors share the same name. To address this problem, we derive a hybrid approach based on authors’ collaboration patterns and topological features of collaborative networks. Our results show that the combination of strategies, in most cases, performs better than the traditional approach which disregards topological features. We also show that the main factor accounting for the improvement in the discriminability of homonymous authors is the average shortest path length. Finally, we show that it is possible to predict the weighting associated to each strategy compounding the hybrid system by examining the discrimination obtained from the traditional analysis of collaboration patterns. Because the methodology devised here is generic, our approach is potentially useful to classify many other networked systems governed by complex interactions.

Keywords: Analysis, Approach, Authors, Citation Networks, Collaboration, Collaboration Networks, Collaboration Patterns, Collaborative Networks, Complex Networks, Complex Systems, Compounding, Concepts, Disambiguation, Discrimination, From, Hierarchical Characterization, Hybrid, Hybrid Classification, Improvement, Length, Methodology, Methods, Model, Networks, Noise, Relevance, Reliability, Significance, Strategy, Systems, Weighting

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Full Text: [2015\Scientometrics102, 487.pdf](2015/Scientometrics102,%20487.pdf)

Abstract: Through the bibliometric approach and citation analysis, this study analyzes the disciplines and subjects of literature citing important information science journals during the period from 1998 to 2010. The four information science journals under study include Journal of the American Society for Information Science and Technology, Information Processing and Management, the Journal of Information Science, and the Journal of Documentation. The Ulrich’s Periodical Directory, Library of Congress Subject Headings retrieved from WorldCat and the LISA database were used to identify the main classes, subclasses, and subjects of citing journals. We also indentify and analyze the highly citing journals, the main classes and subclasses of citing journals for the four journals under study as well as highly cited subjects in journals related to library and information science. Overall, the knowledge flow out of the domain of information science mainly includes information science itself, and also science and technology at a lower percentage. Moreover, there are minor outputs for various other subjects. The comparison of knowledge flow into and out of the domain of information science reveals the main knowledge flow is into information science itself. This comparison also reveals significant knowledge flow from computer science to information science.

Keywords: Analysis, Approach, Bibliometric, Bibliometric Study, Citation, Citation Analysis, Citing Journals, Comparison, Computer Science, Database, Disciplines, Documentation, Flow, From, Highly Cited, Highly-Cited, Information, Information Science, Information Science Journal, Journal, Journal Articles, Journals, Knowledge, Knowledge Flow, Knowledge Output, Library, Library and Information Science, Literature, Management, Minor, References, Research Articles, Science, Science and Technology, Science Journals, Subject Analysis, Technology

Notes: CCountry

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Full Text: [2015\Scientometrics102, 503.pdf](2015/Scientometrics102,%20503.pdf)

Abstract: China’s rise in science has been widely acknowledged. Yet we know little empirically about academic research focusing on China. Utilizing a uniquely constructed large-scale dataset, this paper explores China-related publications through bibliometric analysis. Our data suggests that not only interest in China but also knowledge about China has developed rapidly over the years. Despite an increasingly diverse profile of participants, the substantial rise of research focusing on China is largely limited to affluent regions and some geographically proximate neighbors of China. The research discloses that overseas Chinese facilitate academic research focusing on China. The research foci of China-related studies have gradually shifted from social science to natural science and, in more recent years, to Chinese environmental issues, public health and economy.

Keywords: Academic Research, Analysis, Articles, Bibliometric, Bibliometric Analysis, China, China-Related Research, Chinese, Collaboration, Constructed, Data, Economy, Emergence, Environmental, Environmental Issues, From, Health, Issues, Knowledge, Nanotechnology Research, Natural, Public, Public Health, Publications, Recent, Research, Research Profile, Science, Social, Technology

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Full Text: [2015\Scientometrics102, 519.pdf](2015/Scientometrics102,%20519.pdf)

Abstract: This article examines the conceptual evolution of qualitative research in the field of marketing from 1956 to 2011, identifying the main themes and applications for which it has been used and the trends for the future. Science mapping analysis was employed, using co-word networks in a longitudinal framework. Science mapping analysis differs from other tools in that it includes the use of bibliometric indicators. The great number of studies published makes it possible to undertake a conceptual analysis of how qualitative marketing research has evolved. To show the conceptual evolution of qualitative marketing research, four study periods were chosen. The results made it possible to identify eight thematic areas that employ qualitative research in the field of marketing: Consumer behaviour, Supply chain management, Dynamic capabilities, Methodology, Media, Business to business marketing, International Marketing and Customer Satisfaction.

Keywords: Analysis, Article, Behaviour, Bibliometric, Bibliometric Analysis, Bibliometric Analysis, Bibliometric Indicators, Business, Co-Word, Co-Word Analysis, Conceptual Analysis, Consumer Behaviour, Dynamic, Evolution, Field, Framework, From, Grounded Theory, h-Index, Indicators, Intellectual Structure, Interdisciplinary, International, Longitudinal, Management, Mapping, Maps, Marketing, Marketing Research, Media, Methodology, Networks, Qualitative, Qualitative Research, Research, Research Performance, Satisfaction, Science, Science Mapping, Science Mapping Analysis, Similarity Measures, Supply Chain, Supply Chain Management, Trends

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Full Text: [2015\Scientometrics102, 559.pdf](2015/Scientometrics102,%20559.pdf)

Abstract: Doctoral theses are an important source of publication in universities, although little research has been carried out on the publications resulting from theses, on so-called derivative articles. This study investigates how derivative articles can be identified through a text analysis based on the full-text of a set of medical theses and the full-text of articles, with which they shared authorship. The text similarity analysis methodology applied consisted in exploiting the full-text articles according to organization of scientific discourse IMRaD (Introduction, Methodology, Results and Discussion) using the TurnItIn plagiarism tool. The study found that the text similarity rate in the Discussion section can be used to discriminate derivative articles from non-derivative articles. Additional findings were: the first position of the thesis’s author dominated in 85 % of derivative articles, the participation of supervisors as coauthors occurred in 100 % of derivative articles, the authorship credit retained by the thesis’s author was 42 % in derivative articles, the number of coauthors by article was 5 in derivative articles versus 6.4 coauthors, as average, in non-derivative articles and the time differential regarding the year of thesis completion showed that 87.5 % of derivative articles were published before or in the same year of thesis completion.

Keywords: Analysis, Article, Articles, Authorship, Cluster Analysis Methodology, Coauthorship, Collaboration, Derivative Articles, Discourse, Doctoral Theses, First, From, Journals, Medical, Medical Theses, Methodology, Organization, Participation, Phd, Position, Publication, Publications, Research, Results, Similarity, Source, Text Similarity, Theses Supervisors, Thesis, Universities, University

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Full Text: [2015\Scientometrics102, 587.pdf](2015/Scientometrics102,%20587.pdf)

Abstract: Mean-based method may be the most popular linear method for field normalization of citation impact. However, the relatively good but not ideal performance of mean-based method, plus its being a special case of the general scaling method y = kx and the more general affine method y = kx + b, implies that more effective linear methods may exist. Under the idea of making the citation distribution of each field approximate a common reference distribution through the transformation of scaling method and affine method with unknown parameters k and b, we derived the scaling and affine methods under separate unweighted and weighted optimization models for 236 Web of Science subject categories. While the unweighted-optimization-based scaling and affine methods did not show full advantages over mean-based method, the weighted-optimization-based affine method showed a decided advantage over mean-based method along most parts of the distributions. At the same time, the trivial advantage of weighted-optimization-based scaling method over mean-based method indirectly validated the good normalization performance of mean-based method. Based on these results, we conclude that mean-based method is acceptable for general field normalization, but in the face of higher demands on normalization effect, the weighted-optimization-based affine method may be a better choice.

Keywords: Choice, Citation, Citation Distribution, Citation Impact, Distribution, Field, Field Normalization, Field-Normalization, From, General, Impact, Linear Method, Mean-Based Method, Methods, Models, Normalization, Optimization, Optimization-Based Affine Method, Optimization-Based Scaling Method, Performance, Power-Law Distributions, Reference, Relative Indicators, Scaling, Science, The Good, Transformation, Universality, Web, Web Of Science

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Full Text: [2015\Scientometrics102, 609.pdf](2015/Scientometrics102,%20609.pdf)

Abstract: This study characterizes the volume and visibility of Latin American scientific output in the area of Public Health, through a combined analysis of bibliometric, socioeconomic and health indicators of the top 10 Latin American producers of documents. The information was obtained from the SCImago Institutions Rankings (SIR) portal, based on Scopus data, in the category Public Health, Environmental and Occupational Health, of the area Medicine, for the period 2003-2011. Our scientometric analysis involved a set of quantitative indicators (based on document recount), plus performance ones to measure impact and excellence (based on citation recount) and international collaboration. The socioeconomic indicators measured investment in health and in research, and the number of researchers. Basic health indicators were used, along with the inequity indicator known as INIQUIS. The main results reveal that the research systems with the greatest capacity to communicate scientific results are those of Brazil and Mexico, and potentially Colombia and Argentina. The best visibility was demonstrated by Uruguay, Puerto Rico and Peru, countries with high rates of collaboration. No single country stands out as having a perfectly balanced relationship regarding all the dimensions analyzed. A relative balance is achieved by Brazil, Uruguay and Argentina, though with different levels of scientific output. The tangible achievements in health attained by Cuba and Chile do not appear to be related with the results of research published in the area of Public Health. There is clearly a need to find methods that would allow us to evaluate the transfer of research knowledge into practice, by means of the scientometric perspective.

Keywords: Analysis, Argentina, Balance, Bibliometric, Bibliometrics, Brazil, Capacity, Chile, Citation, Collaboration, Colombia, Countries, Country, Cuba, Data, Documents, Environmental, Excellence, From, Health, Health Indicators, Impact, Indicator, Indicators, Information, Institutions, International, International Collaboration, Knowledge, Latin America, Latin-American, Measure, Medicine, Methods, Mexico, Model, Occupational Health, Performance, Peru, Practice, Public Health, Rankings, Rates, Research, Research Evaluation, Researchers, Science, Scientific Output, Scientometric, Scientometric Analysis, Scimago, Scopus, Socioeconomic Indicators, Systems, Uruguay, Visibility, Volume, World

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Full Text: [2015\Scientometrics102, 629.pdf](2015/Scientometrics102,%20629.pdf)

Abstract: The recently developed Cooperative Patent Classifications of the U.S. Patent and Trade Office (USPTO) and the European Patent Office (EPO) provide new options for an informed delineation of samples in both USPTO data and the Worldwide Patent Statistical Database (PatStat) of EPO. Among the “technologies for the mitigation of climate change” (class Y02), we zoom in on nine material technologies for photovoltaic cells; and focus on one of them (CuInSe2) as a lead case. Two recently developed techniques for making patent maps with interactive overlays-geographical ones using Google Maps and maps based on citation relations among International Patent Classifications (IPC)-are elaborated into dynamic versions that allow for online animations and comparisons by using split screens. Various forms of animation are discussed. The longitudinal development of Rao-Stirling diversity in the IPC-based maps provided us with a heuristics for studying technological diversity in terms of generations of the technology. The longitudinal patterns are clear in USPTO data more than in PatStat data because PatStat aggregates patent information from countries in different stages of technological development, whereas one can expect USPTO patents to be competitive at the technological edge.

Keywords: Aggregates, Citation, Cities, Classification, Climate, Competitive, Data, Database, Development, Diversity, Dynamic, Dynamics, Epo, Excellence, Exploration, Forms, From, Generations, Google, Google Maps, Heuristics, Indicator, Information, Innovation, Instruments, International, Inventive Activity, Lead, Longitudinal, Longitudinal Patterns, Map, Mitigation, Online, Options, Patent, Patent Information, Patents, Photovoltaic, Photovoltaics, Relations, Research-And-Development, Science, Solar-Cell, Techniques, Technologies, Technology, Trade, Trajectory, Uspto

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Full Text: [2015\Scientometrics102, 653.pdf](2015/Scientometrics102,%20653.pdf)

Abstract: As enterprises expand and post increasing information about their business activities on their websites, website data promises to be a valuable source for investigating innovation. This article examines the practicalities and effectiveness of web mining as a research method for innovation studies. We use web mining to explore the R&D activities of 296 UK-based green goods small and mid-size enterprises. We find that website data offers additional insights when compared with other traditional unobtrusive research methods, such as patent and publication analysis. We examine the strengths and limitations of enterprise innovation web mining in terms of a wide range of data quality dimensions, including accuracy, completeness, currency, quantity, flexibility and accessibility. We observe that far more companies in our sample report undertaking R&D activities on their web sites than would be suggested by looking only at conventional data sources. While traditional methods offer information about the early phases of R&D and invention through publications and patents, web mining offers insights that are more downstream in the innovation process. Handling website data is not as easy as alternative data sources, and care needs to be taken in executing search strategies. Website information is also self-reported and companies may vary in their motivations for posting (or not posting) information about their activities on websites. Nonetheless, we find that web mining is a significant and useful complement to current methods, as well as offering novel insights not easily obtained from other unobtrusive sources.

Keywords: Accuracy, Alternative, Analysis, Article, Business, Care, Conventional, Data, Data Quality, Effectiveness, Enterprises, Flexibility, From, Industry, Information, Innovation, Methods, Mining, Nanotechnology, Needs, Patent, Patents, Publication, Publication Analysis, Publications, Quality, R&D, Research, Research Method, Research Methods, Search Strategies, Small, Source, Sources, Strategies, Triple-Helix, Web, Web Mining, Web Scraping, Websites

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Full Text: [2015\Scientometrics102, 673.pdf](2015/Scientometrics102,%20673.pdf)

Abstract: Increased specialization and extensive collaboration are common behaviours in the scientific community, as well as the evaluation of scientific research based on bibliometric indicators. This paper aims to analyse the effect of collaboration (co-authorship) on the scientific output of Italian economists. We use social network analysis to investigate the structure of co-authorship, and econometric analysis to explain the productivity of individual Italian economists, in terms of ‘attributional’ variables (such as age, gender, academic position, tenure, scientific sub-discipline, geographical location), ‘relational’ variables (such as propensity to cooperate and the stability of cooperation patterns) and ‘positional’ variables (such as betweenness and closeness centrality indexes and clustering coefficients).

Keywords: Affect, Age, Analysis, Bibliometric, Bibliometric Indicators, Centrality, Clustering, Co-Authorship, Coauthorship, Collaboration, Community, Complex Networks, Cooperation, Creativity, Determinants, Evaluation, Gender, Indicators, Italian Economists, Journals, Location, Network, Network Analysis, Patterns, Position, Productivity, Quality, Research, Scientific Community, Scientific Output, Scientific Productivity, Scientific Research, Small World, Social, Social Network, Social Network Analysis, Stability, Strength, Structure, Success, Tenure

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Full Text: [2015\Scientometrics102, 701.pdf](2015/Scientometrics102,%20701.pdf)

Abstract: This study investigates whether scientific publications can give plausible suggestions about whether R&D support infrastructures in the UK successfully foster scientific activity and cooperation. For this, research publications associated with UK SPs were identified from Scopus for the years 1975-2010 and analysed by region, infrastructure type and organisation type. There was apparently a systematic intensification of R&D from the 90s as evidenced by the publications of on-park firms and research institutions. Science Parks and Research Parks were the most successful infrastructures in fostering cooperation and research production, in comparison to Science and Innovation centres, Technology parks, Incubators and other parks, and HEIs were the major off-park partners for the on-park businesses. The East of England, the South East, and Scotland concentrate the highest proportion of parks, each of these three major geographical agglomerations exhibit distinct areas of scientific specialisation. Parks seem to have a positive impact on the overall level of collaboration and production of science and technology, which are highly concentrated in competitive regions. Nevertheless, industry-academia collaborations show that on-park firms tend to collaborate with partners beyond their local region rather than the local HEI. Support infrastructures may therefore not help to reduce the uneven development and geographic distribution of research-intensive industries in the UK.

Keywords: Academic-Industry Links, Activity, Agglomerations, Analysis, Bibliometric Study, Biotechnology Clusters, Collaboration, Collaborations, Commercialization, Comparison, Competitive, Concentrate, Cooperation, Development, Distribution, England, Firms, From, Geographic Distribution, Impact, Incubator, Incubators, Infrastructure, Innovation, Institutions, Intensification, Local, New Technology Based-Firms, Organization, Productivity, Publications, R&D, Region, Regional Clusters, Regional Innovation System, Research, Research and Technology Parks, Research Institutions, Research-And-Development, Science, Science and Technology, Scientific Publications, Scientometric, Scientometric Analysis, Scopus, Support, Systematic, Technology, UK, University, University-Industry Collaboration

? Harzing, A.W. and Mijnhardt, W. (2015), Proof over promise: towards a more inclusive ranking of Dutch academics in Economics & Business. *Scientometrics*, **102** (1), 727-749.

Full Text: [2015\Scientometrics102, 727.pdf](2015/Scientometrics102,%20727.pdf)

Abstract: The Dutch Economics top-40, based on publications in ISI listed journals, is-to the best of our knowledge-the oldest ranking of individual academics in Economics and is well accepted in the Dutch academic community. However, this ranking is based on publication volume, rather than on the actual impact of the publications in question. This paper therefore uses two relatively new metrics, the citations per author per year (CAY) metric and the individual annual h-index (hIa) to provide two alternative, citation-based, rankings of Dutch academics in Economics & Business. As a data source, we use Google Scholar instead of ISI to provide a more comprehensive measure of impact, including citations to and from publications in non-ISI listed journals, books, working and conference papers. The resulting rankings are shown to be substantially different from the original ranking based on publications. Just like other research metrics, the CAY or hIa-index should never be used as the sole criterion to evaluate academics. However, we do argue that the hIa-index and the related CAY metric provide an important additional perspective over and above a ranking based on publications in high impact journals alone. Citation-based rankings are also shown to inject a higher level of diversity in terms of age, gender, discipline and academic affiliation and thus appear to be more inclusive of a wider range of scholarship.

Keywords: Academics, Affiliation, Age, Alternative, Articles, Business, Citations, Citations, Community, Conference Papers, Data, Departments, Diversity, Dutch, Economics, From, Gender, Google, Google Scholar, Google Scholar, h Index, h-Index, Impact, Isi, Journals, Measure, Metrics, Papers, Publication, Publications, Quality, Ranking, Rankings, Research, Scholarship, Source, Trends, Us, Volume

? Harzing, A.W. and Mijnhardt, W. (2015), Proof over promise: Towards a more inclusive ranking of Dutch academics in Economics & Business (vol 102, pg 727, 2015). *Scientometrics*, **102** (1), 751-787

Full Text: [2015\Scientometrics102, 751.pdf](2015/Scientometrics102,%20751.pdf)

Keywords: Academics, Business, Count Data, Dutch, Economics, Empirical-Assessment, Impact, Nanotechnology, Patent Data, Poisson-Regression, Quality, Ranking, Science, Scientific Publications, Young Scientists

? Tahmooresnejad, L., Beaudry, C. and Schiffauerova, A. (2015), The role of public funding in nanotechnology scientific production: Where Canada stands in comparison to the United States. *Scientometrics*, **102** (1), 753-787.

Full Text: [2015\Scientometrics102, 753.pdf](2015/Scientometrics102,%20753.pdf)

Abstract: This paper presents cross-country comparisons between Canada and the United States in terms of the impact of public grants and scientific collaborations on subsequent nanotechnology-related publications. In this study we present the varying involvement of academic researchers and government funding to capture the influence of funded research in order to help government agencies evaluate their efficiency in financing nanotechnology research. We analyze the measures of quantity and quality of research output using time-related econometric models and compare the results between nanotechnology scientists in Canada and the United States. The results reveal that both research grants and the position of researchers in co-publication networks have a positive influence on scientific output. Our findings demonstrate that research funding yields a significantly positive linear impact in Canada and a positive non-linear impact in the United States on the number of papers and in terms of the number of citations we observe a positive impact only in the US. Our research shows that the position of scientists in past scientific networks plays an important role in the quantity and quality of papers published by nanotechnology scientists.

Keywords: Canada, Citations, Collaboration, Collaborations, Comparison, Efficiency, Fields, Financing, Funding, Government Funding, Impact, Influence, Measures, Models, Nanotechnology, Nanotechnology Research, Network Analysis, Networks, Nonlinear, Papers, Performance, Position, Public, Publications, Quality, Quality Of, Quality Of Papers, Quality Of Research, Research, Research Funding, Research Output, Researchers, Role, Scientific Networks, Scientific Output, Scientific Papers, Scientific Production, Scientists, Selection, United States, Us

? Chinchilla-Rodriguez, Z., Miguel, S. and de Moya-Anegon, F. (2015), What factors affect the visibility of Argentinean publications in humanities and social sciences in Scopus? Some evidence beyond the geographic realm of research. *Scientometrics*, **102** (1), 789-810.

Full Text: [2015\Scientometrics102, 789.pdf](2015/Scientometrics102,%20789.pdf)

Abstract: ArgentinaA ‘ s patterns of publication in the humanities and social sciences were studied for the period 2003-2012, using the Scopus database and distinguishing the geographic realm of the research. The results indicate that “topics of national scope” have grown and gained international visibility. They can be broadly characterized as having Spanish as the language of publication, and a marked preference for single authorship; in contrast, the publication of “global topics”, not geographically limited, characteristically have English as the language of divulgation, and institutional collaboration is stronger and more consolidated. Citation is apparently not determined only by the geographic realm of research, but also by language of publication, co-authorship, and the profiles of the journals where published. These results could contribute to constructive reflection upon publishing policy. The existence of a community of journals that tolerates biased patterns may make researchers echo and perpetuate poor practices, constructing or adapting the channels of communication. Such results also prove useful as a point of reference when evaluation criteria are elaborated by scientific committees, as unsupervised promotion and evaluation patterns could become based on local or overly subjective precepts, disregarding the disciplinary practices of the international scientific community.

Keywords: Affect, Argentina, Authorship, Bibliometrics, Citation, Citation Counts, Co-Authorship, Coauthorship, Collaboration, Communication, Community, Coverage, Criteria, Database, English, Evaluation, Evaluation Criteria, Evidence, Factors, Growth, Humanities, International, International Scientific Collaboration, Journals, Journals, Language, Language Of Publication, Latin-America, Local, Patterns, Performance, Policy, Practices, Preference, Profiles, Promotion, Publication, Publication Patterns, Publications, Publishing, Reference, Reflection, Research, Researchers, Sciences, Scientific Collaboration, Scientific Community, Scopus, Scopus Database, Social, Social Sciences, Topics Of Global Scope, Topics Of National Scope, Visibility

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Full Text: [2015\Scientometrics102, 811.pdf](2015/Scientometrics102,%20811.pdf)

Abstract: As a basic knowledge resource, patents play an important role in identifying technology development trends and opportunities, especially for emerging technologies. However patent mining is restricted and even incomplete, because of the obscure descriptions provided in patent text. In this paper, we conduct an empirical study to try out alternative methods with Derwent Innovation Index data. Our case study focuses on nano-enabled drug delivery (NEDD) which is a very active emerging biomedical technology, encompassing several distinct technology spaces. We explore different ways to enhance topical intelligence from patent compilations. We further analyze extracted topical terms to identify potential innovation pathways and technology opportunities in NEDD. As a basic knowledge resource, patents play an important role in identifying technology development trends and opportunities, especially for emerging technologies. However patent mining is restricted and even incomplete, because of the obscure descriptions provided in patent text. In this paper, we conduct an empirical study to try out alternative methods with Derwent Innovation Index data. Our case study focuses on nano-enabled drug delivery (NEDD) which is a very active emerging biomedical technology, encompassing several distinct technology spaces. We explore different ways to enhance topical intelligence from patent compilations. We further analyze extracted topical terms to identify potential innovation pathways and technology opportunities in NEDD.

Keywords: Active, Alternative, Basic, Biomedical, Case Study, Data, Delivery, Development, Development Trends, Drug, Drug Delivery, Drug-Delivery, Emerging Technologies, From, Information, Innovation, Intelligence, Knowledge, Methods, Mining, Morphology Analysis, Nano-Enabled Drug Delivery, Patent, Patent Analysis, Patents, Pathways, Potential, Role, Tech Mining, Technologies, Technology, Technology Opportunities Analysis, Technology Pathways, Text Mining, Topical, Trends, Visualization

? Orduna-Malea, E. and Lopez-Cozar, E.D. (2015), The dark side of open access in Google and Google Scholar: The case of Latin-American repositories. *Scientometrics*, **102** (1), 829-846.

Full Text: [2015\Scientometrics102, 829.pdf](2015/Scientometrics102,%20829.pdf)

Abstract: Since repositories are a key tool in making scholarly knowledge open access (OA), determining their web presence and visibility on the Web (both are proxies of web impact) is essential, particularly in Google (search engine par excellence) and Google Scholar (a tool increasingly used by researchers to search for academic information). The few studies conducted so far have been limited to very specific geographic areas (USA), which makes it necessary to find out what is happening in other regions that are not part of mainstream academia, and where repositories play a decisive role in the visibility of scholarly production. The main objective of this study is to ascertain the web presence and visibility of Latin American repositories in Google and Google Scholar through the application of page count and web mention indicators respectively. For a sample of 137 repositories, the results indicate that the indexing ratio is low in Google, and virtually nonexistent in Google Scholar; they also indicate a complete lack of correspondence between the repository records and the data produced by these two search tools. These results are mainly attributable to limitations arising from the use of description schemas that are incompatible with Google Scholar (repository design) and the reliability of web mention indicators (search engines). We conclude that neither Google nor Google Scholar accurately represent the actual size of OA content published by Latin American repositories; this may indicate a non-indexed, hidden side to OA, which could be limiting the dissemination and consumption of OA scholarly literature.

Keywords: Access, Application, Communication, Complete, Consumption, Content, Data, Design, Engine, Excellence, From, Google, Google Scholar, Impact, Indexing, Indicators, Information, Institutional Repositories, Knowledge, Latin America, Latin-American, Libraries, Literature, Media, Open, Open Access, Records, Reliability, Repositories, Researchers, Role, Scholarly Production, Search Engine, Search Tools, Size, USA, Visibility, Web, Web Indicators, Web Visibility, Webometrics

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Full Text: [2015\Scientometrics102, 847.pdf](2015/Scientometrics102,%20847.pdf)

Abstract: Nobel laureates have achieved the highest recognition in academia, reaching the boundaries of human knowledge and understanding. Owing to past research, we have a good understanding of the career patterns behind their performance. Yet, we have only limited understanding of the factors driving their recognition with respect to major institutionalized scientific honours. We therefore look at the award life cycle achievements of the 1901-2000 Nobel laureates in physics, chemistry, and physiology or medicine. The results show that Nobelists with a theoretical orientation achieved more awards than laureates with an empirical orientation. Moreover, it seems their educational background shapes their future recognition. Researchers educated in Great Britain and the US tend to attract more awards than other Nobelists, although there are career pattern differences. Among those, laureates educated at Cambridge or Harvard are more successful in Chemistry, those from Columbia and Cambridge excel in Physics, while Columbia educated laureates dominate in Physiology or Medicine.

Keywords: Age, Awards, Boundaries, Britain, Chemistry, Creativity, Driving, Economics, Educational Background, Empirics, Factors, From, Human, Investigation, Knowledge, Life, Life Cycle, Medicine, Nobel Laureates, Nobel Prize, Pattern, Patterns, Performance, Physics, Physiology, Physiology Or Medicine, Prize, Recognition, Research, Researchers, Science, Scientists, Success, Theoretical, Theory, Understanding, US

? Bentley, P.J. (2015), Cross-country differences in publishing productivity of academics in research universities. *Scientometrics*, **102** (1), 865-883.

Full Text: [2015\Scientometrics102, 865.pdf](2015/Scientometrics102,%20865.pdf)

Abstract: The main bibliometric databases indicate large differences in country-level scientific publishing productivity, with high growth in many East Asian countries. However, it is difficult to translate country-level publishing productivity to individual-level productivity due to cross-country differences in the size and composition of the research workforce, as well as limited coverage of publications in the social sciences and humanities. Alternative data sources, such as individual-level self-reported publication data, may capture a wider range of publication channels but potentially include non-peer reviewed output and research re-published in different languages. Using individual-level academic survey data across 11 countries, this study finds large differences across countries in individual-level publishing productivity. However, when fractionalised for English-language and peer-reviewed publications, cross-country differences are relatively smaller. This suggests that publishing productivity in certain countries is inflated by a tendency to publish in non-peer reviewed outlets. Academics in large, non-English speaking countries also potentially benefit from a wider range of domestic publication channels. Demographic, motivational and institutional characteristics associated with high individual-level publishing productivity account for part of the publishing productivity differences within and between counties in English-language and peer-reviewed publishing productivity, but not in total publishing productivity where such workforce characteristics only account for within-country differences.

Keywords: Academics, Asian, Bibliometric, Characteristics, Comparative Perspective, Composition, Coverage, Cross-Country, Data, Databases, Double-Publishing, English-Language Publishing, Faculty, From, Gender-Differences, Growth, Humanities, Languages, Peer-Review, Peer-Reviewed, Peer-Reviewed Publications, Productivity, Publication, Publication Productivity, Publication Productivity, Publications, Publishing, Research, Research Collaboration, Science, Sciences, Scientific Productivity, Scientific Publishing, Sex-Differences, Size, Social, Social Sciences, Sources, Staff, Survey, Universities, Work

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Full Text: [2015\Scientometrics102, 885.pdf](2015/Scientometrics102,%20885.pdf)

Abstract: This paper presents a comparative impact analysis on collaborative research in Malaysia. All analyses were conducted using ISI-indexed journal articles published in the 10-year period spanning the years 2000-2009. The publication growth and distribution of domestic versus international Malaysian-addressed collaborative articles was examined. Then, a three-pronged approach was used to compare the research performance between international and domestic research for the top ten high-productivity subject categories. Firstly, the potentiality of collaborative research impact is determined using the Mann-Whitney-Wilcoxon and Bootstrap Kolmogorov-Smirnov tests. Then, the Hirsch and Egghe indices were computed for each subject category to estimate the distance needed to bridge the gap between international and domestic research. Lastly, the composition of researchers was measured using the internationality index. We discuss how the findings of our methodology help advise collaborative research strategies that will contribute to better research performance in the leading scientific categories.

Keywords: Analyses, Analysis, Approach, Articles, Bibliometric Indicators, Bridge, Case Study, Citation Analysis, Collaborations, Collaborative Research, Composition, Distribution, Growth, Hirsch, Impact, Impact Analysis, Index, Indices, Individuals, Information, International, Internationality, Journal, Journal Articles, Malaysia, Methodology, Network Structure, Performance, Productivity, Publication, Research, Research Collaboration, Research Impact, Research Performance, Researchers, Science, Scientific Co-Authorship, Scientific Output, Self-Organization

? Song, M., Heo, G.E. and Lee, D. (2015), Identifying the landscape of Alzheimer’s disease research with network and content analysis. *Scientometrics*, **102** (1), 905-927.

Full Text: [2015\Scientometrics102, 905.pdf](2015/Scientometrics102,%20905.pdf)

Abstract: Alzheimer’s disease (AD) is one of degenerative brain diseases, whose cause is hard to be diagnosed accurately. As the number of AD patients has increased, researchers have strived to understand the disease and develop its treatment, such as medical experiments and literature analysis. In the area of literature analysis, several traditional studies analyzed the literature at the macro level like author, journal, and institution. However, analysis of the literature both at the macro level and micro level will allow for better recognizing the AD research field. Therefore, in this study we adopt a more comprehensive approach to analyze the AD literature, which consists of productivity analysis (year, journal/proceeding, author, and Medical Subject Heading terms), network analysis (co-occurrence frequency, centrality, and community) and content analysis. To this end, we collect metadata of 96,081 articles retrieved from PubMed. We specifically perform the concept graph-based network analysis applying the five centrality measures after mapping the semantic relationship between the UMLS concepts from the AD literature. We also analyze the time-series topical trend using the Dirichlet multinomial regression topic modeling technique. The results indicate that the year 2013 is the most productive year and Journal of Alzheimer’s Disease the most productive journal. In discovery of the core biological entities and their relationships resided in the AD related PubMed literature, the relationship with glycogen storage disease is founded most frequently mentioned. In addition, we analyze 16 main topics of the AD literature and find a noticeable increasing trend in the topic of transgenic mouse.

Keywords: Ad, Alzheimer’S, Alzheimer’S Disease, Alzheimer’S Disease (Ad), Analysis, Approach, Articles, Bibliometric Analysis, Bibliometrics, Biological, Brain, Centrality, Community, Concept, Concept Graph, Content, Content Analysis, Decline, Dementia, Discovery, Disease, Diseases, Document Representation, Experiments, Extraction, Field, From, Impact, Journal, Landscape, Literature, Literature Analysis, Mapping, Measures, Medical, Medical Experiments, Men, Modeling, Mouse, Network, Network Analysis, Patients, Productivity, Pubmed, Regression, Research, Researchers, Risk, Storage, Text, Time Series, Topic, Topic Modeling, Topical, Treatment, Trend, Uml, Women

? Ravikumar, S., Agrahari, A. and Singh, S.N. (2015), Mapping the intellectual structure of scientometrics: A co-word analysis of the journal Scientometrics (2005-2010). *Scientometrics*, **102** (1), 929-955.

Full Text: [2015\Scientometrics102, 929.pdf](2015/Scientometrics102,%20929.pdf)

Abstract: 959 full text articles has been studied to explore the intellectual structure of scientometrics in the period 2005-2010 using text mining and co-word analysis. The trends and patterns of scientometrics in the journal Scientometrics were revealed by measuring the association strength of selected keywords which represent the produced concept and idea in the field of scientometrics. All articles were collected from the journal Scientometrics through Springerlink (full text database) and keywords were added non-parametrically from the LISA database and the articles themselves (keywords provided by author). Other important keywords are extracted from the title and abstract of the article manually. These keywords are standardized using a vocabulary tool. With the objective of delineating dynamic changes of the field of scientometrics, the period 2005-2010 was studied and further divided into two consecutive periods: 2005-2007 and 2008-2010. The results show that publication has some well-established topics which are changing gradually to adopt new themes.

Keywords: Acidification, Analysis, Article, Articles, Association, Bibliometric Cartography, Changes, Co-Word, Co-Word Analysis, Cocitation, Concept, Database, Dynamic, Field, From, Information, Intellectual Structure, Journal, Knowledge Management, Mapping, Mining, Neural-Network Research, Publication, Research Trend, Science, Scientometrics, Strength, Structure, Technology, Text Mining, Text-Mining, Trends

? Gupta, B.M., Ahmed, K.K.M., Gupta, R. and Tiwari, R. (2015), World camel research: A scientometric assessment, 2003-2012. *Scientometrics*, **102** (1), 957-975.

Full Text: [2015\Scientometrics102, 957.pdf](2015/Scientometrics102,%20957.pdf)

Abstract: An analysis of 3,089 papers on global camel research during 2003-2012, as indexed in Scopus international multidisciplinary database indicate an average annual growth rate of 11.20% and registered an average citation per paper of 2.24. The publication output was scattered in 257 journal titles and originated in 104 countries, of which the top 15 countries contributed 87.44% share to global publication output during 2003-2012. The highest publication output came from USA, followed by India, Saudi Arabia, Iran, Egypt, United Arab Republic, United Kingdom, France, China, Germany, Sudan, Belgium, Australia, Canada and Kenya. The publication share has increased in case of Iran, Saudi Arabia, Egypt, China, France, Sudan, India, Australia and Canada, as against decrease in UK, USA, Kenya, Belgium, Germany and UAE from 2003-2007 to 2008-2012. Eight out of 15 most productive countries have achieved high relative citation index (1 and above): Belgium (3.61), Australia (2.69), UK (2.38), Canada (2.33), France (2.07), USA (1.87), Germany (1.65), UAE (1.11) and Kenya (1.09) during 2003-2012. Agricultural and biological sciences (43.35% share) contributed the largest share, followed by veterinary science (29.75% share), medicine (17.74% share), immunology and microbiology (13.99% share), biochemistry, genetics and molecular biology (13.99% share), environment science (5.08% share) and pharmacology, toxicology and pharmaceutics (3.11% share) during 2003-2012. Among narrow sub-fields, the focused areas were camel disease and infection, camel milk and dairy produce, camel non-milk products, camel reproduction, camel feed and diet camel physiology, camel genetics, camel parasitology, etc. The world camel research output originated from 311 organizations, of which the top 20 contributed 31.72% global publication share during 2003-2012.

Keywords: Analysis, Assessment, Australia, Belgium, Biochemistry, Biological, Biological Sciences, Biology, Camel Research, Canada, China, Citation, Citation Index, Dairy, Database, Diet, Disease, Egypt, Environment, Environment Science, Feed, France, From, Genetics, Germany, Global, Growth, Growth Rate, Index, India, Infection, International, Iran, Journal, Kenya, Medicine, Microbiology, Milk, Molecular Biology, Multidisciplinary, Papers, Parasitology, Pharmacology, Physiology, Publication, Publication Output, Reproduction, Research, Research Output, Saudi Arabia, Science, Sciences, Scientometric, Scientometrics, Scopus, Toxicology, UK, United Kingdom, USA, Veterinary, World

? Cerinsek, M. and Batagelj, V. (2015), Network analysis of Zentralblatt MATH data. *Scientometrics*, **102** (1), 977-1001.

Full Text: [2015\Scientometrics102, 977.pdf](2015/Scientometrics102,%20977.pdf)

Abstract: We analyze the data about works (papers, books) from the time period 1990-2010 that are collected in Zentralblatt MATH database. The data were converted into four 2-mode networks (works x authors, works x journals, works x keywords and works x mathematical subject classifications) and into a partition of works by publication year. The networks were analyzed using Pajek-a program for analysis and visualization of large networks. We explore the distributions of some properties of works and the collaborations among mathematicians. We also take a closer look at the characteristics of the field of graph theory as were realized with the publications.

Keywords: Analysis, Authors, Bibliographic Networks, Characteristics, Collaboration, Collaboration, Collaborations, Data, Database, Field, From, Graph Theory, Journals, Large Network, Network, Network Analysis, Networks, Papers, Properties, Publication, Publications, Theory, Time Period, Two-Mode Network, Visualization

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Full Text: [2015\Scientometrics102, 1003.pdf](2015/Scientometrics102,%201003.pdf)

Abstract: Community structure is one of the important properties of social networks in general and in particular the citation networks in the field of scientometrics. A majority of existing methods are not proper for detecting communities in a directed network, and thus hinders their applications in the citation networks. In this paper, we provide a novel method which not only overcomes the above mentioned disability, but also has a relative low algorithm time complexity which facilitates the application in large scale networks. We use the concept of Shannon entropy to measure a network’s information and then consider the process of detecting communities as a process of information loss. Based on this idea, we develop an optimal model to depict the process of detecting communities and further introduce the principle of dynamic programming to solve the model. A simulation test is also designed to examine the model’s accuracy in discovering the community structure and identifying the optimal community number. Finally, we apply our method in a citation network from the journal Scientometrics and then provide several insights on promising research topics through the detected communities by our method.

Keywords: Accuracy, Algorithm, Application, Citation, Citation Network, Citation Networks, Cocitation Clusters, Collaboration Networks, Community, Community Detection, Community Structure, Complex Networks, Complexity, Concept, Disability, Diversity, Dynamic, Dynamic Programming, Entropy, Field, From, General, Information, Information Loss, Journal, Large-Scale Structure, Measure, Methods, Model, Modularity, Network, Networks, Perspective, Programming, Properties, Research, Scale, Science, Scientometrics, Shannon Entropy, Simulation, Social, Social Network, Social Networks, Structure

? Rubem, A.P.D., de Moura, A.L. and de Mello, J.C.C.B. (2015), Comparative analysis of some individual bibliometric indices when applied to groups of researchers. *Scientometrics*, **102** (1), 1019-1035.

Full Text: [2015\Scientometrics102, 1019.pdf](2015/Scientometrics102,%201019.pdf)

Abstract: The h-index is a widely used bibliometric indicator for assessing individual scientists or other units of analysis. When evaluating aggregated authors, the h-index may produce rankings that are not consistent with the individual ones. The problem is claimed to affect all h-type indices; while the highly cited publications indicator, which comes from a different class, represents an alternative that is immune to such issue. The main objective of this work is to perform a comparative analysis of some bibliometric indicators originally designed to measure the overall impact of individual scientific production, when applied to the evaluation of groups, to investigate the consistency between the rankings at different levels of aggregation. For that, we use part of a previously reported citation database. The results indicate that, although the consistency at distinct aggregative levels is not formally complied by the h-index and all its variants, it is met with reasonable frequency.

Keywords: Affect, Aggregation, Alternative, Analysis, Assessing, Authors, Bibliometric, Bibliometric Indicator, Bibliometric Indicators, Citation, Citations, Cited Papers, Comparative, Comparative Analysis, Consistency, Database, Egghes G-Index, Evaluation, From, Groups, h Index, h-Index, H-Type Indices, Highly Cited, Highly Cited Publications Indicator, Highly-Cited, Hirsch-Index, Immune, Impact, Impact Measures, Indicator, Indicators, Indices, Measure, Publications, Rankings, Researchers, Scientific Performance, Scientific Production, Scientific-Research Output, Scientists, Successive h-Indexes, The h Index, Variants, Work

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Full Text: [2015\Scientometrics102, 1037.pdf](2015/Scientometrics102,%201037.pdf)

Abstract: Digitization, the Internet, and information or webometric interdisciplinary approaches are affecting the fields of Scientometrics and Library and Information Science. These new approaches can be used to improve citation-only procedures to estimate the quality and impact of research. A European pilot to explore this potential was called “European Educational Research Quality Indicators” (EERQI, FP7 # 217549). An interdisciplinary consortium was involved from 2008 to 2011. Different types of indicators were developed to score 171 educational research documents. Extrinsic bibliometric and citation indicators were collected from the Internet for each document; intrinsic indicators reflecting content-based quality were developed and relevant data gathered by peer review. Exploratory and confirmatory factor analysis and structural modeling were used to explore statistical relationships among latent factors or concepts and their indicators. Three intrinsic and two extrinsic latent factors were found to be relevant. Moreover, the more a document was related to a reviewer’s own area of research, the higher the score the reviewer gave concerning (1) significance, originality, and consistency, and (2) methodological adequacy. The conclusions are that a prototype EERQI framework has been constructed: intrinsic quality indicators add specific information to extrinsic quality or impact indicators, and vice versa. Also, a problem of “objective” impact scores is that they are based on “subjective” or biased peer-review scores. Peer-review, which is foundational to having a work cited, seems biased and this bias should be controlled or improved by more refined estimates of quality and impact of research. Some suggestions are given and limitations of the pilot are discussed. As the EERQI development approach, instruments, and tools are new, they should be developed further.

Keywords: Adequacy, Analysis, Approach, Bias, Bibliometric, Citation, Citations, Classification, Consistency, Constructed, Data, Design, Development, Documents, Educational Research, Estimates, Extrinsic, Factor Analysis, Factors, Framework, From, h-Index, History, Impact, Impact Factor, Indicators, Information, Information Science, Instruments, Interdisciplinary, Internet, Intrinsic, Journals, Libraries, Library and Information Science, Modeling, Multi-Method Assessment, New Approaches, Peer Review, Peer-Review, Peer-Reviewed, Pilot, Potential, Procedures, Quality, Quality Indicators, Research, Review, Reviewer’S Bias, Science, Scientometrics, Significance, Systems, Work

? Minguillo, D. and Thelwall, M. (2015), Which are the best innovation support infrastructures for universities? Evidence from R&D output and commercial activities. *Scientometrics*, **102** (1), 1057-1081.

Full Text: [2015\Scientometrics102, 1057.pdf](2015/Scientometrics102,%201057.pdf)

Abstract: We explore which innovation support infrastructures help Higher Education Institutions (HEIs) with research and technology (R&T) production and knowledge commercialisation. The objectives are to determine (1) the time required by innovation support infrastructures like science parks (SPs) to promote research activities and the factors that may influence it; and (2) if a HEI’s R&T output and commercial performance are helped by innovation support infrastructures like SPs or incubators. The analysis is based upon publications produced by on-park firms (1975-2010), as well as patents and quantitative data from national HEIs with collaborative ties with 92 support infrastructures. Statistical analyses reveal that research parks & campuses and SPs are the infrastructures that are most likely to promote prompt R&T activities and University-Industry (U-I) collaboration for their residents and newer parks seem to be the most successful at encouraging U-I interactions. HEIs’ efforts to exploit their academic research base through support infrastructures have no significant impact on the volume of patents or research publications produced by them, and on entrepreneurial activities with less institutionalised support, such as joint research, contract research or consultancy. However, relationships with SPs and incubators strongly associate with the commercial performance of universities in terms of their academic spin-offs and facilities and equipment services.

Keywords: Academic Commercialisation, Academic Engagement, Academic Research, Academic Spin-Offs, Academic-Industry Links, Analyses, Analysis, Business Incubators, Collaboration, Contract, Data, Education, Equipment, Evidence, Evolution, Facilities, Factors, From, Graduation, Impact, Incubators, Influence, Innovation, Institutions, Knowledge, Linkages, Patents, Performance, Public Science, Publications, R&D, Research, Science, Science and Research Parks, Science Parks, Services, Support, Support Infrastructures, Technology, Technology-Based Firms, UK, Universities, Volume

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Full Text: [2015\Scientometrics102, 1083.pdf](2015/Scientometrics102,%201083.pdf)

Abstract: This stated preference study approached the issue on sub-categorization of the information science-library science (IS-LS) journals listed in the Journal Citation Report (JCR) 2011. To investigate this, 243 active authors/editors publishing in this field were requested to indicate their preferred category to 83 journal titles listed in JCR 2011 from four options: information science (IS), library science (LS), information systems (ISys) and do not know/undecided. Based on the popularity count, respondents assigned 39 titles to LS, 23 titles to IS and 21 titles to ISys. Twenty-five titles received high “do-not-know” counts-these are titles in non-English languages, information management and publishing sub-fields. Only one title in LS was grouped in the highest quartile by impact factor, compared to 8 titles in IS and 11 in ISys. This indicates that LS journals are hardly represented among the top 25 % of the impact factor distribution of JCR’s ranked IS-LS journals. Respondents show concern about the “fit” of information systems journals in the IS-LS category.

Keywords: Active, Categorization, Citation, Distribution, Field, From, Impact, Impact Factor, Information, Information Science, Information Systems, Information-Science, Is, JCR, Journal, Journal Citation Report, Journal Citation Report (JCR), Journal Studies, Journal Subject Categorizations, Journals, Languages, LI, Library, Library and Information Science Journals, LIS, LIS Journals, Management, Options, Preference, Publishing, Science, Stated Preference Studies, Systems

? Kozak, M., Bornmann, L. and Leydesdorff, L. (2015), How have the Eastern European countries of the former Warsaw Pact developed since 1990? A bibliometric study. *Scientometrics*, **102** (2), 1101-1117.

Full Text: [2015\Scientometrics102, 1101.pdf](2015/Scientometrics102,%201101.pdf)

Abstract: Did the demise of the Soviet Union in 1991 influence the scientific performance of the researchers in Eastern European countries? Did this historical event affect international collaboration by researchers from the Eastern European countries with those of Western countries? Did it also change international collaboration among researchers from the Eastern European countries? Trying to answer these questions, this study aims to shed light on international collaboration by researchers from the Eastern European countries (Russia, Ukraine, Belarus, Moldova, Bulgaria, the Czech Republic, Hungary, Poland, Romania, and Slovakia). The number of publications and normalized citation impact values are compared for these countries based on InCites (Thomson Reuters), from 1981 up to 2011. The international collaboration by researchers affiliated to institutions in Eastern European countries at the time points of 1990, 2000 and 2011 was studied with the help of Pajek and VOSviewer software, based on data from the Science Citation Index (Thomson Reuters). Our results show that the breakdown of the communist regime did not lead, on average, to a huge improvement in the publication performance of the Eastern European countries and that the increase in international co-authorship relations by the researchers affiliated to institutions in these countries was smaller than expected. Most of the Eastern European countries are still subject to changes and are still awaiting their boost in scientific development.

Keywords: Affect, Bibliometric, Bibliometric Study, Bulgaria, Changes, Citation, Citation Impact, Co-Authorship, Coauthorship, Collaboration, Czech Republic, Data, Development, From, Hungary, Impact, Improvement, Incites, Influence, Institutions, International, International Collaboration, Lead, National Comparison, Normalized Citation Impact, Pajek, Performance, Poland, Publication, Publication Performance, Publications, Relations, Researchers, Romania, Russia, Science, Science Citation Index, Scientific Performance, Slovakia, Software, Thomson Reuters, Thomson-Reuters, Vosviewer, Warsaw Pact

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Full Text: [2015\Scientometrics102, 1119.pdf](2015/Scientometrics102,%201119.pdf)

Abstract: Research and education are organically connected in that lectures convey the results of research, which is frequently initiated by inspiring lectures. As a result, the contents of lecture materials and research publications and the research capabilities of universities should be considered in the investigations of the relationships between research and teaching. We examine the relationship between research and teaching using automatic text analysis. In particular, we scrutinize the relatedness of the content of research papers with the content of lecture materials to investigate the association between teaching and research. We adopt topic modeling for the correlation analysis of research capabilities and the reflectiveness of research topics in lecture materials. We select the field of machine learning as a case study because the field is contemporary and because data related to teaching and research are easily accessible via the Internet. The results reveal interesting characteristics of lecture materials and research publications in the field of machine learning. The research capability of an institute is independent of the lecture materials. However, for introductory courses, teaching and research measures showed a weak negative relationship, and there is little relationship between the measures for advanced courses.

Keywords: Analysis, Association, Case Study, Characteristics, Content, Correlation, Correlation Analysis, Data, Education, Field, Index, Internet, Investigations, Learning, Machine, Machine Learning, Measures, Modeling, Negative, Papers, Productivity, Publications, Relationship Between Research and Teaching, Research, Research Measure, Research Papers, Teaching, Teaching Effectiveness, Teaching Measure, Text Mining, Topic, Topic Modeling, Universities

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Full Text: [2015\Scientometrics102, 1139.pdf](2015/Scientometrics102,%201139.pdf)

Abstract: The five BRICS countries (Brazil, Russia, India, China and South Africa) are among the most important developing countries. They are joined in an association to foster mutual development. In their meetings officials have made statements on the importance of scientific collaboration. The present article analyses scientific collaborations between the five countries using co-authorships of scientific products. Gross counts, Salton’s indexes and Jaccard coefficients, as well as probabilistic affinity indexes (PAI) are calculated to highlight the different dimensions of inter-BRIC collaborations, as well as their evolution. Collaboration with external actors, and in different scientific sub-areas, is also measured. Bilateral collaborations are heterogeneous. PAIs, which are size independent, show that the trends of inter-BRICS collaborations are stable with time. Heterogeneity across different scientific areas is also present. At the end of the article results are discussed, and policy suggestions are offered.

Keywords: Africa, Analyses, Article, Association, Bilateral, Brazil, Brics, Brics Countries, China, Citation, Collaboration, Collaborations, Cooperation, Developing, Developing Countries, Development, Evolution, India, Jaccard Index, Maps, Model, Patterns, Policy, Probabilistic Affinity Index, Publication, Russia, Salton’S Index, Science, Scientific Collaboration, Scientometric Transaction Matrices, Size, South Africa, Trends

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Full Text: [2015\Scientometrics102, 1167.pdf](2015/Scientometrics102,%201167.pdf)

Abstract: We investigated the extent to which different selection mechanisms for awarding scholarships varied in their short- and longer-term consequences in the performance of awardees in terms of scientific production. We conducted an impact evaluation study on undergraduate, master’s, and PhD research scholarships and compared two different financial sources in Brazil: in one, the selection mechanism was based on a peer review system; the other was based on an institutional system other than peer review. Over 8,500 questionnaires were successfully completed, covering the period 1995-2009. The two groups were compared in terms of their scientific performance using a propensity score approach. We found that the peer-reviewed scholarship awardees showed better performance: they published more often and in journals with higher impact factors than scholarship awardees from the other group. However, two other results indicate a different situation. First, over the long-term, awardees under the peer review system continued to increase their publication rate and published in higher-quality journals; however, the differences with the control group tended to diminish after PhD graduation. Second, the better performance of peer-reviewed scholarships was not observed in all subject areas. The main policy implications of this study relate to a better understanding of selection mechanisms and the heterogeneity regarding the relation between selection processes and scientific and academic output.

Keywords: Approach, Basic Research, Brazil, Control, Doctorate, Evaluation, Evaluation Study, Factors, From, Groups, Heterogeneity, Impact, Impact Factors, Journals, Knowledge Economy, Long Term, Long-Term, Mechanism, Mechanisms, Peer Review, Peer-Review, Peer-Reviewed, Performance, Phd, Policy, Propensity Score, Publication, Publication Rate, Questionnaires, Research, Review, Scholarship, Scholarships, Science, Scientific Performance, Scientific Production, Selection, Sources, Undergraduate, Understanding

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Full Text: [2015\Scientometrics102, 1189.pdf](2015/Scientometrics102,%201189.pdf)

Abstract: In this study, we investigate and compare the number of examiners’ forward citations in the United States and Japan. The most effective way to do so is to compare pairs of patent applications that have equivalent content. Therefore, we propose a new method of extracting substantially equivalent pairs of US and Japanese patent applications, focusing on the equivalence of the specifications and the claims. Our results reveal that during the substantive examination, US examiners cite patent application publications (PAPs) as well as granted patent publications (GPPs), whereas Japanese examiners tend to cite PAPs only. We further examine why GPPs are frequently cited by US examiners. The most likely reason seems to be that many US examiners retain the old habit of searching and citing only GPPs, but not PAPs. The insights offered by this study could be significant for future analyses based on the number of citations, particularly in the United States.

Keywords: Analyses, Application, Citations, Comparison, Content, Equivalent Patent Applications, Examination, Examiners’ Forward Citations, Indicators, Japan, Patent, Patent Citation Analysis, Publications, United States, Us

? Ghosh, J., Kshitij, A. and Kadyan, S. (2015), Functional information characteristics of large-scale research collaboration: network measures and implications. *Scientometrics*, **102** (2), 1207-1239.

Full Text: [2015\Scientometrics102, 1207.pdf](2015/Scientometrics102,%201207.pdf)

Abstract: This exploratory work sheds light on important functional information characteristics of the system of research collaboration by examining large-scale topological structures of co-authorship networks, created through the affiliative ties of scholarly articles published by collaborating researchers in peer-reviewed journals and conference proceedings. The model adopted in this work to understand the underlying collaboration system incorporates the strengths of collaborative coupling among the researchers. The questions we examine in this work are as follows: (1) What new functional characteristics emerge when combined structural effects of collaborative coupling and large-scale connectivity exist in the networks? (2) What information does a specific closeness distribution of collaborating researchers convey with regard to the flow of knowledge through collaborative activities? (3) What is the temporal dynamics of large-scale structure formation in these networks? The work involves a comparative study of these characteristics using the networks of two countries: India and the US. Our results have important implications for scientometric studies of collaboration research.

Keywords: Articles, Centrality, Characteristics, Co-Authorship, Co-Authorship Networks, Coauthorship, Collaboration, Collaboration Co-Authorship Research Networks, Comparative Study, Conference Proceedings, Connectivity, Creativity, Disambiguation, Distribution, Dynamics, Effects, Evolution, Flow, India, Information, Journals, Knowledge, Large-Scale Structure-Functional Information Characteristics, Management, Measures, Model, Network, Networks, Peer Reviewed Journals, Peer-Reviewed, Percolation, Research, Research Collaboration, Researchers, Scientific Collaboration, Scientometric, Scientometric Properties Of Network Measures, Structure, Temporal, Ties, Us, Work

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Full Text: [2015\Scientometrics102, 1241.pdf](2015/Scientometrics102,%201241.pdf)

Abstract: The number of scientific papers published by researchers in Africa has been rising faster than the total world scientific output in recent years. This trend is relevant, as for a long period up until 1996, Africa’s share of the world scientific output remained below 1.5 %. The propensity to publish in the continent has risen particularly fast since 2004, suggesting that a possible take-off of African science is taking place. This paper highlights that, in parallel with this most recent growth in output, the apparent productivity of African science, as measured by publications to gross domestic product, has risen in recent years to a level above the world average, although, when one looks at the equivalent ratio after it has been normalized by population, there is still a huge gap to overcome. Further it is shown that publications from those few African countries whose scientific communities demonstrate higher levels of specialization and integration in international networks, have a higher impact than the world average. Additionally, the paper discusses the potential applications of the new knowledge that has been produced by African researchers, highlighting that so far, South Africa seems to be the only African country where a reasonable part of that new knowledge seems to be connecting with innovation.

Keywords: Africa, African Countries, Analysis, Bibliometric, Bibliometric Analysis, Bibliometrics, Continent, Country, Developing-Countries, From, Gross Domestic Product, Growth, Impact, Innovation, Integration, International, International Collaboration, Knowledge, Networks, Papers, Population, Potential, Productivity, Publications, Recent, Research Assessment, Research Policy, Researchers, Science, Scientific Impact, Scientific Output, South, South Africa, Technology, Trend, Trends, World

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Full Text: [2015\Scientometrics102, 1269.pdf](2015/Scientometrics102,%201269.pdf)

Abstract: Although universities have played an important role in knowledge creation, it is also of concern to see how universities perform in knowledge utilization. In the present article, an effective approach is proposed to evaluate and compare university performance in knowledge utilization for patented inventions. Growth trajectories of the cumulative patent citations to scientific publications produced by individual universities are analyzed by using latent growth modeling. Moreover, we examine how the utilization of scientific knowledge created in 1995 and 2005 is affected by research impact and university-industry collaboration among the universities in Europe, North America, and East Asia. The results indicate that not all top 300 research universities in the world perform well in knowledge utilization for patented inventions. Some policy implications are discussed.

Keywords: Approach, Article, Asia, Biotechnology, Citation Analysis, Citations, Collaboration, Cumulative, East Asia, Europe, Firms, Flows, Growth, Impact, Indicators, Industry, Inventions, Knowledge, Knowledge Creation, Knowledge Utilization, Latent Growth Modeling, Modeling, North, North America, Patent, Patent Citations, Patented Invention, Performance, Policy, Public Science, Publications, Research, Research Impact, Role, Scientific Publications, Technology, Universities, University, University-Industry Collaboration, Us, Utilization, World

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Full Text: [2015\Scientometrics102, 1287.pdf](2015/Scientometrics102,%201287.pdf)

Abstract: Cycles that cross two or more boundaries between disciplines in the co-authorship graph for all of science are used to set upper limits on the number of co-authored papers required to cross 15 disciplines or subdisciplines ranging from macroeconomics to neurology. The upper limits obtained range from one (discrete mathematics, macroeconomics and nuclear physics) to six (neuroscience). The 15 disciplines or subdisciplines examined form a “small world” with an average separation of only 2.0 co-authorship links. It is conjectured that the high-productivity, high average degree centers of all scientific disciplines form a small world, and therefore that the diameter of the co-authorship graph of all of science is only slightly larger than the average diameter of the co-authorship graphs of its subdisciplines.

Keywords: Bacteriophage T4d, Boundaries, Co-Authorship, Coauthorship, Cross-Displinary Brokers, Disciplines, Dna, Field Mobility, From, Gene, Graph Centrality, Graph Diameter, Hiv-1 Infection, Mutants, Mutations, Networks, Neurology, Neuroscience, Nobel Laureates, Nuclear Physics, Papers, Patterns, Physics, Preferential Attachment, Science, Scientific Collaboration, Separation, Small, Small-World Networks, System, World

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Full Text: [2015\Scientometrics102, 1307.pdf](2015/Scientometrics102,%201307.pdf)

Abstract: This study explores interdisciplinarity evolution of Biochemistry and Molecular Biology (BMB) over a one-hundred-year period on several fronts, namely: change in interdisciplinarity, identification of core disciplines, disciplinary emergence, and potential discipline detection, in order to assess the evolution of interdisciplinarity over time. Science overlay maps and a StreamGraph were used to visualize interdisciplinary evolution. Our study confirms that interdisciplinarity evolves mainly from neighbouring fields to distant cognitive areas and provides evidence of an increasing tendency of BMB researchers to cite literature from other disciplines. Additionally, from our results, we can see that the top potential interdisciplinary relations belong to distant disciplines of BMB; their share of references is small, but is increasing markedly. On the whole, these results confirm the dynamic nature of interdisciplinary relations, and suggest that current scientific problems are increasingly addressed using knowledge from a wide variety of disciplines.

Keywords: Bibliometrics, Biology, Cognitive, Cross-Disciplinary, Detection, Disciplines, Dynamic, Dynamics, Evidence, Evolution, From, Identification, Indicators, Information Visualisation, Information-Science, Interdisciplinarity, Interdisciplinary, Knowledge, Library, Literature, Multidisciplinary Research, Networks, Potential, Program, References, Relations, Researchers, Science, Science Overlay Maps, Small

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Full Text: [2015\Scientometrics102, 1325.pdf](2015/Scientometrics102,%201325.pdf)

Abstract: University rankings frequently struggle to delineate the separate contributions of institutional size and excellence. This presents a problem for public policy and university leadership, for example by blurring the pursuit of excellence with the quest for growth. This paper provides some insight into the size/excellence debate by exploring the explicit contribution of institutional size to the results of the Shanghai ranking indicators. Principal components analysis of data from the Shanghai ranking (2013 edition) is used to explore factors that contribute to the variation of the total score. The analysis includes the five non-derived ARWU indicators (Alumni, Award, HiCi, S&N and PUB) and uses the number of equivalent full-time academic staff (FTE) as a measure of size. Two significant but unequal factors are found, together explaining almost 85 % of the variance in the sample. A factor clearly associated with the size of the institution explains around 30 % of the variance. To sharpen the interpretation of the smaller factor as a measure of the effect of size, we extend the analysis to a larger set of institutions to eliminate size-dependent selection effects. We also show that eliminating outlying universities makes little difference to the factors. Our inferences are insensitive to the use of raw data, compared with the compressed and scaled indicators used by ARWU. We conclude that around 30 % of the variation in the ARWU indicators can be attributed to variation in size. Clearly, size-related factors cannot be overlooked when using the ranking results. Around 55 % of the variation arises from a component which is uncorrelated with size and which measures the quality of research conducted at the highest levels. The presence of this factor encourages further work to explore its nature and origins.

Keywords: Analysis, Arwu, Award, Contribution, Data, Dependence, Effects, Excellence, Factors, From, Growth, Indicators, Institutions, Leadership, Measure, Measures, Policy, Public, Public Policy, Quality, Quality Of, Quality Of Research, Ranking, Rankings, Research, Selection, Shanghai, Shanghai Ranking, Size, Universities, University, University Rankings, Work

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Full Text: [2015\Scientometrics102, 1347.pdf](2015/Scientometrics102,%201347.pdf)

Abstract: In this contribution, we measure how long researchers are willing to wait (WTW) for an editorial decision on the acceptance or rejection of a submitted manuscript. This measure serves as a proxy for the expected value of a publication to a researcher in the field of economic, business and financial history. We analyze how this WTW measure varies with the characteristics of the submitting authors themselves. We distinguish the impact of personal characteristics (including age, gender and geographic location) as well as work-related characteristics (including research discipline, affiliation and academic position). To identify the factors determining economic history authors’ WTW for editorial decisions, we use a valuation technique known as stated choice experiments. Our results show that respondents found the standing of the journal to be at least as important as its ISI impact factor. Moreover, we find differences in publication culture between economic and history departments. Overall, researchers’ willingness to wait is influenced to a greater extent by the research discipline in which the respondents are active (history vs. economics), than by their personal characteristics (e.g. the education or the type of Ph.D. they obtained).

Keywords: Acceptance, Active, Affiliation, Age, Authors, Behavior, Business, Characteristics, Choice, Contribution, Culture, Decision, Discrete-Choice Experiments, Economic, Economic History, Economics, Education, Experiments, Factors, Field, From, Gender, History, Impact, Impact Factor, Information, Isi, Journal, Journals, Location, Manuscript Submissions, Measure, Position, Publication, Publication Delays, Rejection, Research, Researchers, Scientific Literature, Stated Choice Experiments, Valuation, Value, Willingness-To-Wait

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Full Text: [2015\Scientometrics102, 1375.pdf](2015/Scientometrics102,%201375.pdf)

Abstract: This study prospectively evaluates the accessibility of Internet references in leading general medical journals and explores the impact of their lost accessibility. We identified all original contributions published in five leading peer-reviewed traditional general medical journals and one leading on-line journal that were published at two time points (January 2005 and January 2008). We followed the sample prospectively for 5 years and determined the number of Internet references that remained accessible. Our sample of 165 original contributions contained 154 Internet references. Accessibility to Internet references declined from 51 % after 4 years to 37 % after 8 years in the articles published in January 2005, and decreased from 78 % after 1 year to 44 % after 5 years in the articles published in January 2008. Among those Internet references published in the most highly-cited articles, only 19 % (95 % CI 10-35 %) remained accessible in March 2013. Among the Internet references cited in the Methods section of the articles, only 30 % (95 % CI 20-43 %) remained accessible. Of the 91 Internet references which were no longer accessible at the end of the follow-up period, 39 (43 %) were assigned a rating of either ‘important’ or ‘very important’. Accessibility of Internet references declines substantially over time most often because the information is updated or the sites become unavailable. Accessibility remains poor even among those Internet references that are most important.

Keywords: Accessibility, Articles, Citations, Decay, Evaluation, Follow-Up, From, General, Highly Cited, Highly Cited Articles, Highly-Cited, Impact, Information, Internet, Internet References, Journal, Journals, Medical, Medical Journals, Methods, Online, Peer-Reviewed, Prospective, References, Resource

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Full Text: [2015\Scientometrics102, 1385.pdf](2015/Scientometrics102,%201385.pdf)

Abstract: A positive influence of international collaboration on the impact of research has been extensively described. This paper delves further into this issue and studies to what extent the type of collaborating country-high, medium or low R&D intensive country-and which country is the leader in the research may influence the impact of the final scientific output. Among 9,961 papers co-authored by scientists from Spain and from another country (bilateral collaboration) during 2008-2009, papers with high R&D intensive countries predominated (60 %) and received the highest number of citations. This holds true in eight out of nine fields, being Social Sciences the one which benefited the most from partnerships with high R&D intensive countries. Mathematics emerges as a special case where other factors such as the partner’s specialisation in the field may have a greater influence on research impact than the level of investment in R&D of the collaborating country. No significant influence of the type of country leading the research on the impact of the final papers is observed in most fields. Research policy implications are finally discussed.

Keywords: Articles, Authorship, Bibliometric Analysis, Bilateral, Bilateral Collaboration, Citation, Citations, Co-Authorship Analysis, Collaboration, Collaborative Research, Country, Evidence, Factors, Field, From, Impact, Influence, Intensity, International, International Collaboration, Mathematics, Mobility, Networks, Papers, Partnerships, Patterns, Policy, R&D, Research, Research Impact, Research Policy, Science, Sciences, Scientific Cooperation, Scientific Output, Scientists, Social Sciences, Spain

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Full Text: [2015\Scientometrics102, 1401.pdf](2015/Scientometrics102,%201401.pdf)

Abstract: Technological breadth, as an indicator of knowledge integration, and breadth of technological diffusion are two sides of a coin when studying the value of patents. In this contribution some h-type indices are developed, and applications in the field of technological innovation are provided. The obtained results suggest that these h-type indices can be used to describe two-dimensions of a firm’s vitality with respect to technological innovation and technological breadth of patents. Hence, patent-related h-indices can serve as simple alternative indicators to describe a firm’s performance in technological innovation. They can, moreover, be used to compare firms active in the same industry.

Keywords: Active, Alternative, Approach, Breadth, Cipch-Index, Contribution, Diffusion, Diffusion Of Technological Innovation, Diversification, Field, Firms, H-Type Indices, Indicator, Indicators, Indices, Industry, Innovation, Integration, Ipch-Index, Knowledge, Knowledge Integration In Patents, Patent Scope, Patents, Performance, Performance Of Firms, Technological Breadth Of Patents, Technological Innovation, Value

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Full Text: [2015\Scientometrics102, 1413.pdf](2015/Scientometrics102,%201413.pdf)

Abstract: We test 16 bibliometric indicators with respect to their validity at the level of the individual researcher by estimating their power to predict later successful researchers. We compare the indicators of a sample of astrophysics researchers who later co-authored highly cited papers before their first landmark paper with the distributions of these indicators over a random control group of young authors in astronomy and astrophysics. We find that field and citation-window normalisation substantially improves the predicting power of citation indicators. The sum of citation numbers normalised with expected citation numbers is the only indicator which shows differences between later stars and random authors significant on a 1 % level. Indicators of paper output are not very useful to predict later stars. The famous h-index makes no difference at all between later stars and the random control group.

Keywords: Astrophysics, Authors, Bibliometric, Bibliometric Indicators, Citation, Citation Analysis, Citation Impact, Comparison Of Indicators, Control, Field, First, h Index, h-Index, Highly Cited, Highly Cited Papers, Highly-Cited, Indicator, Indicators, Landmark, Output, Papers, Performance Of Young Authors, Power, Research Evaluation, Researchers, Science, Scientific Performance, Score, Validity, Young

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Full Text: [2015\Scientometrics102, 1435.pdf](2015/Scientometrics102,%201435.pdf)

Abstract: The aim of this paper is to determine the role that academic collaboration plays on the impact of Latin-American and the Caribbean research on management as an academic research discipline. The results show that the impact of Latin American articles on management, which were published between 1990 and 2010 in JCR journals is positively associated to collaboration r (s) = .133, p = .001. Collaborated articles have on average 1.22 times more impact than single authored ones. The level of collaboration is positively correlated to impact r (s) = .337, p = .001. Articles published through international collaboration have 1.59 times more impact than those published through domestic collaboration.

Keywords: Academic Collaboration, Academic Research, Articles, Citation Base Impact, Citation-Based Performance, Collaboration, Domestic Collaboration, Economics, G-Index, h-Index, Impact, International, International Collaboration, Jcr, Journals, Latin-American, Management, Management Research, Multi-Authored Papers, Patterns, Quality, Research, Role, Science, Self-Citation, Self-Citation

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Full Text: [2015\Scientometrics102, 1455.pdf](2015/Scientometrics102,%201455.pdf)

Abstract: Typical young Polish scientist is an alumnus of doctoral studies at the same university and department where he/she completed his/her Master degree. The career is continued by receiving a habilitation at the same university and department. Then a holder of habilitation is promoted to a tenured position at the same university and department. Detailed analysis of scientific careers of 154 recent Ph.D. recipients and of 16 habilitation candidates in chemistry from University of Warsaw is presented. More than 96 % of the Ph.D. theses were results of doctoral studies. A typical doctor is Polish citizen (> 98 %), alumnus/alumna of the University of Warsaw (> 85 %), holder of Master degree in chemistry (88 %) who joined the Ph.D. program at the same university directly after having completed his/her Master degree, and completed the Ph.D. program 5.5 years after completion of Master degree. A fraction of recent female Ph.D. recipients in chemistry (61 %) is very high as compared with the corresponding fractions in other countries (e.g., USA), but it is still substantially lower than the fraction of female Master degree recipients. In recent habilitation candidates, the female ratio is 50 %, thus relative male dominance is observed at higher levels. At least one-third of the recent Ph.D. recipients were employed by the same university, where they received their Ph.D., while the fraction of the recent Ph.D. recipients employed by other universities in Poland was below 5 %. High degree of academic inbreeding is due to the legal system in Poland, which (nominally) is designed to prevent academic inbreeding, but the regulations can be easily circumvented. Over 10 % of the recent Ph.D. recipients found post-doctoral positions abroad, chiefly in EU countries and in the USA.

Keywords: Academic Inbreeding, Age, Analysis, Careers, Chemistry, Department, Doctor, Doctoral Studies, Doctorate, Eu, Female, From, Gender, Legal, Male, Master’S Degree, Poland, Position, Prevent, Recent, Regulations, Universities, University, USA, Young

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Full Text: [2015\Scientometrics102, 1467.pdf](2015/Scientometrics102,%201467.pdf)

Abstract: The citation potential is a measure of the probability of being cited. Obviously, it is different among fields of science, social science, and humanities because of systematic differences in publication and citation behaviour across disciplines. In the past, the citation potential was studied at journal level considering the average number of references in established groups of journals (for example, the crown indicator is based on the journal subject categories in the Web of Science database). In this paper, some characterizations of the author’s scientific research through three different research dimensions are proposed: production (journal papers), impact (journal citations), and reference (bibliographical sources). Then, we propose different measures of the citation potential for authors based on a proportion of these dimensions. An empirical application, in a set of 120 randomly selected highly productive authors from the CSIC Research Centre (Spain) in four subject areas, shows that the ratio between production and impact dimensions is a normalized measure of the citation potential at the level of individual authors. Moreover, this ratio reduces the between-group variance in relation to the within-group variance in a higher proportion than the rest of the indicators analysed. Furthermore, it is consistent with the type of journal impact indicator used. A possible application of this result is in the selection and promotion process within interdisciplinary institutions, since it allows comparisons of authors based on their particular scientific research.

Keywords: Application, Approach, Author Metric, Authors, Behaviour, Bibliometric Indicator, Characterizations, Citation, Citation Analysis, Citation Potential, Citations, CSIC, Database, Disciplines, From, Future-Impact, Groups, Humanities, Impact, Indicator, Indicators, Institutions, Interdisciplinary, Journal, Journal Citations, Journal Impact, Journals, Measure, Measures, Normalized Impact Factor, Papers, Performance, Potential, Promotion, Publication, Reference, References, Research, Researcher Assessment, Science, Scientific Performance, Scientific Research, Selection, Social, Source Normalization, Sources, Spain, Systematic, Terms, Web, Web Of Science

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Full Text: [2015\Scientometrics102, 1497.pdf](2015/Scientometrics102,%201497.pdf)

Abstract: In the social sciences, university departments are the governance units where the demand for and the supply of researchers interact. As a first step towards a formal model of this process, this paper investigates the characteristics of productivity distributions in a unique dataset consisting of 2,530 faculty members with at least one publication who were working in the 81 top world Economics departments in 2007. Individual productivity is measured in two ways: as the number of publications up to 2007, and as a quality index that weights differently the articles published in four journal equivalent classes. The academic age of individuals, measured as the number of years since obtaining a Ph.D. up to 2007, is used to measure productivity per year. Independently of the two productivity measures, and both before and after age normalization, the five main findings of the paper are the following. Firstly, individuals within each department have very different productivities. Secondly, there is not a single pattern of productivity inequality and skewness at the department level. On the contrary, productivity distributions are very different across departments. Thirdly, the effect on overall productivity inequality of differences in productivity distributions between departments is greater than the analogous effect in other contexts. Fourth, to a large extent, this effect on overall productivity inequality is accounted for by scale factors well captured by departments’ mean productivities. Fifth, this high degree of departmental heterogeneity is found to be compatible with greater homogeneity across the members of a partition of the sample into seven countries and a residual category.

Keywords: Academic Age, Age, Articles, Characteristics, Demand, Department, Distributions, Economics, Economics Departments, Factors, Faculty, Faculty Members, First, Governance, Heterogeneity, Homogeneity, Impact, Index, Indicators, Inequality, Journal, Journals, Measure, Measures, Model, Normalization, Normalization Procedures, Output, Pattern, Performance, Productivity, Publication, Publications, Quality, Researchers, Scale, Science, Sciences, Scientific Productivity Distributions, Skewness, Social, Social Sciences, Statistical Properties, University, Variability, Within- and Between-Group Variability, World

Notes: CCountry

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Full Text: [2015\Scientometrics102, 1521.pdf](2015/Scientometrics102,%201521.pdf)

Abstract: This paper uses a bibliometric analysis method to probe into the evolution of China’s science and technology policies from 1949 to 2010, and the roles of core government agencies in policy-making. We obtained 4,707 Chinese S&T policies from GDIS, a Chinese public policy database provided by Tsinghua University. Co-word analysis and network analysis were applied in mapping the topics of S&T policies and collaboration among the agencies, while citation analysis was applied to assess the influence of S&T policies. Findings include: first, the focus of Chinese S&T policies is mainly on applied research and industrialization, rather than basic research; second, more and more government agencies are involved in making S&T policies, but collaboration efforts are not significantly increasing; last but not least, the influence of different S&T policies is determined by the administrative ranking of the policy-making agencies responsible for drafting those policies.

Keywords: Analysis, Applied Research, Basic, Basic Research, Bibliometric, Bibliometric Analysis, Bibliometric Study, Chemistry, China, Chinese, Citation, Citation Analysis, Co-Word Analysis, Co-Word Analysis, Collaboration, Database, Evolution, First, From, Influence, Information, Mapping, Network, Network Analysis, Networks, Policies, Policy, Policy Making, Policy-Making Agency, Public, Public Policy, Ranking, Research, S&T Policy, Science, Science and Technology, Technology, Tool, University

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Full Text: [2015\Scientometrics102, 1541.pdf](2015/Scientometrics102,%201541.pdf)

Abstract: Gender disparities persist in several areas of society and scientific research is no exception. This study describes the evolution of the place of women in Russian science from 1973 to 2012, in terms of published research output, research productivity, international and national collaboration, and scientific impact, taking into account the socioeconomic, political and historic context of the country, which was marked by the fall of the USSR in 1991. The results show that gender parity is far from being achieved. Women remain underrepresented in terms of their contribution to research output and scientific impact in almost all disciplines, with Mathematics and Physics, research areas in which Russia is specialized, having the largest gap. Men and women show different collaboration patterns on the national and international level, whereas women are preeminent on the national scene, men are on the international one. Although the impact of women’s scientific output significantly increases after the fall of the USSR, the gap between both genders remains stable over time for most of the disciplines. As a result, this increase cannot be interpreted as an improvement of the women’s relative influence in Russian science, but rather an improvement of Russian science impact in general.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Collaboration, Collaboration Patterns, Context, Contribution, Country, Disciplines, Disparities, Evolution, From, Gender, Gender Disparities, General, Humanities, Impact, Improvement, Influence, International, Mathematics, Men, Parity, Physics, Productivity, Research, Research Areas, Research Impact, Research Output, Research Productivity, Russia, Science, Scientific Impact, Scientific Output, Scientific Research, Social-Sciences, Society, Women

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Full Text: [2015\Scientometrics102, 1555.pdf](2015/Scientometrics102,%201555.pdf)

Abstract: The objective of this study was to make a current diagnosis of the scientific production of Ibero-American researchers on information literacy and information competences during the last four decades. The literature output on information literacy was examined using the techniques of bibliometric analysis and information visualization. The literature considered was that constituted by the articles included in the Web of Science (Thomson Reuters), Scopus (Elsevier), Library and Information Science Abstracts, and Library, Information Science and Technology Abstracts databases. The occurrence of descriptors was analysed using VOSViewer, a program that groups them into clusters and generates a map of their connections. The results showed exponential growth of some 30 % annually between 2005 and 2011, with a mean of 14.45 documents per year. Spain, with 119 documents, was the top producing country, followed by Brazil with 76. The distribution of the more than 500 authors fitted a Lotka-law pattern, and the distribution of the 105 journals fitted the three zones of a Bradford-law pattern. The visualization map showed the 62 descriptors to group into seven clusters. For its centrality, there stood out “Information literacy”, strongly related with “Information Science”. At the edge of the map were “Digital literacy” and “School library”, indicative of their lack of any strong relationship with other terms. The “Education”, “Knowledge management”, “Universities & colleges”, and “University libraries” descriptors were linked closely with the main IL theme.

Keywords: Analysis, Articles, Authors, Bibliometric, Bibliometric Analysis, Bradford Law, Brazil, Centrality, Country, Databases, Diagnosis, Distribution, Documents, Groups, Growth, Ibero-America, Information, Information Literacy, Information Science, Information Visualization, Journals, Library and Information Science, Literature, Lotka Law, Lotkas Law, Pattern, Researchers, Science, Science and Technology, Scientific Production, Scopus, Spain, Students, Techniques, Technology, Thomson Reuters, Thomson-Reuters, Visualization, Visualization Of Similarities, Vos, Web, Web Of Science

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Full Text: [2015\Scientometrics102, 1577.pdf](2015/Scientometrics102,%201577.pdf)

Abstract: The main methods for ranking academic journals are peer review based approaches and applications of various bibliometric indicators, or a mixture of the two. Such rankings are used to assess the overall quality of journals, although their real meaning remains unclear as long as the notion of “quality’ is not precisely defined. In our approach we examine journal evaluation from the perspective of knowledge accumulation taking the citation distribution into account. A new indicator, the sub-impact factor denoted as SIF, derived sub-impact factor sequences and an aggregated SIF-indicator are proposed. An empirical study is performed on 64 journals in the area of operations research and management science, illustrating the use of these indicators.

Keywords: Academic Journals, Accumulation, Aggregated Sif-Indicator, Approach, Bibliometric, Bibliometric Indicators, Business, Citation, Citation Analysis, Contribution To Knowledge Accumulation, Distribution, Economics Journals, Evaluation, From, h-Index, Indicator, Indicators, Journal, Journal Evaluation, Journal Ranking, Journals, Knowledge, Management, Management Journals, Management Science, Methods, Notion, Operations Research, Peer Review, Peer-Review, Publication, Quality, Quality Of, Ranking, Rankings, Rating System, Relative Quality, Research, Review, Science, Sif-Sequences, Sub-Impact Factor

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Full Text: [2015\Scientometrics102, 1595.pdf](2015/Scientometrics102,%201595.pdf)

Abstract: In this paper, we make use of keywords in scientific articles in solar energy during the period 2000-2013 to investigate scientific relatedness at the topic level (i.e. relatedness between topic and topic) and the country level (i.e. relatedness between topic and country). The bibliometric analyses show that both publications and knowledge topics exhibit significant rise, and China has exceeded the USA and developed into the largest scientific producer after 2010. We determine the degree of relatedness by means of the topics co-occurrence network and explore the evolving dynamic processes of scientific relatedness which indicates decreasing patterns in the two countries. The results also highlight differences between the research directions in the USA and China: in the USA “energy efficiency and environment” prove more developed, while in China “solar power” shows more central. This study assesses the extent to which the scientific relatedness exerts influence on the literature productivity at the country level. We find negative relationships between scientific relatedness and publications in both of countries. Our work has potential implications for the future policies with respect to the innovative research in the solar energy field.

Keywords: Analyses, Articles, Bibliometric, Bibliometric Analyses, Brokerage, China, Co-Occurrence, Collaboration Networks, Comparative Study, Convergence, Country, Diversification, Dynamic, Efficiency, Energy, Field, Influence, Innovation, Innovation Output, Knowledge, Knowledge Relatedness, Literature, Maps, Negative, Network, Performance, Policies, Potential, Productivity, Publications, Research, Science, Scientific Relatedness, Solar Energy, Topic, USA, Weak Ties, Work

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Full Text: [2015\Scientometrics102, 1615.pdf](2015/Scientometrics102,%201615.pdf)

Abstract: Despite the fact that diffusion research has existed for more than a century, a quantitative review covering this subject in a broad and general context is still lacking. This article reviews diffusion research by providing an extensive bibliometric and clustering analysis. In total, we identified thirteen clusters comprising 6,811 publications over the period of 2002-2011, and thereby describe the characteristics of diffusion research in an extensive and general way based on quantitative bibliometric methods. The analysis reveals that diffusion research is highly interdisciplinary in character, involving several disciplines from ethnology to economics, with many overlapping research trails. The concluding section indicates that diffusion research seems to be data driven and relies heavily on solely empirical studies. Consequently, influential publications rely on empirical data that support and change theories in modest ways only. In this contribution, we propose a review method that produces a fairly good overview of the research area and which can be applied to any knowledge field to replace or complement the traditional literature review.

Keywords: Adoption, Analysis, Article, Bibliometric, Bibliometric Methods, Characteristics, Cluster, Clustering, Context, Contribution, Data, Development Spillovers, Diffusion, Disciplines, Economics, Empirical Studies, Field, From, General, Geographic Localization, Global Production Networks, Information-Technology, Intellectual Property-Rights, Interdisciplinary, Knowledge, Knowledge Management, Literature, Literature Review, Methods, Overlapping, Overview, Policy Diffusion, Publication Analysis, Publications, Quantitative, Research, Review, Reviews, Support, Technology Acceptance Model, Technology Transfer, User Acceptance, Word-Of-Mouth

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Full Text: [2015\Scientometrics102, 1647.pdf](2015/Scientometrics102,%201647.pdf)

Abstract: An estimation of the h-index is proposed for cases when the original variable underlying the distribution for which the h-index had been determined was rescaled. Within its validity limits, the approximation can be usefully applied for field normalization, change of time frames or other changes of measurement scales.

Keywords: Changes, Distribution, Field, Field-Normalization, h Index, h-Index, Journals, Measurement, Networks, Normalization, Scales, Subject Fields, Validity

? Garcia-Perez, M.A. (2015), Online supplemental information: A sizeable black hole for citations. *Scientometrics*, **102** (2), 1655-1659.

Full Text: [2015\Scientometrics102, 1655.pdf](2015/Scientometrics102,%201655.pdf)

Abstract: Journals are increasingly making use of online supplemental information (OSI) as a means to convey part of the material previously included in the papers themselves. Quite often, material displaced to OSI is accompanied by references that, with rare exceptions, are not incorporated into citation databases. An analysis of OSI in a random sample of papers published in 2013 in the Proceedings of the National Academy of Sciences of the USA revealed that unique references only listed in OSI amount to more than 10 % of the number of references included in the papers themselves. Obliteration of these references in citation databases contributes to substantial inaccuracies in citation counts, with a bias against papers that are cited only in the methods sections usually displaced to OSI.

Keywords: Analysis, Bias, Bibliometrics, Citation, Citation Counts, Citation Databases, Citations, Databases, Google Scholar, h Index, Impact Factor, Index, Information, Journals, Methods, Online, Online Supplemental Information, Papers, Proceedings, Random Sample, References, Science, Sciences, USA, Web

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Full Text: [2015\Scientometrics102, 1661.pdf](2015/Scientometrics102,%201661.pdf)

Keywords: Eponyms, Literature, Standard

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Full Text: [2015\Scientometrics102, 1669.pdf](2015/Scientometrics102,%201669.pdf)

Abstract: The application of machine learning algorithms in the construction of ranking models is a relatively new research area which has emerged during the last 10 years within the field of artificial intelligence and information retrieval. This paper presents a bibliometric study of scientific output on learning to rank (L2R) between 2000 and 2013. For this procedure to be successful, every relevant bibliographic L2R record retrieved from the Scopus database was considered. The records were processed according to a series of one-dimensional and multi-dimensional metric indicators which were selected for the study. The results of this research provide the scientific community with reliable, up-to-date information about the state of L2R research and trends, and will enable researchers to develop valuable studies to reinforce research, development and innovation.

Keywords: Algorithms, Application, Bibliographic, Bibliometric, Bibliometric Study, Community, Construction, Database, Development, Field, From, Indicators, Information, Information Retrieval, Innovation, Learning, Learning To Rank, Library, Machine, Machine Learning, Models, Multidimensional, Procedure, Rank, Ranking, Record, Records, Research, Researchers, Science, Scientific Community, Scientific Output, Scientific Production, Scientific Research, Scopus, Scopus Database, State, Trends

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Full Text: [2015\Scientometrics102, 1687.pdf](2015/Scientometrics102,%201687.pdf)

Abstract: Online bibliographic databases are powerful resources for research in data mining and social network analysis especially co-author networks. Predicting future rising stars is to find brilliant scholars/researchers in co-author networks. In this paper, we propose a solution for rising star prediction by applying machine learning techniques. For classification task, discriminative and generative modeling techniques are considered and two algorithms are chosen for each category. The author, co-authorship and venue based information are incorporated, resulting in eleven features with their mathematical formulations. Extensive experiments are performed to analyze the impact of individual feature, category wise and their combination w.r.t classification accuracy. Then, two ranking lists for top 30 scholars are presented from predicted rising stars. In addition, this concept is demonstrated for prediction of rising stars in database domain. Data from DBLP and Arnetminer databases (1996-2000 for wide disciplines) are used for algorithms’ experimental analysis.

Keywords: Accuracy, Algorithms, Analysis, Bibliographic, Bibliographic Databases, Cart, Classification, Classification, Co-Author, Co-Authorship, Coauthorship, Concept, Data, Data Mining, Data-Mining, Database, Databases, Dblp, Disciplines, Experimental, Experiments, Feature, From, Group Leader, Impact, Information, Learning, Machine, Machine Learning, Memm, Mining, Model, Modeling, Naive Bayes, Network, Network Analysis, Networks, Prediction, Ranking, Research, Resources, Rising Star, Social, Social Network, Social Network Analysis, Solution, Techniques

? Martinez, M., Herrera, M., Contreras, E., Ruiz, A. and Herrera-Viedma, E. (2015), Characterizing highly cited papers in Social Work through H-Classics. *Scientometrics*, **102** (2), 1713-1729.

Full Text: [2015\Scientometrics102, 1713.pdf](2015/Scientometrics102,%201713.pdf)

Abstract: Highly cited papers are an important reference point in a research field. H-Classics is a new identification method of highly cited papers that is based on the H-index and is sensitive to the own characteristics of any research discipline and also its evolution. Recently, Ho (Scientometrics 98(1):137-155, 2014) presented a study on highly cited papers in Social Work area using as selection criterion a citation threshold value equal to 50 citations received. In this paper, we present a new study on the highly cited papers in Social Work discipline which is developed using the concept of H-Classics. This new study provides more precise results and a different vision on Social Work area.

Keywords: 100 Citation-Classics, Articles, Behavior, Bibliometric Analysis, Bibliometric Measures, Characteristics, Citation, Citations, Concept, Disciplinary Journals, Evolution, Field, h Index, h-Index, Highly Cited, Highly Cited Papers, Highly-Cited, Identification, Index, Medicine, Orthopedic-Surgery, Papers, Publication, Quality, Reference, Research, Scientometrics, Selection, Social Work, Threshold, Value

? Zopiatis, A., Theocharous, A.L. and Constanti, P. (2015), ‘The past is prologue to the future’: An introspective view of hospitality and tourism research. *Scientometrics*, **102** (2), 1731-1753.

Full Text: [2015\Scientometrics102, 1731.pdf](2015/Scientometrics102,%201731.pdf)

Abstract: Since the early 1970s, scholars have contributed their talent and intellect towards the establishment of the discipline and the education of the next generation of hospitality and tourism professionals. Espousing the popular notion “publish or perish”, numerous scholars have explored the discipline’s research foundations from an array of different perspectives, such as the ranking and rating of scholars, journal publications and institutions. This novel empirical endeavor aims to enrich the existing intellectual capital by investigating the publication strategies of forty-four prolific hospitality and tourism scholars, by focusing on three distinctive thematic areas, namely, a journal’s impact factor and citations, authorship specifics, and research themes. Findings are of interest to both current and future scholars in their quest for academic excellence and contributions, which further enhance the hospitality and tourism discipline.

Keywords: Academic Leadership, Articles, Authorship, Bibliometrics, Citation Analysis, Citations, Correspondence Analysis, Education, Excellence, From, Generation, Hierarchical Clustering On Principal Component (HCPC), Impact, Impact Factor, Institutions, Journal, Journal Publications, Journals, Linear Mixed Effects Models (Lmem), Management, Network Analysis, Notion, Publication, Publication Strategies, Publications, Ranking, Research, Research Themes, Tourism, University

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Full Text: [2015\Scientometrics102, 1755.pdf](2015/Scientometrics102,%201755.pdf)

Abstract: There is a worldwide trend towards application of bibliometric research evaluation, in support of the needs of policy makers and research administrators. However the assumptions and limitations of bibliometric measurements suggest a probabilistic rather than the traditional deterministic approach to the assessment of research performance. The aim of this work is to propose a multivariate stochastic model for measuring the performance of individual scientists and to compare the results of its application with those arising from a deterministic approach. The dataset of the analysis covers the scientific production indexed in Web of Science for the 2006-2010 period, of over 900 Italian academic scientists working in two distinct fields of the life sciences.

Keywords: Analysis, Application, Approach, Assessment, Assumptions, Bibliometric, Bibliometric Indicators, Bibliometric Research, Bibliometrics, Classification, Distributions, Evaluation, From, h-Index, Life, Life Sciences, Model, Multivariate, Needs, Performance, Policy, Research, Research Evaluation, Research Performance, Research Productivity, Science, Sciences, Scientific Production, Scientists, Simca, Spectroscopy, Statistical Properties, Stochastic, Stochastic Model, Stochastic Models, Support, Trend, Universities, University, Web, Web Of Science, Work

? de Winter, J.C.F. (2015), The relationship between tweets, citations, and article views for PLOS ONE articles. *Scientometrics*, **102** (2), 1773-1779.

Full Text: [2015\Scientometrics102, 1773.pdf](2015/Scientometrics102,%201773.pdf)

Abstract: An analysis of article-level metrics of 27,856 PLOS ONE articles reveals that the number of tweets was weakly associated with the number of citations (beta = 0.10), and weakly negatively associated with citations when the number of article views was held constant (beta = -0.06). The number of tweets was predictive of other social media activity (beta = 0.34 for Mendeley and beta = 0.41 for Facebook), but not of the number of article views on PubMed Central (beta = 0.01). It is concluded that the scientific citation process acts relatively independently of the social dynamics on Twitter.

Keywords: Activity, Altmetrics, Analysis, Article, Articles, Citation, Citations, Dynamics, Facebook, Media, Mendeley, Metrics, PLoS One, Predictive, Pubmed, Pubmed Central, Scientific Citation, Social, Social Media, Twitter

? Zhou, P. and Bornmann, L. (2015), An overview of academic publishing and collaboration between China and Germany. *Scientometrics*, **102** (2), 1781-1793.

Full Text: [2015\Scientometrics102, 1781.pdf](2015/Scientometrics102,%201781.pdf)

Abstract: In the past 30 years, publications from either China or Germany have increased exponentially with China growing much faster especially in the natural sciences, engineering and technology. In medical and health sciences, however, China still lags behind Germany in terms of publication production. Germany performs better in producing high-quality papers (measured by citations). Collaboration between the two countries has increased significantly, especially in the natural sciences and engineering and technology, but less so in medical and health sciences. Collaboration between China and Germany may help to raise quality of Chinese research in terms of highly cited papers.

Keywords: Bibliometrics, China, Chinese, Citations, Collaboration, Cooperation, Engineering, From, Germany, Health, Health Sciences, Highly Cited, Highly Cited Papers, Highly-Cited, International Collaboration, Medical, Nanotechnology, Natural, Natural Sciences, Oecd Subject Categories, Overview, Papers, Patterns, Publication, Publications, Publishing, Quality, Quality Of, Research, Sciences, Technology, Us Scientific Collaboration

? Godoy, D., Zunino, A. and Mateos, C. (2015), Publication practices in the Argentinian Computer Science community: A bibliometric perspective. *Scientometrics*, **102** (2), 1795-1814.

Full Text: [2015\Scientometrics102, 1795.pdf](2015/Scientometrics102,%201795.pdf)

Abstract: The Computer Science (CS) community has been discussing, for some time now, the role of conferences as publication venues. In this regard, computer scientists claim to have a long-standing tradition in publishing their research results in conferences, which are also recognized as being different to events in other disciplines. This practice, however, contrasts with journal driven publication practices which are the prevailing academic standard. Consequently, the assessment of the quality of CS conferences with respect to journals is a recurrent topic of discussion within evaluation boards in charge of judging researchers’ performance. Even when agreements are feasible inside the discipline, they are often subject to the scrutiny in the context of multi-disciplinary evaluation boards-usually ruled by standard bibliometrics-in which CS researchers compete for obtaining scholarships, positions and funding. The Argentinian CS community is not an exception in this respect. In this paper, we present a study of the publication practices of the Argentinian CS community, their evolution over time and, more importantly, the impact they achieved in terms of citations. The findings of this study are good basis for understanding the publishing practices of our community, promoting future discussions as well as supporting the community positions regarding these issues.

Keywords: Assessment, Bibliometric, Charge, Citations, Community, Computer Science, Conferences, Conferences and Journals, Context, Disciplines, Evaluation, Events, Evolution, Funding, Impact, Issues, Journal, Journals, Multidisciplinary, Performance, Practice, Practices, Publication, Publication Practices, Publishing, Quality, Quality Of, Recurrent, Research, Research Results, Researchers, Role, Science, Scientists, Standard, Topic, Understanding

? Wang, X.W., Liu, C. and Mao, W.L. (2015), Does a paper being featured on the cover of a journal guarantee more attention and greater impact? *Scientometrics*, **102** (2), 1815-1821.

Full Text: [2015\Scientometrics102, 1815.pdf](2015/Scientometrics102,%201815.pdf)

Abstract: Paper featured on the cover of a journal has more visibility in an issue compared with other ordinary articles for both printed and electronic journal. Does this kind of visibility guarantee more attention and greater impact of its associated content than the non-cover papers? In this research, usage and citation data of 60 issues of PLOS Biology from 2006 to 2010 are analyzed to compare the attention and scholarly impact between cover and non-cover paper. Our empirical study confirms that, in most cases, the group difference between cover and non-cover paper is not significant for attention or impact. Cover paper is not the best one, nor at the upper level in one issue considering the attention or the citation impact. Having a paper featured on the cover of a journal may be a source of pride to researchers, many institutions and researchers would even release news about it. However, a paper being featured on the cover of a journal doesn’t guarantee more attention and greater impact.

Keywords: Article Usage, Article View, Articles, Attention, Biology, Citation, Citation Impact, Content, Cover Image, Cover Paper, Data, From, Impact, Institutions, Issues, Journal, Paper, Paper Featured On Cover, Papers, Release, Research, Researchers, Scholarly Impact, Source, Visibility

? Marx, W. and Bornmann, L. (2015), On the causes of subject-specific citation rates in Web of Science. *Scientometrics*, **102** (2), 1823-1827.

Full Text: [2015\Scientometrics102, 1823.pdf](2015/Scientometrics102,%201823.pdf)

Abstract: It is well known in bibliometrics that the average number of citations per paper differs greatly between the various disciplines. The differing citation culture (in particular the different average number of references per paper and thereby the different probability of being cited) is widely seen as the cause of this variation. Based on all Web of Science (WoS) records published in 1990, 1995, 2000, 2005, and 2010 we demonstrate that almost all disciplines show similar numbers of references in the appendices of their papers. Our results suggest that the average citation rate is far more influenced by the extent to which the papers (cited as references) are included in WoS as linked database records. For example, the comparatively low citation rates in the humanities are not at all the result of a lower average number of references per paper but are caused by the low fraction of linked references which refer to papers published in the core journals covered by WoS.

Keywords: Bibliometrics, Citation, Citation Analysis, Citation Rates, Citations, Culture, Database, Database Coverage, Disciplines, Fraction Of Linked References, Humanities, Impact Factor, Journals, Papers, Rates, Records, References, Science, Subject-Specific Citation Rates, Web, Web Of Science, Wos

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Full Text: [2015\Scientometrics102, 1829.pdf](2015/Scientometrics102,%201829.pdf)

Abstract: Very recently, the Nature Index has been proposed and published. It offers the possibility to rank institutions and countries according to the absolute numbers of papers published in a selection of 68 journals. We discuss the main elements of the Nature Index, and we wish to start a discussion about the Nature Index by stating four main points of criticism. The main problem of this Index seems to be the use of absolute numbers without normalization. Furthermore, measures of quality are reintroduced on the basis of reputation of journals rather than quality (impact) of single publications.

Keywords: Impact, Institutions, Journals, Measures, Normalization, Papers, Publications, Quality, Rank, Reputation, Selection

? Campbell, N. and Grayson, M. (2015), A response to ‘Discussion about the new Nature Index’. *Scientometrics*, **102** (2), 1831-1833

Full Text: [2015\Scientometrics102, 1831.pdf](2015/Scientometrics102,%201831.pdf)

Keywords: Response

? Hsu, C.L. and Chiang, C.H. (2015), A bibliometric study of SSME in information systems research. *Scientometrics*, **102** (3), 1835-1865.

Full Text: [2015\Scientometrics102, 1835.pdf](2015/Scientometrics102,%201835.pdf)

Abstract: Service research in information systems (IS) has received attention over many years. This study probes into the development of service science, management, and engineering literatures through the perspective of bibliometrics under IS. Data were based on the science social citation index, from the Institute of Scientific Information Web of Science database. A total of 4,513 entries in a span of 22 years from 1991 to 2012 were collected. This paper implemented and classified service science, service management, and SE articles using the following publication type and language, characteristics of articles outputs, country, subject categories and journals, and the frequency of title-words and keywords used. Also, the paper performs the K-S test to check whether the distribution of author article production follows Lotka’s law. Meanwhile, the analysis indicated the most relevant disciplines for SSME subject category provided by business economics, information science and library science, and computer science.

Keywords: Analysis, Article, Articles, Attention, Bibliometric, Bibliometric Study, Bibliometrics, Business, Characteristics, Citation, Citation Index, Computer Science, Country, Data, Database, Development, Disciplines, Distribution, Economics, Engineering, From, Index, Information, Information Science, Information Systems, Innovation, Is, Journals, K-S Test, Language, Law, Lotka Law, Lotka’s Law, Management, Mar, Publication, Research, Science, Se, Service, Service Systems, Social, Ssme, Systems, Web, Web Of Science

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Full Text: [2015\Scientometrics102, 1867.pdf](2015/Scientometrics102,%201867.pdf)

Abstract: The measurement of the research output of the Higher Education Institutions (HEIs) is problematic, due to the multi-product nature of their teaching and research activities. This study analyses the difficulties related to the measurement of the research output of the HEI and proposes a simple overall indicator which incorporates quantitative and qualitative aspects to permit the decomposition of the influence of the two factors. On the basis of this indicator homogeneous comparisons are made of the relative research output of the countries of the European Union and its evolution during the period 1996-2010.

Keywords: Analyses, Bibliometric Indicators, Decomposition, Education, European Union, Evolution, Factors, Hei, Higher Education, Index, Indicator, Influence, Institutions, Journal Impact Factor, Mar, Measurement, Patent, Publication, Qualitative, Quality, Quantity, Research, Research Output, Research Performance, Scientific-Research, Specialization, Teaching, Universities, Universities

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Full Text: [2015\Scientometrics102, 1895.pdf](2015/Scientometrics102,%201895.pdf)

Abstract: In organizations, knowledge creation activities are embedded in collaborative networks and are influenced by their partners. Therefore, we examine how entire networks change over time in this study, as well as the reasoning behind the structures of ego networks based on unique scientific research discoveries published in the emerging cross-disciplinary field of nano-energy. These data were extracted from Science Citation Index Expanded. Specifically, we mainly focus on two dimensions of ego network changes: network growth and diversity. Results demonstrate the recent remarkable growth of inter-organizational collaborative networks in the nano-energy field and empirically prove that the subsequent growth and diversity of ego networks are caused by three coexisting driving forces (collaborative capacity, network status position and cohesion) that act collectively. Our study is conducted at the organizational level because we investigate the universities, research institutes and firms that participate in nano-energy scientific research and the collaborative networks formed through co-authorships among these institutions in knowledge creation processes. Moreover, our study has significant implications for the scientific research conducted by organizations in developing countries and emerging fields.

Keywords: Alliance Formation, Capacity, Centrality, Changes, China, Citation, Data, Developing, Developing Countries, Diversity, Driving, Dynamic, Ego Networks, Evidence, Evolution, Field, From, Growth, Industry, Institutions, Interfirm Networks, Knowledge, Knowledge Creation, Mar, Nano-Energy Research, Nanotechnology, Network, Network Diversity, Network Dynamics, Network Evolution, Network Growth, Networks, Organizational, Organizational Networks, Performance, Position, Reasoning, Recent, Reputation, Research, Results, Science, Science Citation Index, Science Citation Index Expanded, Scientific Research, Social Networks, Technology, Universities

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Full Text: [2015\Scientometrics102, 1921.pdf](2015/Scientometrics102,%201921.pdf)

Abstract: Business portfolio restructuring (BPR) has received considerable attention in the fields of management and finance. However, to the best of our knowledge, there are no studies applying extensive qualitative and quantitative methods to BPR research. The aim of the present paper is to fill this gap by presenting the first complete bibliometric review of BPR research. In this work, for the first time, not only the extant literature published between 1993 and 2012 is analysed but also the most cited bibliographic references using bibliometric techniques. In this way, past and present academic contributions are reviewed. Four main results are forthcoming: first, a certain parallelism is found with bibliometric studies in strategic management. Second, the intellectual grounding for this field involves the subjects of economics, management and finance as its principal contributors. Third, the theoretical basis for the study of BPR mainly involves agency theory, transaction cost theory, and the resource-based view. Fourth, the financial crisis of 2008 explains an important part of current research priorities and trends among BPR scholars.

Keywords: Agency Theory, Asset Sales, Attention, Author Cocitation Analysis, Bibliographic, Bibliographic Coupling, Bibliometric, Bibliometric Analysis, Bibliometric Studies, Bibliometric Techniques, Business, Co-Citation Analysis, Complete, Corporate Governance, Cost, Crisis, Economics, Field, Firm Performance, First, Free Cash Flow, Internal Capital-Markets, Knowledge, Literature, Management, Mar, Methods, Most Cited, Portfolio Restructuring, Qualitative, Quantitative Methods, References, Research, Research Priorities, Resource-Based View, Review, Spin-Off Announcements, Strategic, Strategic Management, Strategic Management Field, Techniques, Theoretical, Theory, Trends, Value Creation, Work

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Full Text: [2015\Scientometrics102, 1951.pdf](2015/Scientometrics102,%201951.pdf)

Abstract: Eutrophication has become a top environmental issue for most lake ecosystems in the world and enhanced phosphorus (P) input is usually considered the primary stressor. Focused on the role of phosphorus in eutrophic lakes, a bibliometric approach was applied to quantitatively evaluate the main interests of research and trends in this area. Using data from the Science Citation Index Expanded database between 1900 and 2013, a total of 3,875 publications was returned by searching topic keywords. Spatial, temporal, and interactive characteristics of the articles, countries, and keywords are presented using time series, frequency, and co-occurrence analysis. Result shows that the annual publications on P in eutrophic lakes keep an exponential growth (R (2) = 0.93; p < 0.0001) over the last two decades, reflecting an increasing attraction in this area. However, publications of phosphorus research make up only 40 % of total records in eutrophic lakes, indicating that there are other significant topics in eutrophication problems of lakes. The USA is the largest output country in this area, contributing 23 % of the total articles, followed by China with a proportion of 15 %. However. China has replaced the USA as the largest output country in the world since 2011, but its citation per paper is significantly lower than the USA, indicating its’ favor on quantity over quality. Based on international cooperation analysis, five regional groups were found, and the USA, the UK, P.R. China, Sweden, and German are the centers of their groups. The top 20 title keywords, author keywords and keywords plus were identified according to their frequency to assist our understanding of interests of research and modes. Surprisingly, nitrogen is a high co-occurrence keyword in this study, and its share of publications with P research in eutrophic lakes is increasing rapidly. Furthermore, the high correlation between P and N research in spatial distribution also indicates the increasing significance of N research in eutrophic lakes.

Keywords: Analysis, Approach, Articles, Bibliometric, Bibliometric Analysis, Characteristics, China, Citation, Co-Occurrence Analysis, Cooperation, Correlation, Country, Data, Database, Distribution, Ecosystems, Environmental, Eutrophication, From, German, Groups, Growth, h-Index, International, International Cooperation, Lake, Lakes, Mar, N, Nitrogen, Nitrogen, Nutrient, Output, P, Phosphorus, Primary, Publications, Quality, R, Records, Regional, Research, Role, Science, Science Citation Index, Science Citation Index Expanded, Science-Citation-Index, Scientometric, Scientometric Analysis, Significance, Spatial, Spatial Distribution, Sweden, Temporal, Time Series, Topic, Trend, Trends, UK, Understanding, USA, Water Quality, World

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Full Text: [2015\Scientometrics102, 1965.pdf](2015/Scientometrics102,%201965.pdf)

Abstract: Many areas of academic and industrial work make use of the notion of a ‘technology’. This paper attempts to reduce the ambiguity around the definition of what constitutes a ‘technology’ by extension of a method described previously that finds highly relevant patent sets for specified technological fields. The method relies on a less ambiguous definition that includes both a functional component and a component consisting of the underlying knowledge in a technological field to form a two-component definition. These two components form a useful definition of a technology that allows for objective, repeatable and thus comparable analysis of specific technologies. 28 technological domains are investigated: the extension of an earlier technique is shown to be capable of finding highly relevant and complete patent sets for each of the technologies. Overall, about 500,000 patents from 1976 to 2012 are classified into these 28 domains. The patents in each of these sets are not only highly relevant to the domain of interest but there are relatively low numbers of patents classified into any two of these domains (total patents classified in two domains are 2.9 % of the total patents and the great majority of patent class pairs have zero overlap with a few of the 378 patent class pairs containing the bulk of the doubly listed patents). On the other hand, the patents within a given domain cite patents in other domains about 90 % of the time. These results suggest that technology can be usefully decomposed to distinct units but that the inventions in these relatively tightly contained units depend upon widely spread additional knowledge.

Keywords: Analysis, Complete, Definition, Diffusion, Experience, Field, From, Inventions, Knowledge, Mar, Notion, Patent, Patent Searching, Patents, Renewable Energy Technology, Technical Change, Technological Relatedness, Technologies, Technology, Technology Decomposition, Work

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Full Text: [2015\Scientometrics102, 1987.pdf](2015/Scientometrics102,%201987.pdf)

Abstract: We examine the sub-field of philosophy of science using a new method developed in information science, Referenced Publication Years Spectroscopy (RPYS). RPYS allows us to identify peak years in citations in a field, which promises to help scholars identify the key contributions to a field, and revolutionary discoveries in a field. We discovered that philosophy of science, a sub-field in the humanities, differs significantly from other fields examined with this method. Books play a more important role in philosophy of science than in the sciences. Further, Einstein’s famous 1905 papers created a citation peak in the philosophy of science literature. But rather than being a contribution to the philosophy of science, their importance lies in the fact that they are revolutionary contributions to physics with important implications for philosophy of science.

Keywords: Albert Einstein, Books, Citation, Citation Peaks, Citations, Contribution, Field, From, Humanities, Information, Information Science, Karl Popper, Literature, Logical Empiricism, Mar, Papers, Philosophy, Philosophy Of Science, Physics, Publication, Role, Science, Sciences, Thomas Kuhn

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Full Text: [2015\Scientometrics102, 1997.pdf](2015/Scientometrics102,%201997.pdf)

Abstract: This paper examined the coauthorship patterns of China’s humanities and social sciences (HSS), based on articles and reviews covered by the Social Science Citation Index and the Arts and Humanities Citation Index of the Web of Science. We defined four types of coauthorship as: no collaboration (NOC), national collaboration (NAC), bilateral international collaboration (BIC) and multilateral international collaboration (MIC), and proposed the development phases of China’s HSS as: 1978-1991, 1992-2000 and 2001-present. Accordingly, we explored the evolution of coauthorship patterns by a number of metrics. Findings include: (1) the coauthorship patterns of China’s HSS significantly evolved from NOC to NAC, BIC and MIC; (2) China’s major collaborators had not significantly varied over the past decade, in which USA had always taken the lead (among every four HSS articles of China, one was collaborated with USA); (3) pic (percentage of internationally coauthored articles) was negatively correlated to pnc (percentage of not cited articles); (4) MIC is 1.5 times the CPP (citation per publication) of BIC, 3 times of NAC and 4 times of NOC. Chinese government has been eagerly promoting economic development through science and technology. However, after over 30 years’ growth miracle, Chinese government realized that China’s HSS had been overshadowed, and then initiated prosperity plannings.

Keywords: Articles, Arts and Humanities Citation Index, Bibliometric Analysis, Bibliometric Analysis, Bilateral, China, Chinese, Citation, Citation Index, Citation Per Publication, Coauthorship, Collaboration, Countries, Development, Economic, Economic Development, Evolution, From, Growth, Humanities, Humanities and Social Sciences, Impact, Indicators, International, International Collaboration, International Scientific Collaboration, Lead, Mar, Metrics, Multilateral Co-Authorship, Networks, New-Model, Patterns, Publication, Reviews, Science, Science and Technology, Science Citation Index, Sciences, Scientific Collaboration, Social, Social Science Citation Index, Social Sciences, Technology, Triple-Helix, USA, Web, Web Of Science

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Full Text: [2015\Scientometrics102, 2011.pdf](2015/Scientometrics102,%202011.pdf)

Abstract: Most studies investigating individual achievement in criminology and criminal justice equate total publications with scholarly productivity. The current study sought to broaden the definition of scholarly productivity by incorporating empirical indices of the quantity and quality of scholarly productivity and applying these indices to both total and first author publications. Analyses performed using publication and citation data from the top 100 criminology and criminal justice scholars over the past 5 years revealed that the total number of publications was no substitute for an integrated (quantity and quality) assessment. Results further indicated that averaging across the total publication and first author integrated models seemed to provide the fairest and most balanced assessment of scholarly productivity. It was also noted that compared to non-theoreticians, theoreticians were more likely to publish first author articles and fared significantly better when evaluated against the first author integrated model than when evaluated against the total publications integrated model. Use of these models to assess scholarly productivity in criminology, criminal justice, and other fields may be warranted.

Keywords: Achievement, Articles, Assessment, Averaging, Citation, Citation Analysis, Criminology and Criminal Justice, Data, Definition, First, First Author Publications, From, G-Index, Google-Scholar, Indices, Integrated, Integrated Models, Justice, Mar, Model, Models, Productivity, Publication, Publications, Quality, Quality Of, Results, Scholarly Productivity, Science, Scopus, Web

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Full Text: [2015\Scientometrics102, 2023.pdf](2015/Scientometrics102,%202023.pdf)

Abstract: The majority of early exploratory webometrics studies have typically used simple network methods or multi-dimensional scaling to identify hyperlink or text-based relationships between collections of related academic websites. This paper uses unsupervised machine learning techniques to identify groups of computer science departments with similar interests through co-word occurrences in the homepages of the departmental research groups. The clustering results reflect inter-department research similarity reasonably well, at least as reflected online. This clustering approach may be useful for policy makers in identifying future collaborators with similar research interests or for monitoring research fields.

Keywords: Academic Web, Approach, Author Cocitation Analysis, Bibliometric Indicators, Cluster Analysis, Clustering, Co-Word, Co-Word Analysis, Computer Science, Groups, Hyperlink, Information-Science, Learning, Link Analysis, Machine, Machine Learning, Mar, Methods, Monitoring, Multidimensional, Multidimensional Scaling, Network, Online, Policy, Research, Research Group, Scaling, Science, Self-Organising Maps, Self-Organizing Map, Similarity, Techniques, UK, Unsupervised Learning, Web Site Interlinking, Webometrics, Webometrics, Websites

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Full Text: [2015\Scientometrics102, 2041.pdf](2015/Scientometrics102,%202041.pdf)

Abstract: Research fronts represent areas of cutting-edge study in specific fields. They not only provide insights into current focuses and future trends, but also serve as important indicators for government policymaking with regard to technology. This study employed both bibliographic coupling and co-citation as methods to analyze the evolution of research fronts in the OLED field, and compared the outcomes in order to identify the differences between, and assess the effectiveness of, the two methods in detecting such research fronts. This study indicated that both analytic methods can be employed to track the evolution of research fronts. Compared with co-citation, bibliographic coupling identifies a higher number of research fronts, and detects the emergence of the research fronts earlier, thus showing better performance than co-citation in detecting research fronts.

Keywords: Bibliographic, Bibliographic Coupling, Citation Networks, Co-Citation, Cocitation, Comparative Study, Devices, Documents, Effectiveness, Efficiency, Emerging Research Fronts, Evolution, Field, Fixed Citation Window, Indicators, Mar, Methods, Oled, Organic, Outcomes, Performance, Research, Research Fronts, Science, Scientific Papers, Technology, Trends

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Full Text: [2015\Scientometrics102, 2059.pdf](2015/Scientometrics102,%202059.pdf)

Abstract: We compared general and specialized databases, by searching bibliographic information regarding journal articles in the computer science field, and by evaluating their bibliographic coverage and the quality of the bibliographic records retrieved. We selected a sample of computer science articles from an Italian university repository (AIR) to carry out our comparison. The databases selected were INSPEC, Scopus, Web of Science (WoS), and DBLP. We found that DBLP and Scopus indexed the highest number of unique articles (4.14 and 4.05 % respectively), that each of the four databases indexed a set of unique articles, that 12.95 % of the articles sampled were not indexed in any of the databases selected, that Scopus was better than WoS for identifying computer science publications, and that DBLP had a greater number of unique articles indexed (19.03 %), when compared to INSPEC (11.28 %). We also measured the quality of a set of bibliographic records, by comparing five databases: Scopus, WoS, INSPEC, DBLP and Google Scholar (GS). We found that WoS, INSPEC and Scopus provided better quality indexing and better bibliographic records in terms of accuracy, control and granularity of information, when compared to GS and DBLP. WoS and Scopus also provided more sophisticated tools for measuring trends of scholarly publications.

Keywords: Accuracy, Air, Articles, Bibliographic, Bibliometric Analysis, Citation Databases, Comparison, Computer Science, Control, Coverage, Database, Databases, Dblp, Field, From, General, Google, Google Scholar, Google Scholar, Gs, Impact, Indexing, Information, Inspec, Journal, Journal Articles, Mar, Publications, Quality, Quality Of, Records, Science, Scopus, Scopus, Trends, University, Web, Web Of Science, Wos

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Full Text: [2015\Scientometrics102, 2073.pdf](2015/Scientometrics102,%202073.pdf)

Abstract: Using bibliometric techniques, this work investigates the evolution of titles in economics research. It attempts to present a complete and accurate picture of systematic changes in the average character number, syllable number, word number and conceptual diversity in the titles over a long period of time. Based on a total of 338,866 academic paper titles in economics published between 1890 and 2012 from the EconLit and the Web of Knowledge, the economics titles were analyzed from the perspectives of social network, computational phonetics and conceptual diversity. The results showed that in the evolution of this discipline, authors were using increasingly more words for their paper titles and the conceptual diversity in paper titles underwent interesting periodic fluctuations over more than 100 years. The 1970s was a decade that achieved special prominence in conceptual diversity and relational complexity of titles.

Keywords: Article Titles, Authors, Bibliometric, Bibliometric Techniques, Changes, Citations, Complete, Complexity, Concept, Diversity, Downloads, Economics, Evolution, Fluctuations, From, Impact, Knowledge, Mar, Network, Psychology, Research, Science, Scientific Journals, Social, Social Network, Stem, Syllable, Systematic, Techniques, Web, Web Of Knowledge, Work

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Full Text: [2015\Scientometrics102, 2089.pdf](2015/Scientometrics102,%202089.pdf)

Abstract: Utilizing a unique dataset of the Chinese Academy of Sciences academicians (1993-2013), this paper investigates the Matthew effect in China’s science. Three indicators, namely the concentration index, the Matthew index and the coefficient of variation, are adopted to measure the uneven distribution of academicians of the Chinese Academy of Sciences among different regions and disciplines. The empirical analysis demonstrates the existence of the Matthew effect in China’s science for the above two dimensions. Yet, this effect has weakened for all regions with the exception of Beijing. We argue that this uneven distribution of the nation’s brightest minds makes scientifically competitive regions and disciplines even more competitive while putting those less developed regions and research domains at further disadvantage.

Keywords: Academicians Of Chinese Academy Of Sciences, Analysis, Chinese, Competitive, Concentration, Countries, Disciplines, Distribution, Evidence, From, Impact, Index, Indicators, Invention, Mar, Matthew Effect, Measure, Patterns, Research, Science, Science and Technology Policy, Sciences, Scientific Collaboration

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Full Text: [2015\Scientometrics102, 2107.pdf](2015/Scientometrics102,%202107.pdf)

Abstract: The research streams of transition economies and emerging markets have some common ground, but yet differ. The goal of this study is to provide a better understanding of the commonalities and differences regarding trends and topics of this cross-disciplinary research area. We employ the novel method of topic models on a corpus of nearly 6,000 articles in more than 600 journals from 1995 to 2012 to identify 25 topics and analyze their trends and use across scope (transition or emerging), disciplines (business or economics) and geography (countries or regions).

Keywords: Academy, Articles, Business, Co-Word Analysis, Disciplines, Domain, Economics, Emerging Markets, Field, From, Geography, Growth, International Business, International-Business Research, Journals, Knowledge, Literature, Mar, Markets, Models, Research, Scope, Streams, Topic, Topic Models, Topics, Transition Economies, Trends, Understanding

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Full Text: [2015\Scientometrics102, 2131.pdf](2015/Scientometrics102,%202131.pdf)

Abstract: The introduction of new research evaluation policies in most of the Eastern European (EE) countries was followed by the substantial growth in their (international) scientific productivity. The article starts with a brief review of the current research evaluation practice in EE countries and then explores the pattern of changes in international scientific production of 20 EE countries in the field of social sciences and humanities during 2004-2013. A new indicator named Journal Diversity Index (JDI) is suggested as a possible measure of sustainability and genuineness of the globalization of social sciences in EE countries. JDI represents the number of journals that account for 50 % of country’s published articles, corrected for the total number of unique journals in which articles by the authors from all EE countries appear. The analysis has shown that EE countries with the lower JDI largely base their international scientific production on national journals covered by Web of Science (WoS). Those countries also have a lower average citation rate of articles. With the exception of Hungary and Poland, the “globalization” of EE social sciences still rely strongly on language, regional and cultural proximities. This is potentially harmful given the unstable status of EE journals in WoS. EE science policy institutions should take more responsibility in controlling the quality of national journals indexed in international databases. They should also be aware of significant differences in the coverage policies of Thomson Reuters and Elsevier and possible implications of those differences for the science evaluation practice.

Keywords: Analysis, Article, Articles, Authors, Bibliographic Indicators, Breakthrough, Changes, Citation, Countries, Coverage, Cultural, Databases, Diversity, Eastern Europe, Europe, Evaluation, Field, From, Globalization, Growth, Humanities, Hungary, Indicator, Institutions, International, Journal, Journal Diversity Index, Journals, Language, Mar, Measure, Output, Pattern, Performance, Poland, Policies, Policy, Practice, Productivity, Publication Patterns, Published Articles, Quality, Quality Of, Regional, Representation, Research, Research Evaluation, Responsibility, Review, Science, Science Evaluation, Science Evaluation Policy, Science Policy, Sciences, Scientific Production, Scientific Productivity, Scientometric Indicators, Social, Social Sciences, Sustainability, Thomson Reuters, Thomson-Reuters, Web, Web Of Science, Wos

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Full Text: [2015\Scientometrics102, 2151.pdf](2015/Scientometrics102,%202151.pdf)

Abstract: This paper examines the varying prevalence of conflict of interest (COI), and “no conflict”, statements on biomedical research papers, which are increasingly being required by journal editors. They are important as they may detract from the perceived objectivity of the results if the authors are in the pay of commercial companies. However, the frequency of these statements in the web of science (WoS) is only a few percent of the total number of biomedical papers. A survey of journal editors revealed that many COI statements are excluded from the WoS because they are printed separately from the acknowledgement section of the paper. One consequence of the appearance of COI statements on papers is that the WoS mistakenly includes companies who have given money to some of the researchers for unrelated work among the sponsors listed among the funding organizations, and this will distort the analysis of the funding of the research being reported in some of the papers and appears nearly to double companies’ apparent tally of papers.

Keywords: Analysis, Authors, Biomedical, Biomedical Research, Cancer-Research, Conflict Of Interest, Disclosure, Editors, From, Funding, Guidelines, Interest Policies, Journal, Journal Editors, Mar, Medical Journals, No Conflict, Papers, Pharmaceutical Companies, Prevalence, Publication, Requirements, Research, Research Papers, Researchers, Science, Specialty, Survey, Web, Web Of Science, Work, Wos

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Full Text: [2015\Scientometrics102, 2161.pdf](2015/Scientometrics102,%202161.pdf)

Keywords: Citation Data, Impact, Journal Usage, Mar, Metrics, Statistics, Stochastic-Model, Terminology, Usage Metrics

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Full Text: [2015\Scientometrics102, 2165.pdf](2015/Scientometrics102,%202165.pdf)

Abstract: We compare estimates for past institutional research performances coming from two bibliometric indicators to the results of the UK’s Research Assessment Exercise which last took place in 2008. We demonstrate that a version of the departmental h-index is better correlated with the actual results of that peer-review exercise than a competing metric known as the normalised citation-based indicator. We then determine the corresponding h-indices for 2008-2013, the period examined in the UK’s Research Excellence Framework (REF) 2014. We place herewith the resulting predictions on the arXiv in advance of the REF results being published (December 2014). These may be considered as unbiased predictions of relative performances in that exercise. We will revisit this paper after the REF results are available and comment on the reliability or otherwise of these bibliometrics as compared with peer review.

Keywords: Advance, Arxiv, Assessment, Bibliometric, Bibliometric Indicators, Bibliometrics, Estimates, Excellence, Exercise, Framework, From, h Index, h-Index, Hirsch Index, Indicator, Indicators, Mar, Normalised Citation-Based Indicator, Peer Review, Peer-Review, Predictions, Ref, Reliability, Research, Research Assessment Exercise, Research Assessment Exercise (RAE), Research Excellence Framework (REF), Review, Version

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Full Text: [2015\Scientometrics102, 2181.pdf](2015/Scientometrics102,%202181.pdf)

Abstract: DOI-i.e., Digital Object Identifier-is a character string, which univocally identifies entities that are object of intellectual property. In bibliometrics, DOIs are used for univocally identifying scientific papers. The aim of this short communication is to raise the reader’s awareness of bibliometric database errors in DOI indexing, in particular, the incorrect assignment of a single DOI to multiple papers. This error is quite interesting since DOI is commonly regarded as an effective means to identify scientific articles unambiguously. For the purpose of example, a short list of DOIs, which have been wrongly assigned by the Scopus database to multiple papers, is shown. Although being relatively rare, DOI indexing errors should be considered by bibliometricians when querying bibliometric databases by DOI.

Keywords: Articles, Awareness, Bibliometric, Bibliometrics, Citation Analysis, Communication, Database, Database Errors, Databases, Digital, DOI Indexing Error, Error, Errors, Indexing, Intellectual Property, Mar, Multiple DOI Assignment, Papers, Property, Purpose, Scopus, Scopus Database

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Full Text: [2015\Scientometrics102, 2187.pdf](2015/Scientometrics102,%202187.pdf)

Abstract: We have used the F1000Prime data set to investigate the reception of expert opinions, which were published under their own DOI, in the scientific community (n(p) = 114,582 papers with n(e) = 149,119 expert opinions). F1000Prime is a post-publication peer review system in which important literature from the biomedical area is read and assessed by selected researchers. We have investigated the reception of the expert opinions with the help of data from the Mendeley reference manager. As our Mendeley investigation shows, we were only able to find Mendeley counts for 11 expert opinions. Thus, a total of only 11 users have saved an expert opinion in their reference manager.

Keywords: Altmetrics, Biomedical, Community, Data, Data Set, Expert Opinion, From, Investigation, Journal, Literature, Mar, Mendeley, Opinions, Papers, Peer Review, Peer-Review, Procedures, Reference, Researchers, Review, Scientific Community

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Full Text: [2015\Scientometrics102, 2191.pdf](2015/Scientometrics102,%202191.pdf)

Keywords: Bibliometrics, Information, Information Retrieval, Mar

? Mayr, P. and Scharnhorst, A. (2015), Scientometrics and information retrieval: weak-links revitalized. *Scientometrics*, **102** (3), 2193-2199.

Full Text: [2015\Scientometrics102, 2193.pdf](2015/Scientometrics102,%202193.pdf)

Abstract: This special issue brings together eight papers from experts of communities which often have been perceived as different once: bibliometrics, scientometrics and informetrics on the one side and information retrieval on the other. The idea of this special issue started at the workshop “Combining Bibliometrics and Information Retrieval” held at the 14th International Conference of Scientometrics and Informetrics, Vienna, July 14-19, 2013. Our motivation as guest editors started from the observation that main discourses in both fields are different, that communities are only partly overlapping and from the belief that a knowledge transfer would be profitable for both sides.

Keywords: Author Cocitation, Belief, Bibliometrics, Conference, Editors, Experts, From, Information, Information Retrieval, Informetrics, International, Knowledge, Knowledge Transfer, Mar, Motivation, Observation, Overlapping, Papers, Science, Scientometrics, Special Issue

? Wolfram, D. (2015), The symbiotic relationship between information retrieval and informetrics. *Scientometrics*, **102** (3), 2201-2214.

Full Text: [2015\Scientometrics102, 2201.pdf](2015/Scientometrics102,%202201.pdf)

Abstract: Informetrics and information retrieval (IR) represent fundamental areas of study within information science. Historically, researchers have not fully capitalized on the potential research synergies that exist between these two areas. Data sources used in traditional informetrics studies have their analogues in IR, with similar types of empirical regularities found in IR system content and use. Methods for data collection and analysis used in informetrics can help to inform IR system development and evaluation. Areas of application have included automatic indexing, index term weighting and understanding user query and session patterns through the quantitative analysis of user transaction logs. Similarly, developments in database technology have made the study of informetric phenomena less cumbersome, and recent innovations used in IR research, such as language models and ranking algorithms, provide new tools that may be applied to research problems of interest to informetricians. Building on the author’s previous work (Wolfram in Applied informetrics for information retrieval research, Libraries Unlimited, Westport, 2003), this paper reviews a sample of relevant literature published primarily since 2000 to highlight how each area of study may help to inform and benefit the other.

Keywords: Algorithms, Analysis, Application, Automatic Indexing, Collection, Combining Bibliometrics, Content, Data, Data Collection, Database, Development, Environments, Evaluation, Framework, Index, Indexing, Information, Information Retrieval, Information Science, Information Storage and Retrieval, Informetrics, IR, Language, Libraries, Literature, Mar, Methods, Models, Networks, Pagerank, Patterns, Potential, Quantitative Analysis, Ranking, Recent, Relevance Theory, Research, Research Impact, Researchers, Reviews, Science, Search, Sources, Technology, Term, Understanding, User Search Patterns, Web, Weighting, Work

? Glanzel, W. (2015), Bibliometrics-aided retrieval: Where information retrieval meets scientometrics. *Scientometrics*, **102** (3), 2215-2222.

Full Text: [2015\Scientometrics102, 2215.pdf](2015/Scientometrics102,%202215.pdf)

Abstract: This paper attempts to sketch the interrelation between information retrieval and scientometrics pointing at possible synergy effects provided by some recently developed bibliometric methods in the context of subject delineation and clustering. Examples of specific search strategies based on both traditional retrieval techniques and bibliometric methods are used to illustrate this approach. Special attention is paid to hybrid techniques and the use of ‘core documents’. The latter ones are defined merely on the basis of bibliometric similarities, but have by definition properties that make ‘core documents’ also interesting and attractive for information retrieval.

Keywords: Approach, Attention, Bibliometric, Bibliometric Methods, Bibliometrics-Aided Retrieval, Clustering, Complex Search Strategies, Context, Core Documents, Definition, Documents, Effects, Hybrid, Hybrid Techniques, Information, Information Retrieval, Mar, Methods, Properties, Scientific Literature, Scientometrics, Search Strategies, Subject Delineation, Techniques

? Zitt, M. (2015), Meso-level retrieval: IR-bibliometrics interplay and hybrid citation-words methods in scientific fields delineation. *Scientometrics*, **102** (3), 2223-2245.

Full Text: [2015\Scientometrics102, 2223.pdf](2015/Scientometrics102,%202223.pdf)

Abstract: In this position paper, we comment on various approaches to the delineation of scientific fields or domains, a typical prerequisite for a wide class of bibliometric studies. There is growing evidence that this meso-level, between micro targets of typical IR and large disciplines handled by macro-level bibliometric studies, takes full advantage of hybrid approaches. Firstly, delineation tasks gain to combine the a priori thinking of traditional IR, which typically involves clearly targeted expectations, and the a posteriori thinking of bibliometric mapping, where the decisions are built on external structuring of the domain in a wider context. The combination of the two ways of thought is far from new, with IR increasingly building on bibliometric networks for query expansion, and bibliometrics building on IR for evaluating and refining its outcomes. Secondly, delineation benefits from the multi-network perspective, which gives different representations of the scientific topics, usually all the more converging than the objects are dense and well separated. Focusing on two basic networks-words and citations-various sequences or combinations of operations are discussed. Bibliometrics and IR, especially when properly combined in multi-network approaches, provide an efficient toolbox for studies of domains delimitation. It should be recalled however that the context of such studies is often loaded with policy stakes that ask for cautious supervision and consultation processes.

Keywords: Basic, Benefits, Bibliometric, Bibliometric Mapping, Bibliometric Studies, Bibliometrics, Building, Cocitation Analysis, Consultation, Context, Disciplines, Dynamics, Evidence, Expectations, Field Delineation, From, Hybrid, Hybrid Textual-Citation Techniques, Information Retrieval, Information-Retrieval, Ir, Mapping, Mar, Methods, Networks, Outcomes, Performance, Policy, Position, Query Expansion, Science, Science Mapping, Search Engine, Term, Text, Topics

? Bar-Ilan, J. and Levene, M. (2015), The HW-rank: An h-index variant for ranking web pages. *Scientometrics*, **102** (3), 2247-2253.

Full Text: [2015\Scientometrics102, 2247.pdf](2015/Scientometrics102,%202247.pdf)

Abstract: We introduce a novel ranking of search results based on a variant of the h-index for directed information networks such as the Web. The h-index was originally introduced to measure an individual researcher’s scientific output and influence, but here a variant of it is applied to assess the “importance” of web pages. Like PageRank, the “importance” of a page is defined by the “importance” of the pages linking to it. However, unlike the computation of PageRank which involves the whole web graph, computing the h-index for web pages (the hw-rank) is based on a local computation and only the neighbors of the neighbors of the given node are considered. Preliminary results show a strong correlation between ranking with the hw-rank and PageRank, and moreover its computation is simpler and less complex than computation of the PageRank. Further, larger scale experiments are needed in order to assess the applicability of the method.

Keywords: Bibliometric Indicators, Computation, Correlation, Experiments, h Index, h-Index, Hw-Rank, Influence, Information, Information Networks, Journals, Local, Mar, Measure, Networks, Pagerank, Publications, Ranking, Ranking Of Search Results, Scale, Scientific Output, The h Index, Web

? Karlsson, A., Hammarfelt, B., Steinhauer, H.J., Falkman, G., Olson, N., Nelhans, G. and Nolin, J. (2015), Modeling uncertainty in bibliometrics and information retrieval: An information fusion approach. *Scientometrics*, **102** (3), 2255-2274.

Full Text: [2015\Scientometrics102, 2255.pdf](2015/Scientometrics102,%202255.pdf)

Abstract: We describe ongoing research where the aim is to apply recent results from the research field of information fusion to bibliometric analysis and information retrieval. We highlight the importance of ‘uncertainty’ within information fusion and argue that this concept is crucial also for bibliometrics and information retrieval. More specifically, we elaborate on three research strategies related to uncertainty: uncertainty management methods, explanation of uncertainty and visualization of uncertainty. We exemplify our strategies to the classical problem of author name disambiguation where we show how uncertainty can be modeled explained and visualized using information fusion. We show how an information seeker can benefit from tracing increases/decreases of uncertainty in the reasoning process. We also present how such changes can be explained for the information seeker through visualization techniques, which are employed to highlight the complexity involved in the process of modeling and managing uncertainty in bibliometric analysis. Finally we argue that a further integration of information fusion approaches in the research area of bibliometrics and information retrieval may results in new and fruitful venues of research.

Keywords: Analysis, Approach, Author Name Disambiguation, Author Name Disambiguation, Bibliographic Data, Bibliometric, Bibliometric Analysis, Bibliometrics, Changes, Complexity, Concept, Databases, Explanation, Field, From, Fusion, Information, Information Fusion, Information Retrieval, Integration, Management, Mar, Methods, Modeling, Reasoning, Recent, Research, Science, Techniques, Uncertainty, Visualization

? White, H.D. (2015), Co-cited author retrieval and relevance theory: Examples from the humanities. *Scientometrics*, **102** (3), 2275-2299.

Full Text: [2015\Scientometrics102, 2275.pdf](2015/Scientometrics102,%202275.pdf)

Abstract: Given a user-selected seed author, a unique experimental system called AuthorWeb can return the 24 authors most frequently co-cited with the seed in a 10-year segment of the Arts and Humanities Citation Index. The Web-based system can then instantly display the seed and the others as a Pathfinder network, a Kohonen self-organizing map, or a pennant diagram. Each display gives a somewhat different overview of the literature cited with the seed in a specialty (e.g., Thomas Mann studies). Each is also a live interface for retrieving (1) the documents that co-cite the seed with another user-selected author, and (2) the works by the seed and the other author that are co-cited. This article describes the Pathfinder and Kohonen maps, but focuses much more on AuthorWeb pennant diagrams, exhibited here for the first time. Pennants are interesting because they unite ego-centered co-citation data from bibliometrics, the TF\*IDF formula from information retrieval, and Sperber and Wilson’s relevance theory (RT) from linguistic pragmatics. RT provides a cognitive interpretation of TF\*IDF weighting. By making people’s inferential processes a primary concern, RT also yields insights into both topical and non-topical relevance, central matters in information science. Pennants for several authors in the humanities demonstrate these insights.

Keywords: Article, Articles, Arts and Humanities Citation Index, Author Co-Citation Analysis, Authors, Bibliometric Visualizations, Bibliometrics, Citation, Citation Analysis, Co-Citation, Cocitation, Cognitive, Cognitive Information Science, Combining Bibliometrics, Data, Documents, Experimental, First, From, Humanities, Information, Information Retrieval, Information Science, Information-Science, Interface, Literature, Mar, Network, Overview, Pennant Diagrams, Primary, Relevance, Science, Specialty, Tf\*Idf, Tf\*Idf Weighting, Theory, Topical, Weighting

? Abbasi, M.K. and Frommholz, I. (2015), Cluster-based polyrepresentation as science modelling approach for information retrieval. *Scientometrics*, **102** (3), 2301-2322.

Full Text: [2015\Scientometrics102, 2301.pdf](2015/Scientometrics102,%202301.pdf)

Abstract: The increasing number of publications make searching and accessing the produced literature a challenging task. A recent development in bibliographic databases is to use advanced information retrieval techniques in combination with bibliographic means like citations. In this work we will present an approach that combines a cognitive information retrieval framework based on the principle of polyrepresentation with document clustering to enable the user to explore a collection more interactively than by just examining a ranked result list. Our approach uses information need representations as well as different document representations including citations. To evaluate our ideas we employ a simulated user strategy utilising a cluster ranking approach. We report on the possible effectiveness of our approach and on several strategies how users can achieve a higher search effectiveness through cluster browsing. Our results confirm that our proposed polyrepresentative cluster browsing strategy can in principle significantly improve the search effectiveness. However, further evaluations including a more refined user simulation are needed.

Keywords: Approach, Bibliographic, Bibliographic Databases, Bibliometrics, Citations, Cluster, Clustering, Cognitive, Collection, Combining Full-Text, Databases, Development, Document Clustering, Effectiveness, Framework, Information, Information Retrieval, Ir, Literature, Mar, Modelling, Polyrepresentation, Publications, Ranking, Recent, Science, Search, Simulated User, Simulation, Strategy, Techniques, Work

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Full Text: [2015\Scientometrics102, 2323.pdf](2015/Scientometrics102,%202323.pdf)

Abstract: Models of science address statistical properties and mechanisms of science. From the perspective of scholarly information retrieval (IR) science models may provide some potential to improve retrieval quality when operationalized as specific search strategies or used for rankings. From the science modeling perspective, on the other hand, scholarly IR can play the role of a validation model of science models. The paper studies the applicability and usefulness of two particular science models for re-ranking search results (Bradfordizing and author centrality). The paper provides a preliminary evaluation study that demonstrates the benefits of using science model driven ranking techniques, but also how different the quality of search results can be if different conceptualizations of science are used for ranking.

Keywords: Benefits, Betweenness, Bradford Law, Bradfordizing, Centrality, Centrality Measures, Combining, Evaluation, Evaluation Study, Impact, Information, Information Retrieval, International Collaboration, IR, Mar, Mechanisms, Model, Modeling, Models, Network Analysis, Networks, Patterns, Potential, Properties, Quality, Quality Of, Ranking, Rankings, Role, Science, Science Models, Scientific Collaboration, Scientometrics, Search Strategies, Techniques, Validation

? Sidiropoulos, A., Katsaros, D. and Manolopoulos, Y. (2015), Ranking and identifying influential scientists versus mass producers by the Perfectionism Index. *Scientometrics*, **103** (1), 1-31.

Full Text: [2015\Scientometrics103, 1.pdf](2015/Scientometrics103,%201.pdf)

Abstract: The concept of h-index has been proposed to easily assess a researcher’s performance with a single number. However, by using only this number, we lose significant information about the distribution of citations per article in an author’s publication list. In this article, we study an author’s citation curve and we define two new areas related to this curve. We call these “penalty areas”, since the greater they are, the more an author’s performance is penalized. We exploit these areas to establish new indices, namely Perfectionism Index and eXtreme Perfectionism Index (XPI), aiming at categorizing researchers in two distinct categories: “influentials” and “mass producers”; the former category produces articles which are (almost all) with high impact, and the latter category produces a lot of articles with moderate or no impact at all. Using data from Microsoft Academic Service, we evaluate the merits mainly of PI as a useful tool for scientometric studies. We establish its effectiveness into separating the scientists into influentials and mass producers; we demonstrate its robustness against self-citations, and its uncorrelation to traditional indices. Finally, we apply PI to rank prominent scientists in the areas of databases, networks and multimedia, exhibiting the strength of the index in fulfilling its design goal.

Keywords: Academic, Article, Articles, Bibliometrics, Citation, Citation Analysis, Citations, Concept, Core, Data, Databases, Design, Distribution, Effectiveness, From, H Index, H-Index, H-Index, Impact, Index, Indices, Information, Multimedia, Networks, Output, Performance, Publication, Rank, Ranking, Researchers, Robustness, Scientists, Scientometric, Self-Citations, Strength, Tail

? Hassan, S.U. and Haddawy, P. (2015), Analyzing knowledge flows of scientific literature through semantic links: A case study in the field of energy. *Scientometrics*, **103** (1), 33-46.

Full Text: [2015\Scientometrics103, 33.pdf](2015/Scientometrics103,%2033.pdf)

Abstract: In this paper we propose a new technique to semantically analyze knowledge flows across countries by using publication and citation data. We start with the identification of research topics produced by a given source country. Then, we collect papers, published by the authors outside the source country, citing the identified research topics. At last, we group each set of citing papers separately to determine the scholarly impact of the actual identified research topics in the cited topics. The research topics are identified using our proposed topic model with distance matrix, an extension of classic Latent Dirichlet Allocation model. We also present a case study to illustrate the use of our proposed techniques in the subject area Energy during 2004-2009 using the Scopus database. We compare the Japanese and Chinese papers that cite the scientific literature produced by the researchers from the United States in order to show the difference in the use of same knowledge. The results indicate that Japanese researchers focus in the research areas such as efficient use of Photovoltaic, Energy Conversion and Superconductors (to produce low-cost renewable energy). In contrast with the Japanese researchers, Chinese researchers focus in the areas of Power Systems, Power Grids and Solar Cells production. Such analyses are useful for understanding the dynamics of the relevant knowledge flows across the nations.

Keywords: Allocation, Analyses, Authors, Bibliometrics, Case Study, Chinese, Citation, Citations, Country, Data, Database, Discovery, Distributions, Dynamics, Energy, Field, From, Gini Index, Identification, Impact, Journal Diffusion, Knowledge, Knowledge Flows, Literature, Low Cost, Matrix, Model, Nations, Papers, Publication, Renewable Energy, Research, Research Areas, Researchers, Scholarly Impact, Science, Scientific Literature, Scopus, Scopus Database, Semantic Analysis, Solar, Source, Techniques, Topic, Understanding, United States

? Ahlgren, P., Pagin, P., Persson, O. and Svedberg, M. (2015), Bibliometric analysis of two subdomains in philosophy: Free will and sorites. *Scientometrics*, **103** (1), 47-73.

Full Text: [2015\Scientometrics103, 47.pdf](2015/Scientometrics103,%2047.pdf)

Abstract: In this study we tested the fruitfulness of advanced bibliometric methods for mapping subdomains in philosophy. The development of the number of publications on free will and sorites, the two subdomains treated in the study, over time was studied. We applied the cocitation approach to map the most cited publications, authors and journals, and we mapped frequently occurring terms, using a term co-occurrence approach. Both subdomains show a strong increase of publications in Web of Science. When we decomposed the publications by faculty, we could see an increase of free will publications also in social sciences, medicine and natural sciences. The multidisciplinary character of free will research was reflected in the cocitation analysis and in the term co-occurrence analysis: we found clusters/groups of cocited publications, authors and journals, and of co-occurring terms, representing philosophy as well as non-philosophical fields, such as neuroscience and physics. The corresponding analyses of sorites publications displayed a structure consisting of research themes rather than fields. All in all, both philosophers involved in this study acknowledge the validity of the various networks presented. Bibliometric mapping appears to provide an interesting tool for describing the cognitive orientation of a research field, not only in the natural and life sciences but also in philosophy, which this study shows.

Keywords: Analyses, Analysis, Approach, Arts, Authors, Bibliometric, Bibliometric Analysis, Bibliometric Mapping, Bibliometric Methods, Bibliometrics, Co-Occurrence Analysis, Cocitation, Cocitation Analysis, Cognitive, Development, Economics, Faculty, Field, Free Will, Geography, Humanities-Citation-Index, Journals, Life, Life Sciences, Mapping, Medicine, Methods, Monographs, Most Cited, Multidisciplinary, Natural, Natural Sciences, Networks, Neuroscience, Patterns, Philosophy, Physics, Publications, Research, Research Themes, Science, Sciences, Serials, Social, Social Sciences, Social-Sciences, Sorites, Structure, Term, Validity, Web, Web Of Science

? Campani, M. and Vaglio, R. (2015), A simple interpretation of the growth of scientific/technological research impact leading to hype-type evolution curves. *Scientometrics*, **103** (1), 75-83.

Full Text: [2015\Scientometrics103, 75.pdf](2015/Scientometrics103,%2075.pdf)

Abstract: The empirical and theoretical justification of Gartner “hype curves” is a very relevant open question in the field of Technological Life Cycle analysis. The scope of the present paper is to introduce a simple model describing the growth of scientific/technological research impact, in the specific case where science is the main source of a new idea driving a technological development, leading to “hype-type” evolution curves. The main idea of the model is that, in a first stage, the growth of the scientific interest of a new specific field (as can be measured by publication numbers) basically follows the classical “logistic” growth curve. At a second stage, starting at a later trigger time, the technological development based on that scientific idea (as can be measured by patent deposits) can be described as the integral (in a mathematical sense) of the first curve, since technology is based on the overall accumulated scientific knowledge. The model is preliminary tested through a bibliometric analysis of the publication and patent deposit rate for organic light emitting diodes scientific research and technology.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometrics, Development, Driving, Evolution, Field, First, Growth, Hype Curves, Impact, Innovation, Knowledge, Model, Open, Organic, Patent, Publication, Research, Research Impact, Science, Scientific Research, Scope, Second Stage, Source, Technology, Theoretical

? Cavero, J.M., Vela, B., Caceres, P., Cuesta, C. and Sierra-Alonso, A. (2015), The evolution of female authorship in computing research. *Scientometrics*, **103** (1), 85-100.

Full Text: [2015\Scientometrics103, 85.pdf](2015/Scientometrics103,%2085.pdf)

Abstract: In this paper we have conducted a study that covers computer science publications from 1936 to 2010 in order to analyze the evolution of women in computing research. We have considered the computing conferences and journals that are available in the digital bibliography and library project database, which contains more than 1.5 million papers and more than 4 million authorships, corresponding to about 4,000 journals, conferences and workshops. We analyze the participation of women as the authors of publications, productivity and its relationship with the average research life of women in comparison to that of men, the gender distribution of conference and journal authorships depending on different computer science topics, and authors’ behavior as regards collaborating with one gender and/or the other. We also detail the method used to obtain and validate the data. The results of our study have led us to some interesting conclusions concerning various aspects of the evolution of female authorship in computing research.

Keywords: Authors, Authorship, Behavior, Bibliography, Comparison, Computer, Computer Science, Conferences, Data, Database, Dblp Database, Distribution, Evolution, Female, From, Gender, Gender Study, Gender-Differences, Impact, Journal, Journals, Life, Men, Papers, Participation, Productivity, Publications, Research, Research Productivity, Research Publications, Science, Women, Workshops

? Liu, P. and Xia, H.X. (2015), Structure and evolution of co-authorship network in an interdisciplinary research field. *Scientometrics*, **103** (1), 101-134.

Full Text: [2015\Scientometrics103, 101.pdf](2015/Scientometrics103,%20101.pdf)

Abstract: The structure and evolution of co-authorship networks have been extensively studied in literature. However, the studies on the co-authorship network in a specific interdisciplinary field may be complementary to the mainstream of existing works. In this paper, the interdisciplinary field of “evolution of cooperation”, which has been prevalent in the last decades as a promising scientific frontier, is analyzed by extracting its co-authorship network mainly from Web of Science. The results show that the development of this field is characterized by the growth of a giant component of its collaboration network. Originally formed by assembling a few local clusters, the giant component has gradually evolved from a small cluster to a structure of “chained-communities”, and then to a small-world structure. Through examining the degree distributions and analyzing the vulnerability, we uncover that the giant component is comprised of the “elite”, the “middle-class” and the “grassroots”, with respect to the nodes’ degrees and their functions in structuring the giant component. Furthermore, the elite and the middle-class constitute a robust cohesive-core, which underpins the modular network of the giant component. The overall results of this work may illuminate more endeavors on the collaboration network in other interdisciplinary fields.

Keywords: Cluster, Co-Authorship, Co-Authorship Network, Co-Authorship Networks, Coauthorship, Coauthorship Network, Cohesive Core, Collaboration, Collaboration Network, Community, Complementary, Cooperation, Development, Dynamics, Emergence, Evolution, Evolution Of Cooperation, Field, From, Functions, Giant Component, Growth, Interdisciplinary, Interdisciplinary Research, Library, Literature, Local, Network, Networks, Research, Science, Scientific Collaboration, Small, Small World, Social Networks, Stability, Structure, Vulnerability, Web, Web Of Science, Work

? Liu, Z.G., Yin, Y.M., Liu, W.D. and Dunford, M. (2015), Visualizing the intellectual structure and evolution of innovation systems research: A bibliometric analysis. *Scientometrics*, **103** (1), 135-158.

Full Text: [2015\Scientometrics103, 135.pdf](2015/Scientometrics103,%20135.pdf)

Abstract: Despite increasing awareness of the need to trace the trajectory of innovation system research, so far little attention has been given to quantitative depiction of the evolution of this fast-moving research field. This paper uses CiteSpace to demonstrate visually intellectual structures and developments. The study uses citation analysis to detect and visualize disciplinary distributions, keyword co-word networks and journal cocitation networks, highly cited references, as well as highly cited authors to identify intellectual turning points, pivotal points and emerging trends, in innovation systems system research from 1975 to 2012.

Keywords: Analysis, Attention, Author Cocitation Analysis, Authors, Awareness, Bibliometric, Bibliometric Analysis, Bibliometrics, Citation, Citation Analysis, Citespace, Cityscape, Co-Word, Co-Word Analysis, Cocitation, Emerging Trends, Evolution, Field, From, Highly Cited, Highly-Cited, Innovation, Innovation System, Innovation Systems, Intellectual Development, Intellectual Structure, International Scientific Collaboration, Journal, Knowledge Bases, Learning Region, National Systems, Networks, References, Renewable Energy Technology, Research, Science, Scientific Visualization, Structure, Systems, Trajectory, Trends

? Cheang, B., Li, C.S., Lim, A. and Zhang, Z.Z. (2015), Identifying patterns and structural influences in the scientific communication of business knowledge. *Scientometrics*, **103** (1), 159-189.

Full Text: [2015\Scientometrics103, 159.pdf](2015/Scientometrics103,%20159.pdf)

Abstract: This study uses several quantitative techniques to enable a multidimensional analysis of 47 key business journals by analyzing the scientific communication patterns and structural influences of these journals. Apart from using clustering techniques to establish research clusters in the Business domain, we apply a refined PageRank method by differentiating between the citation types to enable a cross-sectional evaluation of the selected journals. The results indicate that the five most influential journals are from Finance and Economics. The selected Finance journals are knowledge hubs and the selected Economics journals are knowledge sources when ISI’s entire journal database is considered. However, within the Business domain, the selected Finance journals appear to be high impact knowledge hubs while the selected Economics journals appear to be high impact journals despite weak citation activity. All in all, such analyses are beneficial to scholars when selecting publication outlets to showcase their research, and to agencies such Financial Times and Bloomberg when selecting their journals basket for their annual journal evaluation exercises.

Keywords: Activity, Analyses, Analysis, Business, Business Journals, Citation, Clustering, Communication, Cross-Sectional, Database, Economics, Evaluation, Exercises, Fields, Finance, From, Impact, Impact Factor, Indicators, Journal, Journal Evaluation, Journal Impact, Journals, Knowledge, Knowledge Hubs, Knowledge Roles, Knowledge Sources, Knowledge Stores, Multidimensional, Operations Management, Page Rank, Pagerank, Perceptions, Publication, Quality, Quality Ranking, Ranking, Research, Science, Scientific Communication, Sources, Techniques

? Ricker, M. (2015), A numerical algorithm with preference statements to evaluate the performance of scientists. *Scientometrics*, **103** (1), 191-212.

Full Text: [2015\Scientometrics103, 191.pdf](2015/Scientometrics103,%20191.pdf)

Abstract: Academic evaluation committees have been increasingly receptive for using the number of published indexed articles, as well as citations, to evaluate the performance of scientists. It is, however, impossible to develop a stand-alone, objective numerical algorithm for the evaluation of academic activities, because any evaluation necessarily includes subjective preference statements. In a market, the market prices represent preference statements, but scientists work largely in a non-market context. I propose a numerical algorithm that serves to determine the distribution of reward money in Mexico’s evaluation system, which uses relative prices of scientific goods and services as input. The relative prices would be determined by an evaluation committee. In this way, large evaluation systems (like Mexico’s Sistema Nacional de Investigadores) could work semi-automatically, but not arbitrarily or superficially, to determine quantitatively the academic performance of scientists every few years. Data of 73 scientists from the Biology Institute of Mexico’s National University are analyzed, and it is shown that the reward assignation and academic priorities depend heavily on those preferences. A maximum number of products or activities to be evaluated is recommended, to encourage quality over quantity.

Keywords: Academic, Academic Evaluation, Algorithm, Articles, Biology, Citations, Context, Data, Determinants, Distribution, Evaluation, Evaluation Committee, From, Impact Assessment, Market, Model, Performance, Preference, Quality, Research Output, Scientists, Scientists’ Value, Services, Sistema Nacional De Investigadores (Mexico), Systems, Unam’s Pride (Mexico), University, Work

? Brzezinski, M. (2015), Power laws in citation distributions: evidence from Scopus. *Scientometrics*, **103** (1), 213-228.

Full Text: [2015\Scientometrics103, 213.pdf](2015/Scientometrics103,%20213.pdf)

Abstract: Modeling distributions of citations to scientific papers is crucial for understanding how science develops. However, there is a considerable empirical controversy on which statistical model fits the citation distributions best. This paper is concerned with rigorous empirical detection of power-law behaviour in the distribution of citations received by the most highly cited scientific papers. We have used a large, novel data set on citations to scientific papers published between 1998 and 2002 drawn from Scopus. The power-law model is compared with a number of alternative models using a likelihood ratio test. We have found that the power-law hypothesis is rejected for around half of the Scopus fields of science. For these fields of science, the Yule, power-law with exponential cut-off and log-normal distributions seem to fit the data better than the pure power-law model. On the other hand, when the power-law hypothesis is not rejected, it is usually empirically indistinguishable from most of the alternative models. The pure power-law model seems to be the best model only for the most highly cited papers in “Physics and Astronomy”. Overall, our results seem to support theories implying that the most highly cited scientific papers follow the Yule, power-law with exponential cut-off or log-normal distribution. Our findings suggest also that power laws in citation distributions, when present, account only for a very small fraction of the published papers (less than 1 % for most of science fields) and that the power-law scaling parameter (exponent) is substantially higher (from around 3.2 to around 4.7) than found in the older literature.

Keywords: Alternative, Behaviour, Citation, Citation Distribution, Citations, Data, Data Set, Detection, Distribution, Evidence, From, Highly Cited, Highly Cited Papers, Highly-Cited, Impact, Laws, Likelihood Ratio, Literature, Model, Modeling, Models, Older, Papers, Power, Power Law, Power Law Model, Power Laws, Power-Laws, Scaling, Science, Scientific Citations, Scopus, Small, Statistical Modelling, Support, Understanding

? Kazakis, N.A. (2015), The research activity of the current faculty of the Greek chemical engineering departments: A bibliometric study in national and international context. *Scientometrics*, **103** (1), 229-250.

Full Text: [2015\Scientometrics103, 229.pdf](2015/Scientometrics103,%20229.pdf)

Abstract: The object of the present study is the evaluation of the research quality of the three Greek chemical engineering departments (Athens, Thessaloniki, Patras) by means of several advanced bibliometric indices calculated separately for each academic using a twofold approach, namely in department and academic rank level. This allows the ranking of the studied departments, but also sheds light on the distribution of the research activity among the various ranks. In addition, to assess the research profile and background of the current faculty of the Greek chemical engineering departments in International context their research output is compared with that of Massachusetts chemical engineering department, Massachusetts Institute of Technology (MIT). Dependency of the bibliometric indices on seniority is also investigated, conducting the bibliometric analysis using a common time basis for all academics, i.e., research performance during the last decade. Available data are also used to investigate the temporal progress of the research productivity. Finally, gender distribution among the academics of the various ranks is also studied to explore the gender balance in research. In general, bibliometrics demonstrate that Patras department host academics of better quality, with higher scientific activity over the last decade, but superiority of MIT department against the Greek departments is also evident. Results also indicate that no common standards in hiring/promotion of academics are established between the departments. The negative impact of the European socio-economic crisis on the research productivity is also highlighted, while the university system suffers from unequal gender distribution with pronounced male dominance.

Keywords: Academic Rank, Academics, Activity, Analysis, Approach, Balance, Bibliometric, Bibliometric Analysis, Bibliometric Study, Bibliometrics, Chemical, Chemical Engineering, Context, Crisis, Data, Department, Distribution, Engineering, Evaluation, Faculty, From, Gender, General, Greece, H-Index, Host, Impact, Index, Indices, International, Male, Massachusetts, Mit, Negative, Performance, Productivity, Progress, Publications, Quality, Quality Of, Rank, Ranking, Research, Research Evaluation, Research Output, Research Performance, Research Productivity, Research Quality, Results, Standards, Technology, Temporal, University

? Marroquin, A. and Cole, J.H. (2015), Economical writing (or, “Think Hemingway”). *Scientometrics*, **103** (1), 251-259.

Full Text: [2015\Scientometrics103, 251.pdf](2015/Scientometrics103,%20251.pdf)

Abstract: Salant (J Polit Econ 77(4):545-558, 1969) complained that on many occasions he found the writing of his fellow economists “nearly incomprehensible,” and made suggestions to improve economists’ writing skills (and, by extension, those of natural and social scientists in general). Among other things, he argued that good writers tend to use shorter words. We call this “the Salant hypothesis,” and use standard statistical techniques to test this claim by comparing the average length of words used by Nobel laureates in their banquet speeches. We find that Literature laureates tend to use shorter words than laureates in other disciplines, and the difference is statistically significant. These results support Salant’s idea that words should be used efficiently. This includes using short words instead of longer ones whenever possible. In short, good writing is also “economical writing.”.

Keywords: Anova, Articles, Disciplines, Economical Writing, General, Impact, Journals, Length, Literature, Natural, Nobel Laureates, Nobel Prize, Readability, Readability, Salant Hypothesis, Scientists, Social, Standard, Support, Techniques, Word Length

? Oosterhaven, J. (2015), Too many journals? Towards a theory of repeated rejections and ultimate acceptance. *Scientometrics*, **103** (1), 261-265.

Full Text: [2015\Scientometrics103, 261.pdf](2015/Scientometrics103,%20261.pdf)

Abstract: Under a set of reasonable assumptions, it is shown that all manuscripts submitted to any journal will ultimately be published, either by the first journal or by one of the following journals to which a manuscript is resubmitted. This suggests that low quality manuscripts may also be published, which further suggests that there may be too many journals.

Keywords: Acceptance, Assumptions, First, Journal, Journals, Quality, Rejection Rates, Scientific Journals, Theory, Ultimate Acceptance

? Fields, C. (2015), Close to the edge: Co-authorship proximity of Nobel laureates in Physiology or Medicine, 1991-2010, to cross-disciplinary brokers. *Scientometrics*, **103** (1), 267-299.

Full Text: [2015\Scientometrics103, 267.pdf](2015/Scientometrics103,%20267.pdf)

Abstract: Between 1991 and 2010, 45 scientists were honored with Nobel prizes in Physiology or Medicine. It is shown that these 45 Nobel laureates are separated, on average, by at most 2.8 co-authorship steps from at least one cross-disciplinary broker, defined as a researcher who has published co-authored papers both in some biomedical discipline and in some non-biomedical discipline. If Nobel laureates in Physiology or Medicine and their immediate collaborators can be regarded as forming the intuitive “center” of the biomedical sciences, then at least for this 20-year sample of Nobel laureates, the center of the biomedical sciences within the co-authorship graph of all of the sciences is closer to the edges of multiple non-biomedical disciplines than typical biomedical researchers are to each other.

Keywords: Biomedical, Biomedicine, Centrality, Co-Authorship, Co-Authorship Graphs, Coauthorship, Cross-Disciplinary Brokerage, Disciplines, From, Graph Centrality, Medicine, Networks, Nobel Laureates, Papers, Physiology Or Medicine, Preferential Attachment, Researchers, Science, Sciences, Scientists

? Walters, W.H. and Wilder, E.I. (2015), Worldwide contributors to the literature of library and information science: Top authors, 2007-2012. *Scientometrics*, **103** (1), 301-327.

Full Text: [2015\Scientometrics103, 301.pdf](2015/Scientometrics103,%20301.pdf)

Abstract: This study identifies the top individual contributors to 31 LIS journals from 2007 to 2012, both worldwide (all disciplines) and among four groups: LIS faculty in the US and Canada, LIS faculty in the UK, LIS faculty in other countries, and librarians worldwide. The distribution of authorship is highly skewed. Although more than 9,800 authors (86.4 %) each contributed no more than a single article over the six-year period, the top 50 authors (0.4 %) each contributed eight or more articles, with an average of 13.0. Together, the top 50 authors account for nearly 8 % of the LIS literature. Moreover, the most productive LIS faculty are concentrated in relatively few universities. Faculty in the natural sciences and LIS are more likely to be found among the top 50 authors than their overall contributions would suggest, while librarians, computer scientists and non-academic authors are underrepresented. Top authors are especially likely to publish in the Journal of Informetrics and Scientometrics. Among American LIS faculty, the list of the most prolific authors has changed substantially over time. Only three of the top 21 authors of the 1999-2004 period can be found on the current top-20 list.

Keywords: Article, Articles, Assessing Publication Impact, Authors, Authorship, Canada, Citation Patterns, Computer, Concentration, Contributors, Disciplines, Distribution, Faculty, From, Groups, H-Index, Information, Information Science, Informetrics, Journal, Journals, Li, Library, Library And Information Science, Lis, Lis Journals, Literature, Natural, Natural Sciences, Practitioners, Research Productivity, Scholarly Productivity, Science, Sciences, Scientists, Scientometrics, Top 50, UK, Universities, US, US LIS Faculty, Web

? Hartley, J. (2015), Inaccuracies in titles. *Scientometrics*, **103** (1), 329-330.

Full Text: [2015\Scientometrics103, 329.pdf](2015/Scientometrics103,%20329.pdf)

Keywords: Citation

? Aleixandre-Benavent, R., Resurreccio, V.M. and Valderrama-Zurian, J.C. (2015), Inaccuracies in titles on bibliometrics in biomedical journals. *Scientometrics*, **103** (1), 331-332.

Full Text: [2015\Scientometrics103, 331.pdf](2015/Scientometrics103,%20331.pdf)

Keywords: Bibliometrics, Biomedical, Biomedical Journals, Journals

? Brischoux, F. and Angelier, F. (2015), Academia’s never-ending selection for productivity. *Scientometrics*, **103** (1), 333-336.

Full Text: [2015\Scientometrics103, 333.pdf](2015/Scientometrics103,%20333.pdf)

Keywords: Impact, Obsession, Productivity, Quantity, Selection

? Hossain, L., Karimi, F., Wigand, R.T. and Crawford, J.W. (2015), Evolutionary longitudinal network dynamics of global zoonotic research. *Scientometrics*, **103** (2), 337-353.

Full Text: [2015\Scientometrics103, 337.pdf](2015/Scientometrics103,%20337.pdf)

Abstract: At global and local levels, we are observing an increasing range and rate of disease outbreaks that show evidence of jumping from animals to humans, and from food to humans. Zoonotic infections (i.e. Hendra, swine flu, anthrax) affect animal health and can be deadly to humans. The increasing rate of outbreaks of infectious diseases transferring from animals to humans (i.e. zoonotic diseases) necessitates detailed understanding of the education, research and practice of animal health and its connection to human health. These emerging microbial threats underline the need to exploring the evolutionary dynamics of zoonotic research across public health and animal health. This study investigates the collaboration network of different countries engaged in conducting zoonotic research. We explore the dynamics of this network from 1980 to 2012 based on large scientific data developed from Scopus. In our analyses, we compare several properties of the network including density, clustering coefficient, giant component and centrality measures over time. We also map the network over different time intervals using VOSviewer. We analyzed 5182 publication records. We found United States and United Kingdom as the most collaborative countries working with 110 and 74 other countries in 1048 and 599 cases, respectively. Our results show increasing close collaboration among scientists from the United States, several European countries including United Kingdom, Italy, France, Netherland, Switzerland, China and Australia with scientists from other parts of the world.

Keywords: Affect, Analyses, Animals, Australia, Centrality, China, Clustering, Collaboration, Data, Density, Disease, Diseases, Dynamics, Education, Evidence, Evolution, Food, France, From, Global, Health, Human, Human Health, Humans, Infections, Infectious Diseases, Infectious-Diseases, Intervals, Italy, Local, Longitudinal, Longitudinal Study, Measures, Microbial, Network, Network Dynamics, Practice, Properties, Public, Public Health, Publication, Records, Research, Scientists, Scopus, Swine, Switzerland, Understanding, United Kingdom, United States, Vosviewer, World, Zoonotic Research

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Full Text: [2015\Scientometrics103, 355.pdf](2015/Scientometrics103,%20355.pdf)

Abstract: Ethanol obtained from the conversion process of different types of biomass is a renewable source of fuel and since 2010 it has been classified as an “advanced fuel” by the EPA, due to its contribution to the reduction of the impacts of GHG emissions. Recent literature stresses the importance of the use of second-generation fuels to reduce the impacts of the direct and indirect use of land, mostly on agricultural prices. Although these demands constitute a clear clue to R&D activities, there are an impressive number of alternatives, regarding different kinds of biomass, processes and byproducts, a complex matrix of technological opportunities and the demands that generates a clear incentive for collaboration. This paper uses both the Bibliometry and Scientometry approach and the Innovation System (IS) literature under the perspective of Social Networks Analysis (SNA) to build Collaborative Networks (CNs) to the second-generation ethanol (lignocellulosic) using ISI Web of Science database. The adopted procedure emerges once authors, countries and institutions related to bioenergy have incentives to share information in the process of creating a new role in partnership-a network point-of-view. The results show that the United States is in a better position than other countries, improving the role of the university in their IS while China proves to be a great ally of the United States regarding the production of technology to produce lignocellulosic ethanol. Brazil however, does not appear well placed in the network, despite being the second largest producer of first-generation ethanol in the world.

Keywords: Agricultural, Alternatives, Analysis, Approach, Authors, Bibliometry, Bioenergy, Biomass, Brazil, China, Collaboration, Contribution, Conversion, Database, Emissions, Ethanol, From, Impacts, Incentives, Information, Innovation, Institutions, Is, ISI, ISI Web Of Science, Lignocellulosic, Literature, Matrix, Measure, Network, Networks, Position, Procedure, R&D, Recent, Reduction, Role, Science, Scientometry, Second-Generation, Sna, Source, Technology, United States, University, Web, Web Of Science, World

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Full Text: [2015\Scientometrics103, 373.pdf](2015/Scientometrics103,%20373.pdf)

Abstract: The subscription prices of peer-reviewed journals have in the past not been closely related to the scientific quality. This relationship has been further obscured by bundled e-licenses. The situation is different for Open Access (OA) journals that finance their operations via article processing charges (APCs). Due to competition and the fact that authors are often directly involved in making APC payments from their own or other limited funds, APC pricing has so far been sensitive to the quality and services offered by journals. We conducted a systematic survey of prices charged by OA journals indexed in Scopus and this revealed a moderate (0.40) correlation between the APCs and Source Normalized Impact per Paper values, a measure of citation rates. When weighted by article volumes the correlations between the quality and the price were significantly higher (0.67). This would seem to indicate that while publishers to some extent take the quality into account when pricing their journals, authors are even more sensitive to the relationship between price and quality in their choices of where to submit their manuscripts.

Keywords: Access, Apc, Article, Authors, Business Model, Citation, Citation Rates, Competition, Correlation, Correlations, From, Impact, Journals, Measure, Open Access, Paper, Peer Reviewed Journals, Peer-Reviewed, Pricing, Publication, Publishers, Quality, Rates, Scientific Quality, Scopus, Services, Snip Value, Survey, Systematic

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Full Text: [2015\Scientometrics103, 387.pdf](2015/Scientometrics103,%20387.pdf)

Abstract: Global landscape of scientific activity is changing and becoming more diverse with emerging economies particularly China redrawing the contours of scientific research in the twenty-first century. Research publications, the most cherished output of science, provides robust evidence of this changing landscape. The global publication share of advanced scientific countries is decreasing with significant rise in publication share of China and also of other emerging economies such as India, South Korea, and Brazil. Their publications though are still lagging in global reception as measured through citations. However, with increasing international collaboration and publishing in promising areas and high impact journals, the citation reception of their papers is increasing. Indian publication growth is much behind China whose growth has been dramatic! However, India’s emergence is interesting as from a leading country among developing economies in scientific publications till early 1980s, her publication growth exhibited sharp decline in the late 1980s. Only from 1995 onwards India started making an assertion in the global publication race and in some promising areas of high relevance such as nanotechnology her publication growth has been impressive. India to a large extent epitomises the scientific activity of emerging economies. Thus through the lens of India’s publication trend, the paper underscores the changing global landscape of science. To place India’s publishing activity in proper context, the paper broadly examines the publication activity of some advanced OECD countries and BRICKS (Brazil, Russia, India, China, South Korea and South Africa) countries. Implications of this study are discussed.

Keywords: Activity, Africa, Brazil, Bricks, Case Study, China, Citation, Citation Impact, Citations, Collaboration, Context, Country, Developing, Emerging Economies, Evidence, From, Global, Growth, High Impact, Impact, India, Infrastructure, International, International Collaboration, Journals, Korea, Landscape, Nanotechnology, Papers, Publication, Publication Activity, Publication Growth, Publication Trend, Publications, Publishing, Race, Relevance, Research, Research Publications, Russia, Science, Science Policy, Scientific Publications, Scientific Research, Sharp, South Africa, South Korea, Technology, Till, Trend, World

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Full Text: [2015\Scientometrics103, 413.pdf](2015/Scientometrics103,%20413.pdf)

Abstract: Topic models are a well known clustering approach for textual data, which provides promising applications in the bibliometric context for the purpose of discovering scientific topics and trends in a corpus of scientific publications. However, topic models per se provide poorly descriptive metadata featuring the discovered clusters of publications and they are not related to the other important metadata usually available with publications, such as authors affiliation, publication venue, and publication year. In this paper, we propose a methodological approach to topic modeling and post-processing of topic models results to the end of describing in depth a field of research over time. In particular, we work on a selection of publications from the international statistical literature, we propose an approach that allows us to identify sophisticated topic descriptors, and we analyze the links between topics and their temporal evolution.

Keywords: Affiliation, Approach, Authors, Bibliometric, Clustering, Context, Data, Evolution, Field, From, Index, International, Literature, Model, Modeling, Models, Probabilistic Topic Models, Probability, Publication, Publications, Purpose, Research, Research Output, Scientific Publications, Scientometrics, Selection, Statistics, Temporal, Text Mining, Topic, Topic Models, Trends, Work

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Full Text: [2015\Scientometrics103, 435.pdf](2015/Scientometrics103,%20435.pdf)

Abstract: Scientometric evaluation of nanoscience/nanotechnology requires complex search strategies and lengthy queries which retrieve massive amount of information. In order to offer some insight based on the most frequently occurring terms our research focused on a limited amount of data, collected on uniform principles. The prefix nano comes about in many different compound words thus offering a possibility for such assessment. The aim is to identify the scatter of nanoconcepts, among and within journals, as well as more generally, in the Web of Science (WOS). Ten principal journals were identified along with all unique nanoterms in article titles. Such terms occur on average in half of all titles. Terms were thoroughly investigated and mapped by lemmatization or stemming to the appropriate roots-nanoconcepts. The scatter of concepts follows the characteristics of power laws, especially Zipf’s law, exhibiting clear inversely proportional relationship between rank and frequency. The same three nanoconcepts are most frequently occurring in as many as seven journals. Two concepts occupy the first and the second rank in six journals. The same six concepts are the most frequently occurring in ten journals as well as full WOS database, representing almost two thirds of all nanotitled articles, in both instances. Subject categories don’t play a decisive role. Frequency falls progressively, quickly producing a long tail of rare concepts. Drop is almost linear on the log scale. The existence of hundreds of different closed-form compound nanoterms has consequences for the retrieval on the Internet search engines (e.g. Google Scholar) which do not permit truncation.

Keywords: Article, Articles, Assessment, Bibliometrics, Characteristics, Compound Words, Data, Database, Distribution, Evaluation, Falls, First, Google, Google Scholar, Information, Interdisciplinarity, Internet, Journals, Language, Law, Laws, Lexical Analysis, Nano, Nanoscience, Nanoscience, Nanotechnology, Patents, Power, Power Laws, Power-Laws, Principles, Publications, Rank, Research, Research Fields, Role, Scale, Science, Scientometric, Search Strategies, Search Strategy, Subject Categories, Terminology, Web, Web Of Science, Wos, Zipf’s Law

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Full Text: [2015\Scientometrics103, 453.pdf](2015/Scientometrics103,%20453.pdf)

Abstract: We proposed in this study to use anomaly detection models to discover research trends. The application was illustrated by applying a rule-based anomaly detector (WSARE), which was typically used for biosurveillance purpose, in the research trend analysis in social computing research. Based on articles collected from SCI-EXPANDED and CPCI-S databases during 2000 to 2013, we found that the number of social computing studies went up significantly in the past decade, with computer science and engineering among the top important subjects. Followed by China, USA was the largest contributor for studies in this field. According to anomaly detected by the WSARE, social computing research gradually shifted from its traditional fields such as computer science and engineering, to the fields of medical and health, and communication, etc. There was an emerging of various new subjects in recent years, including sentimental analysis, crowd-sourcing and e-health. We applied an interdisciplinary network evolution analysis to track changes in interdisciplinary collaboration, and found that most subject categories closely collaborate with subjects of computer science and engineering. Our study revealed that, anomaly detection models had high potentials in mining hidden research trends and may provided useful tools in the study of forecasting in other fields.

Keywords: Algorithm, Analysis, Anomaly Detection, Application, Articles, Changes, China, Collaboration, Communication, Computer, Computer Science, Databases, Detection, E-Health, Engineering, Evolution, Field, Forecasting, From, Health, Interdisciplinary, Interdisciplinary Networks, Medical, Mining, Models, Network, Outlier Detection, Performance, Purpose, Recent, Research, Research Trend, Research Trend Analysis, Research Trends, Sci-Expanded, Science, Social, Social Computing, System, Trend, Trend Analysis, Trends, Usa, Wsare

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Full Text: [2015\Scientometrics103, 471.pdf](2015/Scientometrics103,%20471.pdf)

Abstract: In the context of scientometrics and bibliometrics, several research fields are dealing with bibliographic data. In this paper, we will explore how the combination of online analytical processing (OLAP) analysis and information networks could be an interesting issue. In Business Intelligence, OLAP is a technology supported by data warehousing systems. It provides tools for analyzing data according to multiple dimensions and multiple hierarchical levels. At the same time, several information networks (co-authors network, citations network, institutions network, etc.) can be built based on bibliographic databases. Originally, OLAP was introduced to analyze structured data. However, in this paper, we wonder if, by combining OLAP and information networks, we can provide a new way of analyzing bibliographic data. OLAP should be able to handle information networks and be also useful for monitoring, browsing and analyzing the content and the structure of bibliographic networks. The goal of this survey paper is to review previous work on OLAP and information networks dealing with bibliographic data. We also propose a comparison between traditional OLAP and OLAP on information networks and discuss the challenges OLAP faces regarding bibliographic networks.

Keywords: Analysis, Bibliographic, Bibliographic Data, Bibliographic Databases, Bibliometrics, Business, Business Intelligence, Citations, Co-Authors, Combining, Comparison, Content, Context, Data, Data Analysis, Data Warehousing, Databases, Information, Information Networks, Institutions, Monitoring, Network, Networks, Olap, Online, Research, Review, Scientometrics, Structure, Survey, Systems, Technology, Work

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Full Text: [2015\Scientometrics103, 489.pdf](2015/Scientometrics103,%20489.pdf)

Abstract: Studies on publication and citation scores tend to focus mostly on frequently published and cited scholars. This paper contributes to advancing knowledge by simultaneously looking into both high and low performing scholars, including non-publishing scholars, and by focusing on factors increasing or impeding scholarly performances. To this end, two complementary sources of data are used: (1) data from ISI web of science on publications and citations of scholars from 35 Canadian business schools and, and (2) survey data on factors explaining the productivity and impact performances of these scholars. The analysis of the data reveals five scholar profiles: (i) non-publishing scholars; (ii) low performing scholars; (iii) frequently publishing scholars; (iv) frequently cited scholars and; (v) high-impact frequently publishing scholars. Statistical modeling is then used to look into factors that explain why scholars are any of these performance configuration rather another. Two major results emerge: first, scholars in the low performing profile differ from those in the non-publishing profile only by being in top tier universities and by having high levels of funding from research councils. Second, scholars who publish frequently and are frequently cited differ from those in the low performing profile in many ways: they are full professors, they dedicate more time to their research activities, they receive all their research funding from research councils, and, finally, they are located in top tier universities. The last part of the paper discusses policy implications for the development of research skills by university managers willing to increase the publication and citation scores of their faculty members.

Keywords: Academic Rank, Academics, Analysis, Business, Canadian, Citation, Citations, Complementary, Data, Determinants, Development, Factors, Faculty, Faculty Members, Fields, First, From, Funding, H-Index, High Impact, Impact, Isi, Isi Web Of Science, Knowledge, Knowledge Transfer, Modeling, Performance, Policy, Productivity, Professors, Profiles, Publication, Publications, Publishing, Rankings, Research, Research Funding, Research Productivity, Researchers, Science, Scientists, Sources, Statistical Modeling, Survey, Time Allocation, Universities, University, Web, Web Of Science

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Full Text: [2015\Scientometrics103, 531.pdf](2015/Scientometrics103,%20531.pdf)

Abstract: In this paper, we explore the longitudinal research collaboration network of ‘mammography performance’ over 30 years by creating and analysing a large collaboration network data using Scopus. The study of social networks using longitudinal data may provide new insights into how this collaborative research evolve over time as well as what type of actors influence the whole network in time. The methods and findings presented in this work aim to assist identifying key actors in other research collaboration networks. In doing so, we apply a rank aggregation technique to centrality measures in order to derive a single ranking of influential actors. We argue that there is a strong correlation between the level of degree and closeness centralities of an actor and its influence in the research collaboration network (at macro/country level).

Keywords: Aggregation, Betweenness, Centrality, Collaboration, Collaboration Networks, Collaborative Research, Correlation, Data, Design, Evolution, Growth, Influence, Influential Actors, Longitudinal, Longitudinal Data, Mammography, Mammography Performance, Measures, Methods, Network, Networks, Performance, Rank, Ranking, Research, Research Collaboration, Research Collaboration Network, Scientific Collaboration, Scopus, Self-Organization, Social, Social Network Analysis, Social Networks, Trade, Understanding, Work

? Hanazaki, N. (2015), Why are we so attached to the “ethno” prefix in Brazil? *Scientometrics*, **103** (2), 545-554.

Full Text: [2015\Scientometrics103, 545.pdf](2015/Scientometrics103,%20545.pdf)

Abstract: Ethnobiology is a clearly interdisciplinary field, with several connections to other research approaches, such as studies examining traditional ecological knowledge (TEK). The central question investigated is if Brazilian studies are disproportionately attached to the prefix “ethno” when compared to the profiles of other countries with high contributions to these scientific fields. I used a bibliometric review to investigate this question and discussed several outcomes of the resulting patterns. I retrieved 8470 articles, 6117 using keywords associated with TEK and 2954 using keywords associated with ethnobiology and related subfields. A unique scenario emerges only for Brazil, where there is a stronger attachment to the ethno prefix than the rest of the world, which reflects the history of these scientific approaches and the context of scientific production.

Keywords: Articles, Bibliometric, Brazil, Context, Ethnobiology, Ethnoecology, Field, Growth, History, Interdisciplinary, Knowledge, Local Ecological Knowledge, Management, Medicinal-Plants, Outcomes, Profiles, Publication, Research, Resources, Review, Scenario, Scientific Production, Traditional Ecological Knowledge, World

? Wang, X.W., Liu, C., Mao, W.L. and Fang, Z. (2015), The open access advantage considering citation, article usage and social media attention. *Scientometrics*, **103** (2), 555-564.

Full Text: [2015\Scientometrics103, 555.pdf](2015/Scientometrics103,%20555.pdf)

Abstract: In this study, we compare the difference in the impact between open access (OA) and non-open access (non-OA) articles. 1761 Nature Communications articles published from 1 January 2012 to 31 August 2013 are selected as our research objects, including 587 OA articles and 1174 non-OA articles. Citation data and daily updated article-level metrics data are harvested directly from the platform of nature.com. Data is analyzed from the static versus temporal-dynamic perspectives. The OA citation advantage is confirmed, and the OA advantage is also applicable when extending the comparing from citation to article views and social media attention. More important, we find that OA papers not only have the great advantage of total downloads, but also have the feature of keeping sustained and steady downloads for a long time. For article downloads, non-OA papers only have a short period of attention, when the advantage of OA papers exists for a much longer time.

Keywords: Access, Altmetrics, Article, Article-Level Metrics, Articles, Attention, Citation, Data, Feature, From, Impact, Media, Metrics, Open, Open Access, Open Access Advantage, Papers, Research, Social, Social Media, Social Media Attention, Usage Metrics

? Rodriguez, A., Kim, B., Turkoz, M., Lee, J.M., Coh, B.Y. and Jeong, M.K. (2015), New multi-stage similarity measure for calculation of pairwise patent similarity in a patent citation network. *Scientometrics*, **103** (2), 565-581.

Full Text: [2015\Scientometrics103, 565.pdf](2015/Scientometrics103,%20565.pdf)

Abstract: Being able to effectively measure similarity between patents in a complex patent citation network is a crucial task in understanding patent relatedness. In the past, techniques such as text mining and keyword analysis have been applied for patent similarity calculation. The drawback of these approaches is that they depend on word choice and writing style of authors. Most existing graph-based approaches use common neighbor-based measures, which only consider direct adjacency. In this work we propose new similarity measures for patents in a patent citation network using only the patent citation network structure. The proposed similarity measures leverage direct and indirect co-citation links between patents. A challenge is when some patents receive a large number of citations, thus are considered more similar to many other patents in the patent citation network. To overcome this challenge, we propose a normalization technique to account for the case where some pairs are ranked very similar to each other because they both are cited by many other patents. We validate our proposed similarity measures using US class codes for US patents and the well-known Jaccard similarity index. Experiments show that the proposed methods perform well when compared to the Jaccard similarity index.

Keywords: Adjacency Matrix, Analysis, Authors, Calculation, Challenge, Choice, Citation, Citation Network, Citations, Co-Citation, Cocitation, Codes, Index, Indirect Citation, Jaccard Similarity Index, Keyword Analysis, Measure, Measures, Methods, Mining, Network, Normalization, Patent, Patent Citation Network, Patents, Similarity, Similarity Measure, Structure, Techniques, Text Mining, Text-Mining, Understanding, Us, Us Class Code, Work

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Full Text: [2015\Scientometrics103, 583.pdf](2015/Scientometrics103,%20583.pdf)

Abstract: In order to efficiently allocate academic resources, an awareness of the properties of the underlying production function’s returns to scale is of crucial importance. For instance, the question arises as to what extent an expansion of a university department’s academic staff would be advisable in order to utilize increasing marginal gains of research production. On the other hand, it is disputable whether an optimal university department size exists. Empirical studies covering these questions render various answers. In this paper, we analyse which properties of returns to scale the Business Administration research of universities in Germany exhibits. On the basis of research data from 2001 until 2009 provided by the Centre for Higher Education, and using Data Envelopment Analysis, we demonstrate that typically sized business schools show nearly constant returns to scale. Furthermore, we observe tendencies of decreasing returns to scale for large-sized business schools. Diverse robustness and sensitivity analyses confirm the validity of our inferred empirical findings.

Keywords: Analyses, Analysis, Awareness, Business, Business Administration Research, Centre For Higher Education, Data, Data Envelopment Analysis, Data Envelopment Analysis, Dea, Department, Education, Efficiency, Empirical Production Function, From, Germany, Higher-Education, Programs, Properties, Research, Research Data, Research Performance, Research Productivity, Resources, Returns To Scale, Robustness, Scale, Scale Efficiency, Sensitivity, Size, Universities, University, University Departments, Validity

? Kullenberg, C. and Nelhans, G. (2015), The happiness turn? Mapping the emergence of “happiness studies” using cited references. *Scientometrics*, **103** (2), 615-630.

Full Text: [2015\Scientometrics103, 615.pdf](2015/Scientometrics103,%20615.pdf)

Abstract: This article analyzes “happiness studies” as an emerging field of inquiry throughout various scientific disciplines and research areas. Utilizing four operationalized search terms in the Web of Science; “happiness”, “subjective well-being”, “life satisfaction” and “positive affect”, a dataset was created for empirical citation analysis. Combined with qualitative interpretations of the publications, our results show how happiness studies has developed over time, in what journals the citing papers have been published, and which authors and researchers are the most productive within this set. We also trace various trends in happiness studies, such as the social indicators movement, the introduction of positive psychology and various medical and clinical applications of happiness studies. We conclude that “happiness studies” has emerged in many different disciplinary contexts and progressively been integrated and standardized. Moreover, beginning at the turn of the millennium, happiness studies has even begun to shape an autonomous field of inquiry, in which happiness becomes a key research problem for itself. Thus, rather than speaking of a distinct “happiness turn”, our study shows that there have been many heterogeneous turns to happiness, departing in a number of different disciplines.

Keywords: Analysis, Article, Authors, Autonomous, Bibliographic Coupling, Citation, Citation Analysis, Cited References, Clinical, Clinical Applications, Disciplines, Field, Happiness Studies, Indicators, Integrated, Journals, Life Satisfaction, Mapping, Medical, Movement, Multidisciplinary, Papers, Positive Psychology, Psychology, Publications, Qualitative, References, Research, Research Areas, Researchers, Science, Shape, Social, Trends, Web, Web Of Science

? Breitzman, A. and Thomas, P. (2015), Inventor team size as a predictor of the future citation impact of patents. *Scientometrics*, **103** (2), 631-647.

Full Text: [2015\Scientometrics103, 631.pdf](2015/Scientometrics103,%20631.pdf)

Abstract: Forward citations are widely recognized as a useful measure of the impact of patents upon subsequent technological developments. However, an inherent characteristic of forward citations is that they take time to accumulate. This makes them valuable for retrospective impact evaluations, but less helpful for prospective forecasting exercises. To overcome this, it would be desirable to have indicators that forecast future citations at the time a patent is issued. In this paper, we outline one such indicator, based on the size of the inventor teams associated with patents. We demonstrate that, on average, patents with eight or more co-inventors are cited significantly more frequently in their first 5 years than peer patents with fewer inventors. This result holds true across technologies, assignee type, citation source (examiner versus applicant), and after self-citations are accounted for. We hypothesize that inventor team size may be a reflection of the amount of resources committed by an organization to a given innovation, with more researchers attached to innovations regarded as having particular promise or value.

Keywords: Citation, Citation Impact, Citations, Exercises, First, Forecast, Forecasting, Forward Citations, Impact, Indicator, Indicators, Innovation, Inventor, Inventor Teams, Measure, Organization, Patent, Patents, Predictor, Prospective, Prospective Indicators, Reflection, Researchers, Resources, Retrospective, Self-Citations, Size, Source, Technologies, Value

? Aleixandre, J.L., Aleixandre-Tudo, J.L., Bolanos-Pizarro, M. and Aleixandre-Benavent, R. (2015), Global trends in scientific production in enology and viticulture in selected emerging economies (BRIC). *Scientometrics*, **103** (2), 649-668.

Full Text: [2015\Scientometrics103, 649.pdf](2015/Scientometrics103,%20649.pdf)

Abstract: The aim of this study was to analyse the scientific productivity of the BRIC countries (Brazil, Russia, India and China) in viticulture and oenology through bibliometric analyses of articles in the Science Citation Index Expanded database for the period 1993-2012. A total of 1067 research articles were published in 363 domestic and international journals. We highlight important growth during the mentioned period in the published research papers, particularly in China and Brazil over the last 5 years. Papers have been published in numerous journals in a number of subject areas, such as Revista Brasileira de Fruticultura and Pesquisa Agropecuaria Brasileira, which are the most productive among the BRIC countries. A social network analysis of collaboration between each of the four BRIC countries was also performed.

Keywords: Analyses, Analysis, Articles, Bibliometric, Bibliometric Analyses, Bibliometric Analysis, Brazil, Bric Countries, China, Citation, Coauthorship Networks, Collaboration, Countries, Database, Emerging Economies, Global, Growth, Health, India, Institutional Collaboration, International, Journals, Network, Network Analysis, Papers, Patterns, Productivity, Publications, Research, Research Papers, Russia, Science, Science Citation Index, Science Citation Index Expanded, Scientific Production, Scientific Productivity, Scientific Productivity And Collaboration, Social, Social Network, Social Network Analysis, Trends, Viticulture And Oenology, Wine Sector

? Wu, J., Jin, M. and Ding, X.H. (2015), Diversity of individual research disciplines in scientific funding. *Scientometrics*, **103** (2), 669-686.

Full Text: [2015\Scientometrics103, 669.pdf](2015/Scientometrics103,%20669.pdf)

Abstract: Given the development in modern science and technology, scientists need interdisciplinary knowledge and collaborations. In the National Natural Science Foundation of China (NSFC), more than 59 % of individuals change their disciplinary application codes to pursue interdisciplinary applications for scientific funding. An algorithm that classifies interdisciplinary applications and calculates the diversity of individual research disciplines (DIRD) is proposed based on three-level disciplinary application codes. Using a sample of 37,330 unique individuals at the NSFC from 2000 to 2013, this research analyzed the DIRD of all sponsored individuals and found that DIRDs differ significantly among scientific departments, research areas, and universities. Sponsored individuals prefer not to engage in cross-research-fields or interdisciplinary applications. In addition, top-class universities in China exhibit stronger ability to carry out interdisciplinary research than do other universities. This thorough investigation of interdisciplinary applications in a scientific foundation provides new insights in managing scientific funding.

Keywords: Algorithm, Application, China, Codes, Collaborations, Development, Disciplinary Diversity, Disciplines, Diversity, From, Funding, Interdisciplinary, Interdisciplinary Research, Interdisciplinary Research, Investigation, Knowledge, Nsfc, Policy, Project, Research, Research Areas, Research Discipline, Science, Science And Technology, Scientific Funding, Scientists, System, Technology, Universities

? Gonzalez-Teruel, A., Gonzalez-Alcaide, G., Barrios, M. and Abad-Garcia, M.F. (2015), Mapping recent information behavior research: An analysis of co-authorship and co-citation networks. *Scientometrics*, **103** (2), 687-705.

Full Text: [2015\Scientometrics103, 687.pdf](2015/Scientometrics103,%20687.pdf)

Abstract: There has been an increase in research published on information behavior in recent years, and this has been accompanied by an increase in its diversity and interaction with other fields, particularly information retrieval. The aims of this study are to determine which researchers have contributed to producing the current body of knowledge on this subject, and to describe its intellectual basis. A bibliometric and network analysis was applied to authorship and co-authorship as well as citation and co-citation. According to these analyses, there is a small number of authors who can be considered to be the most productive and who publish regularly, and a large number of transient ones. Other findings reveal a marked predominance of theoretical works, some examples of qualitative methodology that originate in other areas of social science, and a high incidence of research focused on the user interaction with information retrieval systems and the information behavior of doctors.

Keywords: Analyses, Analysis, Authors, Authorship, Behavior, Bibliometric, Centrality, Citation, Co-Authorship, Co-Authorships, Co-Citation, Co-Citation Analysis, Co-Citation Networks, Coauthorship, Cocitation, Diversity, Doctors, Incidence, Information, Information Behavior, Information Retrieval, Interaction, Knowledge, Library, Life, Mapping, Methodology, Needs, Network, Network Analysis, Networks, Qualitative, Recent, Research, Research Fields, Researchers, Science, Searching Behavior, Seeking, Small, Social, Systems, Theoretical, Transient, User, Web

? Chen, G., Xiao, L., Hu, C.P. and Zhao, X.Q. (2015), Identifying the research focus of Library and Information Science institutions in China with institution-specific keywords. *Scientometrics*, **103** (2), 707-724.

Full Text: [2015\Scientometrics103, 707.pdf](2015/Scientometrics103,%20707.pdf)

Abstract: In order to distinguish the research focus between different Library and Information Science (LIS) research institutions in China, we use the Keyword Activity Index (KAI) to identify their institution-specific keywords. The KAI, whose idea is borrowed from the Activity Index, measures whether an institution has alternatively comparative advantage in a particular topic according to its share in publications. In this study, a total of 65,653 papers from 19 core LIS journals in China during the period of 2000-2013 are collected. The top 8 most prolific LIS research institutions in China are selected for further investigation of the utility of KAI. Their institution-specific keywords are extracted based on the KAI values to represent their research focus and then clustered using co-word analysis; the research advantages of each institution are analyzed and compared according to these clusters. The reasons of their research advantages are analyzed based on their research function and research background.

Keywords: Activity, Advantage, Analysis, China, Co-Word, Co-Word Analysis, Collaboration, European Research Institutes, From, Function, Information, Information Science, Institutions, Investigation, Journals, Keyword, Keyword Activity Index, Keyword Analysis, Knowledge, Li, Library, Library And Information Science, Library And Information Science In China, Lis, Lis Journals, Lis Research, Measures, Networks, Papers, Publications, Rankings, Research, Research Focus, Research Institution, Research Institutions, Research Performance, Science, Structural-Analysis, Topic, Universities, Utility

? Wang, Y.D., Hu, D., Li, W.P., Li, Y.W. and Li, Q. (2015), Collaboration strategies and effects on university research: Evidence from Chinese universities. *Scientometrics*, **103** (2), 725-749.

Full Text: [2015\Scientometrics103, 725.pdf](2015/Scientometrics103,%20725.pdf)

Abstract: Previous studies have provided inconsistent evidence pertaining to the relationship between university-industry collaboration and university performance. This study’s objective is to go beyond traditional viewpoints, which mostly confine university-industry collaboration within a separate channel, to build the relationship between university-industry collaboration overall channel characteristics and university research performance. In doing so, we define two collaboration strategies, collaboration breadth, which is the scope of different channels, and collaboration depth, which is the extent that universities deepen into different channels. Based on a comprehensive panel dataset of Chinese universities in mainland China in 2009-2013, we find that collaboration breadth and collaboration depth have a linear and curvilinear effect on academic research performance, respectively. Moreover, the interaction of collaboration breadth and depth shows a negative impact on academic research performance.

Keywords: Academic Research, Academic Research, Bayh-Dole Act, Breadth, Characteristics, China, Chinese, Chinese Universities, Collaboration, Collaboration Breadth, Collaboration Depth, Effects, Evidence, From, Impact, Industry-Government Relations, Innovation System Reform, Interaction, Knowledge Transfer, Negative, Of-The-Literature, Performance, Public Research Organizations, Research, Research Performance, Research-And-Development, Scope, Technology-Transfer, Triple-Helix, Universities, University, University-Industry Collaboration, University-Industry Collaborations

# Title: Scottish Geographical Journal

Full Journal Title: [Scottish Geographical Journal](http://www.informaworld.com/smpp/title~db=all~content=t759156372)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Findlay, A. (2008), Scottish geography is dead: Long live Scottish ‘g’eography! *Scottish Geographical Journal*, **124** (4), 229-235.

Full Text: [2008\Sco Geo J124, 229.pdf](2008/Sco%20Geo%20J124,%20229.pdf)

Abstract: It has been claimed that geography journals located in so-called ‘small nations’ face special challenges. This paper suggests that three processes have demanded rapid responses from all geographical journals: globalisation of research-publishing, changing professional practices and the restructuring of the institutional context within which research is undertaken. These processes have been powerful in re-shaping geographical research. Examining the case of Scottish Geography over the last 20 years, the paper concludes there is much to be optimistic about, even though some might regret that ‘Geography’, as we once knew it, no longer exists. Recognising the challenges of the current research environment provides a useful starting point for the Scottish Geographical Journal to chart a new future for itself and for Scottish geographical endeavours.

Keywords: Bibliometrics, Context, Environment, Geography, Globalisation, Institutional, Institutional Context, Journals, Nations, Practices, Professional, Professional Practice, Rapid, Research, Restructuring, Scottish Geography, Scottish Universities, Small

# Title: Scripta Nova-Revista Electronica de Geografia y Ciencias Sociales

Full Journal Title: Scripta Nova-Revista Electronica de Geografia y Ciencias Sociales

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Herrera, L.M.G. and Rodriguez, M.D.D. (2008), Gentrification processes: Research and perspectives in Spanish geography (1999-2008). *Scripta Nova-Revista Electronica de Geografia y Ciencias Sociales*, **12** (270), Sp. Iss. SI.

Abstract: Gentrification processes have important social and spatial meaning and, therefore, it is critical to understand present city changes and restructuring. The aim of this paper is to identify the approaches to the study of gentrification in Spanish research throughout the last decade. Bibliometric analysis of the articles about this subject, published in the high impact Spanish Social Sciences and Geography journals provides information about the amount and the scope of the existing research on gentrification.

Keywords: Bibliometric, Bibliometric Analysis, Brussels, Consumption, Displacement, Diversity, Elitization, Gentrification, Geography, Impact, Journals, Neighborhood, New-York-City, Research, Sciences, Spaces, Spanish Geography, Tourism

# Title: Search

Full Journal Title: Search

ISO Abbreviated Title: Search

JCR Abbreviated Title: Search

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Bridgstock, M. (1993), What is scientific misconduct. *Search*, **24** (3), 75-78.

Abstract: There are disturbing signs that a consensus may not exist on what constitutes acceptable conduct in science. This article reports the results of interviews with 30 academic scientists on what they viewed as misconduct. The results indicate that, while strong consensus exists in some areas, such as plagiarism and the faking of results, there is substantial disagreement on whether practices such as publicity seeking, heavy self-citation and omitting anomalous results constitute misconduct.

Keywords: Archaeology, Science, Self-Citation

# Title: Seminars in Arthritis and Rheumatism

Full Journal Title: Seminars in Arthritis and Rheumatism

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Yunus, M.B. (2008), Central sensitivity syndromes: A new paradigm and group nosology for fibromyalgia and overlapping conditions, and the related issue of disease versus illness. *Seminars in Arthritis and Rheumatism*, **37** (6), 339-352.

Abstract: Objectives: To discuss the current terminologies used for fibromyalgia syndrome (FMS) and related overlapping conditions, to examine if central sensitivity syndromes (CSS) is the appropriate nosology for these disorders, and to explore the issue of disease versus illness. Methods: A literature search was performed through PUBMED, Web of Science, and ScienceDirect using a number of keywords, eg, functional somatic syndromes, somatoform disorders, medically unexplained symptoms, organic and nonorganic, and diseases and illness. Relevant articles were then reviewed and representative ones cited. Results: Terminologies currently used for CSS conditions predominantly represent a psychosocial construct and are inappropriate. On the other hand, CSS seems to be the logical nosology based on a biopsychosocial model. Such terms as “medically unexplained symptoms,” “somatization,” “somatization disorder,” and “functional somatic syndromes” in the context of CSS should be abandoned. Given current scientific knowledge, the concept of disease-illness dualism has no rational basis and impedes proper patient-physician communication, resulting in poor patient care. The concept of CSS is likely to promote research, education, and proper patient management. Conclusion: CSS seems to be a useful paradigm and an appropriate terminology for FMS and related conditions. The disease-illness, as well as organic/non-organic dichotomy, should be rejected. (C) 2008 Elsevier Inc. All rights reserved.

Keywords: Central Sensitivity Syndromes, Chronic Widespread Pain, Chronic-Fatigue-Syndrome, Communication, Coronary-Artery-Disease, Disease, Disease Versus Illness, Education, Fibromyalgia, Functional, Functional Somatic Syndromes, Functional Somatic Syndromes, Hand, Irritable-Bowel-Syndrome, Knowledge, Literature, Management, Medically Unexplained Symptoms, Medically Unexplained Symptoms, Methods, Model, Overlapping, Overlapping Syndromes, Pituitary-Adrenal Axis, Placebo-Controlled Trial, Pressure-Pain Thresholds, Psychosocial, Pubmed, Research, Science, Sensitivity, Somatization, Symptoms, Tension-Type Headache, Web of Science

? Kalichman, L., Bannuru, R.R., Severin, M. and Harvey, W. (2011), Injection of botulinum toxin for treatment of chronic lateral epicondylitis: Systematic review and meta-analysis. *Seminars in Arthritis and Rheumatism*, **40** (6), 532-538.

Abstract: Objectives: Lateral epicondylitis can be chronic and difficult to manage with conservative measures such as physical therapy and corticosteroid injection. We attempted to determine the efficacy of botulinum toxin for the treatment of chronic lateral epicondylitis. Methods: We searched PUBMED, MEDLINE, CINAHL, Google Scholar, EMBASE, PEDro, and ISI Web of Science databases from inception until November 2009. Studies were included if they used any formulation of botulinum toxin A for treatment of chronic lateral epicondylitis and reported at least 1 pain outcome. One author extracted the relevant data using a standardized data extraction sheet and a second author checked the data. We performed a meta-analysis by computing effect sizes for each study separately for pain and grip strength at 3 months after injection. Impact of bias was assessed independently by 2 authors. Results: the search found 10 studies relevant to the question. Four of these were randomized controlled trials that could be pooled in a meta-analysis. Results showed a moderate effect for pain favoring botulinum toxin (effect size -0.5, 95% CI -0.9, -0.1, I(2) = 56%) at 3 months and a no effect for grip strength. Qualitative analysis of the studies that could not be pooled also showed improvement in pain, but was limited by potential bias. Conclusions: Present literature provides support for use of botulinum toxin A injections into the forearm extensor muscles (60 units) for treatment of chronic treatment-resistant lateral epicondylitis. It is minimally invasive and can be performed in an outpatient setting. (C) 2011 Elsevier Inc. All rights reserved. Semin Arthritis Rheum 40:532-538.

Keywords: Analysis, Author, Authors, Bias, Botulinum Toxin A, Chronic Radial Epicondylitis, Clinical-Trials, Corticosteroid, Databases, Double-Blind, Efficacy, Embase, Google Scholar, Grip Strength, Impact, ISI, ISI Web of Science, Lateral Epicondylitis, Literature, MEDLINE, Meta-Analysis, Methods, Musculoskeletal Disorders, Myofascial Pain, Outcome, Pain, Physical Therapy, Prevalence, Pubmed, Randomized Controlled Trials, Randomized Controlled-Trial, Review, Science, Strength, Systematic, Systematic Review, Tennis Elbow, Tennis Elbow, Therapy, Treatment, Trigger Points, Upper-Limb

? Meeus, M., Vervisch, S., De Clerck, L.S., Moorkens, G., Hans, G. and Nijs, J. (2012), Central sensitization in patients with rheumatoid arthritis: A systematic literature review. *Seminars in Arthritis and Rheumatism*, **41** (4), 556-567.

Full Text: [2012\Sem Art Rhe41, 556.pdf](2012/Sem%20Art%20Rhe41,%20556.pdf)

Abstract: Objective: the goal of the present study is to systematically review the scientific literature addressing central sensitization and central nociceptive processing in patients with rheumatoid arthritis (RA). Methods: To identify relevant articles, we searched PubMed and Web of Science. The search strategy was a combination of terms of the following groups: “Rheumatoid arthritis,” inflammatory joint pain, or arthritis; and (central) sensitization, (central) hypersensitivity, central hyperexcitability, pain modulation, pain processing, neural inhibition, or pain physiopathology; and pain, nociception, hyperalgesia, pain threshold, or algometry. Articles fulfilling the inclusion criteria were screened for methodologic quality with specific checklists to evaluate different study designs (2 independent raters). Results: Twenty-four full-text articles were included, of which the majority were case-control studies, followed by nonsystematic reviews, cross-sectional studies, and case reports. Methodologic quality was very heterogeneous. Preliminary evidence for generalized hyperalgesia in RA is available. In addition, the mechanism behind impaired central nociceptive processing remains rather obscure. The role of cytokines and neuropeptides especially remains to be elucidated. Windup appears to develop more easily in RA, but evidence in support of impaired nociceptive inhibition and cognitive emotional sensitization (sensitization due to cognitive bias) is scarce. Conclusions: the symmetrical manifestation of the disease, the poor relation between disease activity and symptoms, and the generalized hyperalgesia at both articular and nonarticular sites for different kinds of stimuli are indicative of the presence of central sensitization in RA patients. Further research is required to provide firm evidence in support of various aspects of central sensitization in humans with RA. (C) 2012 Elsevier Inc. All rights reserved. Semin Arthritis Rheum 41:556-567.

Keywords: Animals, Arthritis, Articles, Bias, Case Reports, Case-Control, Case-Control Studies, Central Sensitization, Chronic Pain, Chronic-Fatigue-Syndrome, Criteria, Cross-Sectional Studies, Cytokines, Disease, Evidence, Fibromyalgia, Humans, Hyperalgesia, Inflammation, Inhibition, Literature, Mechanism, Mechanisms, Pain, Pain Inhibition, Pain Processing, Patients, Pressure-Pain Threshold, Pubmed, Quality, Research, Responses, Review, Reviews, Rheumatoid Arthritis, Rights, Role, Science, Scientific Literature, Search Strategy, Sensitization, Strategy, Support, Symptoms, Systematic Review, Threshold, Trials, Web of Science

? Eng, G., Stoltenberg, M.B., Szkudlarek, M., Bouchelouche, P.N., Christensen, R., Bliddal, H. and Bartels, E.M. (2013), Efficacy of treatment intensification with adalimumab, etanercept and infliximab in rheumatoid arthritis: A systematic review of cohort studies with focus on dose. *Seminars in Arthritis and Rheumatism*, **43** (2), 144-151.

Full Text: [2013\Sem Art Rhe43, 144.pdf](2013/Sem%20Art%20Rhe43,%20144.pdf)

Abstract: Objectives: To summarize the empirical evidence regarding the effect of treatment intensification on clinical outcomes in patients with rheumatoid arthritis treated with one of the TNF-alpha-inhibitors, adalimumab, etanercept or infliximab. Methods: A systematic search of the bibliographic databases Embase, MEDLINE, Web of Science and Cochrane Central identifying articles concerning treatment with adalimumab, etanercept or infliximab in adult patients with rheumatoid arthritis exposed to dose increase or shortening of dosing intervals was performed. Longitudinal cohorts, both clinical trials and observational studies, were included. ACR and EULAR response criteria and DAS28 were the preferred outcome measures. Results: Out of 1135 records, eleven studies were included in the final evidence synthesis. One article concerned all the three TNF-alpha-inhibitors, eight used infliximab, one adalimumab and one etanercept. According to GRADE, evidence was weakened in particular by the lack of control groups, and for treatment intensification with adalimumab and etanercept, no conclusions could be drawn. With infliximab, two trials of high quality revealed contradictory results, but six studies described an improved clinical outcome following intensified treatment strategies. Some studies (2/2) also indicated that for infliximab, frequency increase was superior to dose increase. Conclusions: Available studies indicate that intensifying treatment with infliximab in rheumatoid arthritis patients, preferably by increasing the frequency of drug administration, may lead to improved clinical outcome in some patients, but the evidence is weak. There is an urgent need for prospectively designed cohort studies to be able to draw a final conclusion. (C) 2013 Elsevier Inc. All rights reserved.

Keywords: Adalimumab, Administration, Adult, Arthritis, Association, Bibliographic, Bibliographic Databases, Clinical, Clinical Outcomes, Clinical Trials, Cohort, Control, Control Groups, Criteria, Databases, Dose Escalation, Double-Blind, Drug, Drug Administration, Efficacy, Escalation, Etanercept, Evidence, Grade, Groups, Had, Infliximab, Intensification, Intervals, Lead, Measures, MEDLINE, Methods, Multicenter, Observational, Observational Studies, Outcome, Outcome Measures, Outcomes, Patients, Quality, Recommendations, Records, Results, Review, Rheumatoid Arthritis, Rights, Safety, Science, Synthesis, Systematic Review, Therapy, Treatment, Trial, Web of Science

? Sutton, E.J., Davidson, J.E. and Bruce, I.N. (2013), The Systemic Lupus International Collaborating Clinics (SLICC) damage index: A systematic literature review. *Seminars in Arthritis and Rheumatism*, **43** (3), 352-361.

Full Text: [2013\Sem Art Rhe43, 325.pdf](2013/Sem%20Art%20Rhe43,%20325.pdf)

Abstract: Objectives: We performed a systematic literature review to determine factors that influence damage and damage progression in SLE patients and how damage relates to mortality in this population. Methods: A search of Medline, Embase and Web of Science was performed, with papers included if they met the requirements of containing keywords relating to SLE and damage assessment using the SDI, published between 1990 and October 2012. Results: A total of 358 articles were identified, with 50 included in this review. From 17 studies reporting damage at more than 2 time points, damage progressed over time, but the rate of damage accrual reported was variable across studies. Demographic factors that influence the accrual of damage in several reports include male gender, older age, longer disease duration, Afro-Caribbean and Indo-Asian ethnicity. Patients with higher disease activity at a single time point or over time accrue greater damage. Certain organ system involvement also predicts damage accrual, in particular renal and neuropsychiatric involvement. Corticosteroids, cyclophosphamide and azathioprine all show an association with damage accrual, while hydroxychloroquine appears to have a “protective” effect. Four studies, which examined prognosis, all demonstrated that damage is a predictor of future mortality. Conclusions: Damage in SLE patients increases over time and predicts future mortality. Patients at risk of damage can be identified from demographics factors and the pattern of clinical involvement. Disease activity, corticosteroids and immunosuppressive therapy are also associated with future damage but further studies are needed to separate the mechanisms of these associations from the problem of residual confounding. (C) 2013 Elsevier Inc. All rights reserved.

Keywords: 3 Ethnic-Groups, Activity, Age, Arthritis, Assessment, Association, Azathioprine, Clinical, Clinics, American-College, Confounding, Corticosteroids, Cyclophosphamide, Damage, Damage Assessment, Disease, Disease-Activity, Duration, England, Epidemiology, Erythematosus, Ethnicity, Europe, Gender, Hydroxychloroquine, Immunosuppressive Therapy, Index, Influence, Israeli Cohort, Literature, Literature Review, Long-Term, Male, Male Gender, Mechanisms, Medline, Methods, Mortality, Onset, Organ Damage, Papers, Patients, Pattern, Population, Prevalence, Prognosis, Progression, Renal, Reporting, Results, Review, Rights, Risk, Science, Sdi, Sle, Socioeconomic-Status, Systemic Lupus Erythematosus, Therapy, UK, USA, Web of Science

? Bannuru, R.R., Vaysbrot, E.E., Sullivan, M.C. and McAlindon, T.E. (2014), Relative efficacy of hyaluronic acid in comparison with NSAIDs for knee osteoarthritis: A systematic review and meta-analysis. *Seminars in Arthritis and Rheumatism*, **43** (5), 593-599.

Full Text: [2014\Sem Art Rhe43, 593.pdf](2014/Sem%20Art%20Rhe43,%20593.pdf)

Abstract: Objective: To assess the relative efficacy of intra-articular hyaluronic acid (IAHA) in comparison with non-steroidal anti-inflammatory drugs (NSAIDs) for knee osteoarthritis (OA). Methods: We searched Medline, EMBASE, Google Scholar, ISI Web of Science, and Cochrane Database from inception until February 2013. Randomized controlled trials comparing HA with NSAIDs for knee OA were included if they reported at least one pain outcome. Two reviewers abstracted data and determined quality. Outcomes included pain, function, and stiffness. Random-effects meta-analyses were performed. Results: Five trials (712 participants) contributed to the pain analysis. Both groups showed improvement from baseline. The analysis found an effect size (ES) of -0.07 (95% CI: -0.24 to 0.10) at trial end, favoring neither treatment. There were no statistically significant differences between the groups at 4 and 12 weeks in function [ES = -0.08 (95% CI: -0.39 to 0.23)] or stiffness [ES = 0.03 (95% CI: -0.27 to 0.34)] analyses based on two trials. Injection site pain was the most common adverse event reported in the HA group, and gastrointestinal adverse events were more common in the NSAIDs group. Conclusion: This meta-analysis suggests that IAHA is not significantly different from continuous oral NSAIDs at 4 and 12 weeks. Our study detected no safety concerns; however, the included trials had only a short follow-up duration. Given the favorable safety profile of IAHA over NSAIDs, this result suggests that IAHA might be a viable alternative to NSAIDs for knee OA, especially for older patients at greater risk for systemic adverse events. (C) 2014 Elsevier Inc. All rights reserved.

Keywords: Alternative, Analyses, Analysis, Arthritis, Clinical-Trials, Comparison, Cyclo-Oxygenase-2 Inhibitors, Data, Database, Drugs, Duration, Effect Size, Efficacy, Embase, Events, Follow-Up, Function, Google, Google Scholar, Groups, Hyaluronic Acid, Improvement, Intraarticular Injection, Isi, Isi Web Of Science, Knee Osteoarthritis, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Nonsteroidal Antiinflammatory Drugs, Nsaids, Oarsi Recommendations, Oral, Osteoarthritis, Outcome, Outcomes, Pain, Patients, Quality, Randomized Controlled Trials, Randomized Controlled-Trials, Relative, Results, Review, Reviewers, Rights, Risk, Safety, Science, Site, Size, Systematic, Systematic Review, Treatment, Trial, Viscosupplementation, Web Of Science

? Cagnie, B., Coppieters, I., Denecker, S., Six, J., Danneels, L. and Meeus, M. (2014), Central sensitization in fibromyalgia? A systematic review on structural and functional brain MRI. *Seminars in Arthritis and Rheumatism*, **44** (1), 68-75.

Full Text: [2014\Sem Art Rhe44, 68.pdf](2014/Sem%20Art%20Rhe44,%2068.pdf)

Abstract: Objectives: The aim of the present study was to systematically review the literature addressing pain-induced changes in the brain related to central sensitization in patients with fibromyalgia (FM) using specific functional (rs-fMRI and fMRI) and structural (voxel-based morphometry-VBM) brain MRI techniques. Methods: PubMed and Web of Science were searched for relevant literature using different key word combinations related to FM, brain MRI, and central sensitization. Full-text reports fulfilling the inclusion criteria were assessed on risk of bias and reviewed by two independent reviewers. Results: From the 61 articles that were identified, 22 met the inclusion criteria and achieved sufficient methodological quality. Overall, eight articles examined structural brain (VBM) changes in patients with FM, showing moderate evidence that central sensitization is correlated with gray matter volume decrease in specific brain regions (mainly anterior cingulate cortex and prefrontal cortex). However, global gray matter volume remains unchanged. A total of 13 articles evaluated brain activity (fMRI) in response to a nociceptive stimulus. Findings suggest a higher but similar pattern of activation of the pain matrix in FM patients compared to controls. There is also evidence of decreased functional connectivity in the descending pain-modulating system in FM patients. Overall, two articles examined intrinsic brain connectivity in FM patients with rs-fMRI. In conclusion, there is moderate evidence for a significant imbalance of the connectivity within the pain network during rest in patients with FM. Conclusions: The included studies showed a moderate evidence for region-specific changes in gray matter volume, a decreased functional connectivity in the descending pain-modulating system, and an increased activity in the pain matrix related to central sensitization. More research is needed to evaluate the cause-effect relationship. (C) 2014 Elsevier Inc. All rights reserved.

Keywords: (Rs)-Fmri, Activation, Activity, Articles, Bias, Brain, Brain Activity, Central Sensitization, Changes, Chronic Pain, Chronic-Fatigue-Syndrome, Connectivity, Criteria, Evidence, Fiber-Evoked Pain, Fibromyalgia, Fmri, Functional Connectivity, Global, Gray Matter, Healthy Controls, Hyperalgesia, Intrinsic, Literature, Low-Back-Pain, Matrix, Methods, Mri, Network, Pain, Pain Matrix, Patients, Pattern, Prefrontal Cortex, Pubmed, Quality, Research, Response, Results, Review, Reviewers, Rights, Risk, Science, Sensitization, Slow Temporal Summation, Systematic, Systematic Review, Techniques, Temporal Summation, Vbm, Volume, Voxel-Based Morphometry, Web Of Science

? Wang, L.D.R., Barber, C.E., Johnson, A.S. and Barnabe, C. (2014), Invasive fungal disease in systemic lupus erythematosus: A systematic review of disease characteristics, risk factors, and prognosis. *Seminars in Arthritis and Rheumatism*, **44** (3), 325-330.

Full Text: [2014\Sem Art Rhe44, 325.pdf](2014/Sem%20Art%20Rhe44,%20325.pdf)

Abstract: Objectives: Invasive fungal disease (IFD) is a life-threatening complication of systemic lupus erythematosus (SLE) and/or its treatment. We conducted a systematic review to characterize IFD in SLE and identify risk factors and outcomes. Methods: MEDLINE, Embase, and Web of Science were searched up to June 2013 using MeSH terms and keywords pertaining to SLE and IFD. Two independent reviewers selected adult cohort studies and case series/reports on IFD in SLE based on the established classification criteria for both diseases. Results: In total, 393 cases from 182 studies met the criteria for inclusion. Cryptococcus spp., Aspergillus spp., and Candida spp. were the most common fungal pathogens. Cohorts described IFD in 0.6-3.2% of SLE inpatients and 0.28% of SLE outpatients. IFD occurred at a median of 2 years of disease duration (IQR: 0.5-7.1), and 39% of cases occurred within the first year of SLE. Disease activity and corticosteroid dose > 60 mg/day emerged as risk factors for IFD. IFD was associated with a mortality rate of 53% (161/316 cases), and worse in the absence of antifungal therapy (n = 43). Overall, 44 cases of IFD were only diagnosed on autopsy. Conclusions: Our systematic review confirms the severe sequelae of IFD in SLE. Cases occurred in patients with active SLE, who were on high daily corticosteroids doses and at early stages of disease. This highlights the role of poor disease control and a high “net state of immunosuppression” in risk. IFD in SLE should be prospectively examined in the modern era. (C) 2014 Elsevier Inc. All rights reserved.

Keywords: Active, Activity, Adult, Antifungal, Autopsy, Candida, Characteristics, Classification, Cohort, Complication, Control, Corticosteroids, Criteria, Cryptococcal Meningitis, Death, Disease, Diseases, Duration, Experience, Factors, First, From, Index, Infections, Inpatients, Institute, Invasive Fungal Disease, Lupus Erythematosus, Medline, Methods, Mortality, Mortality Rate, Outcomes, Outpatients, Pathogens, Patients, Prognosis, Results, Review, Reviewers, Rights, Risk, Risk Factors, Role, Science, Sle, State, Systematic, Systematic Review, Systemic Lupus Erythematosus, Therapy, Treatment, Web, Web Of Science

# Title: Seminars in Dialysis

Full Journal Title: Seminars in Dialysis

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Bennett, P.N., Breugelmans, L., Barnard, R., Agius, M., Chan, D., Fraser, D., McNeill, L. and Potter, L. (2010), Sustaining a hemodialysis exercise program: A review. *Seminars in Dialysis*, **23** (1), 62-73.

Abstract: This article reviews the literature addressing exercise programs for dialysis patients to identify elements necessary for sustaining exercise programs in this population. Literature searches for publications (January 1980-February 2009) in MEDLINE (OVID), PUBMED, CINAHL (EBSCO), EBSCOhost EJS, ProQuest Central, Web of Science, Cochrane Library, Google Scholar, ScienceDirect, Springer-Link (Kluwer), and Wiley Interscience (Blackwell) were performed. Reference lists from relevant articles were hand-searched for further publications. Criteria for inclusion included full-text primary research and review articles focused on exercise for adult hemodialysis patients. One hundred and seventy one publications were found with a primary focus on exercise in hemodialysis. of these, 28 primary research and 14 review articles addressed one or more aspects of sustainability of hemodialysis exercise programs. Factors contributing to sustainable exercise programs included: dedicated exercise professionals; encouragement to exercise intradialytically; dialysis and medical staff commitment; adequate physical requirements of equipment and space; interesting and stimulating; cost implications need to be addressed; exercise is not for everyone; requires individual prescription; and there is no age barrier to exercise on hemodialysis.

Keywords: Adult, Blood-Pressure, Cochrane, Controlled-Trial, Dialysis, Dialysis Patients, Exercise, Factors, Google Scholar, Hemodialysis, Intradialytic Exercise, Literature, Maintenance Hemodialysis, Medical, Medical Staff, Patients, Patients Receiving Hemodialysis, Physical-Activity Levels, Primary, Publications, Pubmed, Quality-of-Life, Rehabilitation Program, Research, Review, Science, Stage Renal-Disease, Web of Science

# Title: Seminars in Respiratory and Critical Care Medicine

Full Journal Title: Seminars in Respiratory and Critical Care Medicine

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Chalfin, D.B. (1999), Assessing the cost-effectiveness of emerging therapies in the ICU. *Seminars in Respiratory and Critical Care Medicine*, **20** (3), 263-270.

Full Text: Sem Res Cri Car Med20, 263.pdf

Abstract: Medical care in the United States and the developed world is increasingly under heightened financial and economic pressure to reduce cost yet maintain and even improve quality. Perhaps nowhere is this pressure more evident than in the critical care areas and intensive care units (ICUs), In part this arises from an awareness of the disproportionate amount of resources consumed by critical care patients and ICU services. American ICUs, for example, account for only 5-10% of all hospital beds yet they consume over 30% of scarce inpatient resources, a figure which according to some estimates accounts for approximately 1% of the nation’s Gross Domestic Product (GDP).(1, 2, 3) Although the total level of spending in terms of both actual numbers and percent of GDP is different for ICU services in other developed nations, this disproportionate level of spending nevertheless exists between cost of care in the ICU and resource consumption on the general medical and surgical ward.(4) However, concern over high cost is not the sole and perhaps not even the primary reason for increased scrutiny levied upon critical care. Cost concerns and budgetary issues wane if the resources which are expended yield the desired clinical benefits, in terms of higher survival and enhanced quality of life. Similarly, economic issues are magnified if there is a perception of waste and inefficiency, in that better outcomes could possibly have been attained with the same resources or even that fewer resources would have been required to attain the current level of benefit. The essence of this argument boils down to a matter of value, in terms of what one attains relative to the resources which are consumed. As health care rapidly shifts away from a fee-for-service environment to systems which embrace varying measures of economic accountability, there will be a heightened demand for quantitative approaches to technology assessment and the valuation of new and emerging therapies from a collective clinical and economic perspective, In the ICU environment, this has already occurred, due in large part to the dependence upon high technology and the ongoing evaluation of expensive therapies with still-to-be-proven benefit, This paper will discuss methods and approaches often employed for the evaluation of emerging technologies, with an emphasis upon cost-effectiveness analysis, pharmacoeconomics, and related techniques.

Keywords: ICU, Gross Domestic Product, Cost-Effectiveness, Intensive-Care Unit, Diagnosis-Related Groups, Gram-Negative Sepsis, Medical Literature, Descriptive Analysis, Resource Utilization, Clinical-Practice, Users Guides, Health-Care, Impact

# Title: Seminars in Thrombosis and Hemostasis

Full Journal Title: Seminars in Thrombosis and Hemostasis

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Favaloro, E.J. (2008), Measuring the quality of journals and journal articles: the impact factor tells but a portion of the story. *Seminars in Thrombosis and Hemostasis*, **34** (1), 7-25.

Abstract: Much emphasis has been placed on the impact factor, a measure of journal article citation rates used as a surrogate marker of both journal and article quality. There is little doubt that the impact factor is an important audit of journal article Usage, as it in essence provides a measure of the level of peer attention being given to articles within journals and (by extrapolation) of the level of attention being given to the journal containing those articles. However, the impact factor has its limitations and only tells a very small fraction of the overall story regarding the utility of journals and the articles within them. In addition, the impact factor can be easily manipulated. The current article includes a brief review of the current and past uses and abuses of the impact factor and describes some of its strengths and limitations. In addition, a review of past publications, primarily from this journal, has been undertaken to help show the potential use of alternative measures of journal utility, such as Internet-based journal sessions and article downloads. The evaluation of previously published articles also helps serve to illustrate, by example, some of the limitations to the use of the impact factor as the sole determinant of a journal’s “quality.”.

Keywords: Alternative, Audit, Citation, Evaluation, Extrapolation, Impact, Impact Factor, Journal, Journal Article, Journal Articles, Journals, Potential, Publications, Quality, Quality of, Rates, Review, Small, Surrogate, Utility

? Kenet, G., Aronis, S., Berkun, Y., Bonduel, M., Chan, A., Goldenberg, N.A., Holzhauer, S., Iorio, A., Journeycake, J., Junker, R., Male, C., Manco-Johnson, M., Massicotte, P., Mesters, R., Monagle, P., van Ommen, H., Rafini, L., Simioni, P., Young, G. and Nowak-Gottl, U. (2011), Impact of persistent antiphospholipid antibodies on risk of incident symptomatic thromboembolism in children: A systematic review and meta-analysis. *Seminars in Thrombosis and Hemostasis*, **37** (7), 802-809.

Full Text: 2011\Sem Thr Hem37, 802.pdf

Abstract: the aim of this study was to estimate the impact of antiphospholipid (aPL) antibodies on the risk of incident thromboembolism (TE; arterial and venous) in children via meta-analysis of published observational studies. A systematic search of electronic databases (MEDLINE, EMBASE, OVID, Web of Science, the Cochrane Library) for studies published from 1966 to 2010 was conducted using keywords in combination both as MeSH terms and text words. Two authors independently screened citations and those meeting the a priori defined inclusion criteria were retained. Data on year of publication, study design, country of origin, number of patients/controls, ethnicity, TE type, and frequency of recurrence were abstracted. Heterogeneity across studies was evaluated, and summary odds ratios (ORs) and 95% confidence intervals (CIs) were calculated using either fixed-effects or random-effects models. of 504, 16 pediatric studies met the inclusion criteria. In total 1403 patients and 1667 population-based controls <= 18 years were enrolled. No significant heterogeneity was discerned across studies, and no publication bias was detected. Thus, data from arterial and venous TE were analyzed together. In addition, meta-regression analysis did not reveal statistically significant differences between site of TE, age at first TE, country, or publication year. A statistically significant association with a first TE was demonstrated for persistent aPL antibodies, with an overall summary ORs/CI of 5.9/3.6-9.7 (arterial 6.6/3.5-12.4; deep vein thrombosis 4.9/2.2-10.9). The present meta-analysis indicates that detection of persistent aPL is clinically meaningful in children with, or at risk for, TE and underscores the importance of pediatric thrombophilia screening programs.

Keywords: Analysis, Antibodies, Antiphospholipid Antibodies, Arterial Ischemic-Stroke, Association, At Risk, Authors, Bias, Cerebral Venous Thrombosis, Childhood, Children, Citations, Cochrane, Confidence Intervals, Databases, Deep Vein Thrombosis, Design, Differences, Embase, Ethnicity, Factor-V-Leiden, Follow-Up, Frequency, Impact, Infants, Lupus-Erythematosus, MEDLINE, Meta Analysis, Meta-Analysis, Multicenter, Observational, Observational Studies, Patients, Pediatric, Publication, Publication Bias, Recurrence, Registry, Review, Risk, Science, Screening, Systematic, Systematic Review, Thromboembolism, Thrombophilia, Thrombosis, Web of Science, Web-of-Science

? Bidlingmaier, C., Kenet, G., Kurnik, K., Mathew, P., Manner, D., Mitchell, L., Krumpel, A. and Nowak-Gottl, U. (2011), Safety and efficacy of low molecular weight heparins in children: A systematic review of the literature and meta-analysis of single-arm studies. *Seminars in Thrombosis and Hemostasis*, **37** (7), 814-825.

Full Text: 2011\Sem Thr Hem37, 814.pdf

Abstract: Within the last two decades low molecular weight heparins (LMWH) have gained increasing widespread use as anticoagulants in children. The use of LMWH has been implemented into clinical care even though there is a lack of firm evidence on the efficacy and safety of LMWH in this population due to the absence of sufficiently powered randomized controlled trials. In the absence of clinical trials, we performed a meta-analysis of available single-arm studies using LMWH in children. A systematic search of electronic databases (MEDLINE, EMBASE, OVID, Web of Science, the Cochrane Library) for studies published from 1980 to 2010 was conducted using keywords in combination both as MeSH terms and text words. Two authors independently screened citations and those meeting a priori defined inclusion criteria were retained. Data on year of publication, study design, country of origin, number of patients, ethnicity, venous thromboembolic events type, and frequency of recurrence and major bleedings were abstracted. Pooled incidence rates (IR) including 95% confidence intervals (95% CIs) on efficacy and safety data of LMWH administration on primary prophylaxis, as well as on secondary prophylaxis in children following symptomatic thromboembolism (TE) were shown. We included 2251 pediatric patients derived from 35 single-arm studies from 12 study countries who were eligible for analysis in the present systematic review. Pooled incidence rates (95% CI) to develop first TE on primary prophylaxis, further TE event on LMWH secondary prophylaxis, or a major bleeding event on LMWH were 0.047 (0.023 to 0.091), 0.052 (0.037 to 0.073) for efficacy, and 0.054 (0.039 to 0.074) for safety (treatment data only), respectively. Efficacy and safety data are comparable with adult data. The present systematic review suggests that use of LMWH in children as primary prophylaxis and in treatment of symptomatic thrombosis is effective and safe. However, properly designed randomized controlled trials are needed.

Keywords: Acute Lymphoblastic-Leukemia, Adult, Analysis, Anticoagulants, Authors, Care, Cerebral Sinovenous Thrombosis, Children, Citations, Clinical Trials, Cochrane, Confidence Intervals, Countries, Daily Enoxaparin, Databases, Design, Efficacy, Embase, Ethnicity, Frequency, Heparins, Incidence, Ir, Ischemic-Stroke, L-Asparaginase Treatment, Literature, Low, Low Molecular Weight Heparin, Low-Molecular-Weight, MEDLINE, Meta Analysis, Meta-Analysis, Molecular, Multicenter Cohort, Patients, Pediatric, Pediatric Thrombosis, Pediatric-Patients, Primary, Primary Prophylaxis, Prophylactic Therapy, Prophylaxis, Publication, Randomized Controlled Trials, Randomized Controlled-Trial, Recurrence, Review, Safety, Safety and Efficacy, Science, Systematic, Systematic Review, Thromboembolism, Thrombosis, Treatment, Venous Thromboembolic Disease, Web of Science, Web-of-Science

# Title: Sensors

Full Journal Title: Sensors

ISO Abbreviated Title: Sensors

JCR Abbreviated Title: Sensors

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Carnaz, L., Batistao, M.V. and Coury, H.J.C.G. (2010), A review of direct neck measurement in occupational settings. *Sensors*, **10** (12), 10967-10985.

Abstract: No guidelines are available to orient researchers on the availability and applications of equipment and sensors for recording precise neck movements in occupational settings. In this study reports on direct measurements of neck movements in the workplace were reviewed. Using relevant keywords two independent reviewers searched for eligible studies in the following databases: Cinahal, Cochrane, EMBASE, Lilacs, PUBMED, MEDLINE, PEDro, Scopus and Web of Science. After applying the inclusion criteria, 13 articles on direct neck measurements in occupational settings were retrieved from among 33,666 initial titles. These studies were then methodologically evaluated according to their design characteristics, exposure and outcome assessment, and statistical analysis. The results showed that in most of the studies the three axes of neck movement (flexion-extension, lateral flexion and rotation) were not simultaneously recorded. Deficiencies in available equipment explain this flaw, demonstrating that sensors and systems need to be improved so that a true understanding of real occupational exposure can be achieved. Further studies are also needed to assess neck movement in those who perform heavy-duty work, such as nurses and electricians, since no report about such jobs was identified.

Keywords: Air-Traffic-Controllers, Analysis, Assessment, Cervical Movement, Cervical-Spine, Cochrane, Databases, Design, Direct Measurements, Exposure, Gender-Differences, Guidelines, Measurement, MEDLINE, Motion, Movement, Movements, Musculoskeletal Disorders, Nurses, Occupational, Occupational Exposure, Outcome, Physical Workload, Portable Equipment, Posture, Pubmed, Reliability, Researchers, Review, Risk-Factors, Science, Scopus, Statistical, Web of Science, Workplace

# Title: Sensors, and Command, Control, Communications, and Intelligence (C3I) Technologies for Homeland Defense and Law Enforcement II

Full Journal Title: Sensors, and Command, Control, Communications, and Intelligence (C3I) Technologies for Homeland Defense and Law Enforcement II

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Goldstein, M.L., Morris, S.A. and Yen, G.G. (2003), Bridging the gap between data acquisition and inference ontologies - towards ontology based link discovery. *Sensors, and Command, Control, Communications, and Intelligence (C3I) Technologies for Homeland Defense and Law Enforcement II*, **5071**, 116-127.

Abstract: Bridging the gap between low level ontologies used for data acquisition and high level ontologies used for inference is essential to enable the discovery of high-level links between low-level entities. This is of utmost importance in many applications, where the semantic distance between the observable evidence and the target relations is large. Examples of these applications would be detection of terrorist activity, crime analysis, and technology monitoring, among others. Currently this inference gap has been filled by expert knowledge. However, with the increase of the data and system size, it has become too costly to perform such manual inference. This paper proposes a semi-automatic system to bridge the inference gap using network correlation methods, similar to Bayesian Belief Networks, combined with hierarchical clustering, to group and organize data so that experts can observe and build the inference gap ontologies quickly and efficiently, decreasing the cost of this labor-intensive process. A simple application of this method is shown here, where the co-author collaboration structure ontology is inferred from the analysis of a collection of journal publications on the subject of anthrax. This example uncovers a co-author collaboration structures (a well defined ontology) from a scientific publication dataset (also a well defined ontology). Nevertheless, the evidence of author collaboration is poorly defined, requiring the use of evidence from keywords, citations, publication dates, and paper co-authorship.. The proposed system automatically suggests candidate collaboration group patterns for evaluation by experts. Using an intuitive graphic user interface, these experts identify, confirm and refine the proposed ontologies and add them to the ontology database to be used in subsequent processes.

Keywords: Analysis, Anthrax, Applications, Bibliometric Analysis, Citations, Clustering, Co-Author, Co-Authorship, Coauthorship, Collaboration, Database, Evaluation, Hierarchical Clustering, Journal, Journal Publications, Knowledge, Link Analysis, Link Discovery, Methods, Network, Networks, Ontologies, Publication, Publications, Research-and-Development, Semantic Web, Size, System, Technology

# Title: Seoul Journal of Medicine

Full Journal Title: Seoul Journal of Medicine

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Lee, C.S., Yoon, B.J. and Chi, J.G. (1994), Publication output and growth of Korean medical papers published in science citation index journals during the 1980s: A comparison with SCI Korean chemistry papers. *Seoul Journal of Medicine*, **35** (3), 137-154.

# Title: Separation and Purification Technology

Full Journal Title: [Separation and Purificatfion Technology](http://www.sciencedirect.com/science?_ob=JournalURL&_cdi=5284&_auth=y&_acct=C000011279&_version=1&_urlVersion=0&_userid=1134284&md5=671f458fa88ac1db75038b18945bf4b9)

ISO Abbreviated Title: Sep. Purif. Technol.

JCR Abbreviated Title: Sep Purif Technol

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Journal Country Netherlands

Language: English

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Publisher Address: PO Box 211, 1000 AE Amsterdam, Netherlands

Subject Categories:

Chemistry, Analytical: Impact Factor 0.091, 64/65 (1998), Impact Factor 0.707, 51/66 (1999), Impact Factor 0.539, 50/117 (2000)

Engineering, Chemical: Impact Factor 0.091, 100/113 (1998), Impact Factor 0.707, 31/110 (1999), Impact Factor 0.539, 50/117 (2000), Impact Factor 0.552, 61/123 (2001), Impact Factor 1.004, 25/126 (2002), Impact Factor 1.355, 14/119 (2003), Impact Factor 1.227, 29/116 (2004), Impact Factor 1.752, 15/116 (2005), Impact Factor 2.879, 11/128 (2009)

? Wan, T.J., Shen, S.M., Bandyopadhyay, A. and Shu, C.M. (2012), Bibliometric analysis of carbon dioxide reduction research trends during 1999-2009. *Separation and Purification Technology*, **94**, 87-91.

Full Text: [2012\Sep Pur Tec94, 87.pdf](2012/Sep%20Pur%20Tec94,%2087.pdf)

Abstract: the objective of this study is to conduct a bibliometric analysis of the literature regarding CO2 reduction trends published in the Science Citation Index-listed periodicals from 1999 to 2009. These documents were obtained by subscription from the Information Science Institute (ISI) Web of Science, Philadelphia, PA, USA. A total of 3,177 authors from 56 different countries wrote 855 articles published in 355 journals in 102 subject categories. of these, the most titles were found in Abstracts of Papers of the American Chemical Society (3.9%). The most frequently cited paper was “Chemical CO2 fixation: Cr(III) salen complexes as highly efficient catalysts for the coupling of CO2 and epoxides”, and the same paper contained the most often-used keyword. (C) 2011 Elsevier B.V. All rights reserved.

Keywords: Analysis, Articles, Authors, Bibliometric, Bibliometric Analysis, Biofixation, Carbon, Carbon Dioxide, Citation, CO2, CO2 Fixation, CO2 Reduction, Countries, Cr(III), Fixation, Information Science Institute (ISI), ISI, Journals, Literature, Papers, Periodicals, Photobioreactor, Reduction, Research, Research Trends, Rights, Science, Separation, Solvents, Subject Categories, TiO2, Trends, USA, Vulgaris, Web of Science

# Title: Serials Librarian

Full Journal Title: [Serials Librarian](http://www.informaworld.com/smpp/title~db=all~content=t792306962~tab=issueslist)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0361-526X

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Gilreath, C.L. (1978), Agricola - multipurpose data-base for agricultural and life sciences libraries. *Serials Librarian*, **3** (1), 89-95.

Full Text: [1960-80\Ser Lib3, 89.pdf](1960-80/Ser%20Lib3,%2089.pdf)

Abstract: AGRICOLA (Agricultural Online Access), The bibliographic data base of the National Agricultural Library, is a computerized information retrieual system that can be adapted for use in many library functions. Although the system is most commonly used for retrieval of bibliographic references by subject, it can also be helpful in preorder and precataloging searches, in interlibrary loan verification, and in collection analysis. Various bibliometric studies that can be done with the on-line versions of AGRICOLA are described as well.

Notes: MModel

? Rashid, H.F. (1991), Bibliometric analysis as a tool in journal evaluation. *Serials Librarian*, **20** (2-3), 55-64.

Full Text: [1991\Ser Lib20, 55.pdf](1991/Ser%20Lib20,%2055.pdf)

Abstract: A new formula for establishing the relationship between the number of papers (n) published in a journal of physics, chemistry or biology and the rank (R) of the journal concerned is proposed. The new formula is straightforward and simple, and appears to lead to a reasonably accurate prediction of the number of published source items in a journal, provided the rank of the journal is known. The proposed formula may be considered as a modification of or alternative to Bradford’s law.

Keywords: Bibliometric, Bibliometric Analysis, Bradford, Evaluation, Lotka Law

? Narin, F. (1991), Globalization of research, scholarly information, and patents: 10 year trends. *Serials Librarian*, **21** (2-3), 33-44.

Full Text: [1991\Ser Lib21, 33.pdf](1991/Ser%20Lib21,%2033.pdf)

? Van Hooydonk, G. (1995), Cost and citation data for 5399 scientific journals in connection with journal price-setting, copyright laws and the use of bibliometric data for project review. *Serials Librarian*, **27** (1), 45-58.

Full Text: [1995\Ser Lib27, 45.pdf](1995/Ser%20Lib27,%2045.pdf)

Abstract: Bibliotheconomic (cost) and bibliometric (citation) data have been coupled for 5399 journals in the Journal Citation Reports (Science Citation Index) of 1990, after rearranging and averaging them for 12 major and classical scientific disciplines, Trends ate discussed in connection with peer review of scientific projects using impact data, with anomalous price-settings for journals and with effects of copyright laws on scientific research. Coupling journal cost with citation data reveals opposite trends for disciplines and publishers

Keywords: Bibliometric, Citation, Cost, Data, Effects, Impact, Impact Factors, Journal, Journal Citation Reports, Journals, Laws, Peer, Peer Review, Peer-Review, Project Review, Research, Review, Science Citation Index, Scientific Journals, Scientific Research, Trends

? Loughner, W. (1996), Scientific journal Usage in a large university library: A local citation analysis. *Serials Librarian*, **29** (3-4), 79-88.

Full Text: [1996\Ser Lib29, 79.pdf](1996/Ser%20Lib29,%2079.pdf)

Abstract: Citation analysis is a helpful tool for evaluating academic library Usage. When only the publications of local users are analyzed, the results are even more relevant to the local library Manual collection of citations can be a time- and labor-intensive operation and has inhibited widespread use of local citation analysis. This study demonstrates how to use the Science Citation Index CDROM product and a personal computer to generate useful reports utilizing a much larger base of citations than previously has been possible. Moreover, the process is so relatively quick and easy that it can be run annually or whenever needed. In the study, over 35,000 citations from papers by scientific researchers at the University of Georgia were analyzed to generate reports useful for collection development.

? Hérubel, J.P.V.M. and Goedeken, E.A. (2000), Metadisciplinarity, Belles lettres, and André Malraux: A bibliometric exploration of knowledge formation. *Serials Librarian*, **37** (4), 51-68.

Full Text: [2000\Ser Lib37, 51.pdf](2000/Ser%20Lib37,%2051.pdf)

Abstract: A theoretical and conceptual mapping of the contours of knowledge emerges through a bibliometric approach using the Arts and Humanities Citation Index. Focusing on Andre Malraux and his writings, one can discern how bibliometrics can effectively explore the subtle characteristics of disciplinary knowledge, and how their permutations reflect the evolution of knowledge along a metadisciplinary continuum. Evidence indicates that Malraux’s non-disciplinary, i.e., belles-lettres, writing has influenced theoretical thinking in a number of disciplines. Malraux’s intellectual and cultural influence can be effectively pursued through referential analysis. This theoretical approach provides a viable conceptual model of intellectual mutation, influence, and bibliometric veracity. This study’s results show that this methodology could be applied effectively in other areas of intellectual history and cultural studies.

Keywords: Bibliometric Analysis, Andre Malraux, Metadisciplinarity, Interdisciplinarity, Citation Characteristics, Fine-Arts, Monographs, Science, Work

? Hérubel, J.P.V.M. and Goedeken, E.A. (2001), Using the *Arts and Humanities Citation Index* to identify a community of interdisciplinary historians: An exploratory bibliometric study. *Serials Librarian*, **41** (1), 85-98.

Full Text: [2001\Ser Lib41, 85.pdf](2001/Ser%20Lib41,%2085.pdf)

Abstract: the history journal Annales: Economies, Soci’t’s, civilizations is investigated for 1980-1989 to reveal an institutional and geographical mapping of the Annales contributors. Using the Arts and Humanities Citation Index database, the author’s institutional affiliations are identified and examined with the intention of verifying a community of Annaliste historians publishing research within the parameters of Annaliste historiography and intellectual concerns. A discussion of domains of knowledge and disciplinarities is linked to intellectual orientation. This study indicates that these historians are predominately French with a significant minority representing an international community. Substantive knowledge of Annaliste historical research, methodologies, and intellectual orientation animates institutional affiliation. Finally, the authors suggest that identifying any major ‘school’ of historiographical innovation can be accomplished through use of bibliometrical analysis

Keywords: Affiliation, Analysis, Annalistes, Arts and Humanities Citation Index, Authors, Bibliometric, Bibliometric Analysis, Bibliometric Study, Citation, Community, Database, French, History, Innovation, Institutional, Intention, Interdisciplinarity, Interdisciplinary, International, Journal, Knowledge, Mapping, Methodologies, Minority, Orientation, Publishing, Research

? Nisonger, T.E. (2004), The benefits and drawbacks of impact factor for journal collection management in libraries. *Serials Librarian*, **47** (1-2), 57-75.

Full Text: [2004\Ser Lib47, 57.pdf](2004/Ser%20Lib47,%2057.pdf)

Abstract: An overview and analysis of the Journal Citation Reports’ impact factor is provided here. The historical development, calculation of, and alternatives to impact factor are briefly described. Nine general uses of impact factor, including library collection management decisions, journal rankings, journal decision models, and full-text database evaluation, are discussed. Ten benefits, such as its well-established authority, are listed. Finally, more than a dozen criticisms of citation data in general (e.g., self-citations are counted) and impact factor specifically (e.g., problems with the formula for its calculation) are analyzed. The author concludes that impact factor, if used appropriately and in combination with other criteria, is a valid tool that can assist journal collection management decisions in research libraries.

Keywords: Analysis, Author, Citation, Citation Analysis, Citation Analysis, Deselection, Evaluation, Genetics, Impact Factor, Index, Information-Science, Journal, Journal Citation Reports, Journal Collection Management, Journal Evaluation, Periodicals, Publications, Rankings, Reports, Research, Research Evaluation, Self Citations, Self-Citations, Social-Science, Stature

# Title: Serials Review

Full Journal Title: [Serials Review](http://sdos.ejournal.ascc.net/cgi-bin/sciserv.pl?collection=journals&journal=00987913)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0098-7913

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Anderson, P. (1997), ‘Gatekeepers’ and the quality of the journal literature: Findings from a survey of journal editors into the issue of alleged excessive publication in scholarly and scientific journals. *Serials Review*, **23** (2), 45-57.

Full Text: [1997\Ser Rev23, 45.pdf](1997/Ser%20Rev23,%2045.pdf)

Abstract: the findings discussed here are not an exhaustive rendition of all the factors—professional, academic and ethical—surrounding the issue of excessive publication. Instead, they outline a problem of current and growing concern within the professional serials librarian community and are intended to equip serials librarians to deal more effectively with the phenomenon.

The occasionally divergent characteristics of excessive publication in the sciences and the social sciences, although only briefly touched upon here, provide an initial indication of what serials librarians and subject specialists should look for in attempting to assess the quality of the journal literature in different disciplines.

It may be true that some journal editors regard serials librarians as superfluous to the ‘gatekeeper’ function—a point sadly confirmed by these findings. Such a situation indicates a clear need on the part of the serials librarian community to take a more proactive role in asserting their responsibilities in this area. Many serials librarians will complain that their libraries are a captive audience; that they have little scope to contribute to the debate on excessive publication, and even less to influence directly the quality control role of journal editors and publishers; that they are *victims*.

Chapman and Webster typify the views of many observers when they explicitly single out journal publishers as exploiters of academic libraries: ‘… *it is libraries, pressed by their academic colleagues, which provide the bulk of the circulation for journals and assured profit for the publisher. They are charged exorbitant rates on the grounds that they are read by many people. But can we continue in this way? Are libraries’ stacks to bulge with unread journals*?.

These are important questions which require longterm strategic consideration. What is clear is that the problem of excessive publication is one of many closely inter-linked issues which influence collection evaluation approaches. It is incumbent upon the academic and research library community to base collection management decisions on a thorough consideration of the qualitative aspects of collection development, through a more informed understanding of the issue of journal and article quality.

The findings reported here can best be utilized as only one part of an intelligent, planned collection management process. Recommendations from academic and research staff, evidence from user studies, bibliometric analyses, and subscription costs are all important factors in assessing the value of scholarly and scientific journals—but none should be regarded in isolation.

Edwards S. (1999), Citation analysis as a collection development tool: A bibliometric study of polymer science theses and dissertations. *Serials Review*, **25** (1), 11-20.

Full Text: [1999\Ser Rev25, 11.pdf](1999/Ser%20Rev25,%2011.pdf)

Testa, J. (2003), The Thomson ISI journal selection process. *Serials Review*, **29** (3), 210-212.

Full Text: [2003\Ser Rev25, 210.pdf](2003/Ser%20Rev25,%20210.pdf)

Abstract: for more than four decades, Thomson ISI (Institute for Scientific Information) has been committed to a fundamental mission: to provide essential products and services that enable access to and management of the highest quality, most relevant materials for all participants in the research process. In 1958, Dr. Eugene Garfield started ISI by borrowing five hundred dollars from Household Finance. *Current Contents*® of *Chemical, Phamaco-Medical & Life Sciences* was the sole product, covering 286 journals. Today the Thomson ISI database covers more than 16,000 international journals, books, and proceedings in the sciences, social sciences, and arts and humanities. This article describes the processes and standards that result in ISI’s abstracting and indexing services. Serials Review 2003; 29:210–212.

? Park, T.K. (2008), Asian and pacific region authorship characteristics in leading library and information science journals. *Serials Review*, **34** (4), 243-251.

Full Text: 2008\Scr Mat34, 243.pdf

Abstract: Authorship characteristics from the Asian and Pacific region In the top twenty journals in library and information science are studied. Data was collected searching the Institute for Scientific Information (ISI) Web of Science databases. Major findings of this study are: there are a total of 1,317 articles for the period 1.967 to 2005; the most productive countries are, in rank order, Australia, China, South Korea, Taiwan, Singapore, Japan, New Zealand, Malaysia, Thailand and Philippines; and 77.6 percent of authors in the top twenty library and information science Journals contributed a single article. Among the library science journals about 50 percent were written by multiple authors, while 73.1 percent of articles in the information science journals were written collaboratively. The most productive individual authors in the region are reported. The strongest collaboration within the region took place between Australia and China; China and Singapore; Australia and New Zealand. Serials Review 2008; 34:243-251. (C) 2008 Elsevier Inc. All rights reserved.

Keywords: Authors, Authorship, China, Collaboration, College, Databases, Information, Information Science, ISI, Japan, Journals, Library and Information Science, Library Science, Malaysia, New Zealand, Review, Scholarly Productivity, Science, Scientific Information, Serials, South Korea, US LIS Faculty, Web of Science

? Deng, P.S.H., Yang, G.K.L. and Lin, J.S.J. (2006), Note on correction factor for estimating the diameter of embedded cylindrical fibres from metallographic sections. *Scripta Materialia*, **55** (4), 419-420.

Full Text: [2006\Scr Mat55, 419.pdf](2006/Scr%20Mat55,%20419.pdf)

Abstract: This article recalculates the correction factor for estimating the diameter of aligned cylindrical fibres from random metallographic sections as put forward in the paper of Lewis and Withers [Acta Metall. Mater. 43 (1995) 3685]. Their assertion may contain typographic and arithmetic errors (leading to an error of a factor of 2). The diameter must be estimated from longitudinal metallographic sections where the fibre diameters are partially embedded and therefore cannot be measured directly. In view of the high level of citations of the original paper, it is important to address this problem accurately and completely to ensure the successful application of their suggested method by others. The purpose of this short note is to correct their results.

Keywords: Correction Factor, Cylinder Diameter

? Wang, M.Y., Zhou, Z.X., Fang, H.L. and Liu, X.L. (2011), The bibliometric characteristics of Chinese medical core journals. *Serials Review*, **37** (1), 9-13.

Full Text: [2011\Ser Rev37, 9.pdf](2011/Ser%20Rev37,%209.pdf)

Abstract: To provide bibliometric evidence for Chinese medical journals to be considered for the evaluation system of core journals, the authors have undertaken a comparative study on bibliometric characteristics between Chinese core journals and common journals (journals not included in A Guide to the Core Journals of China). There are 203 Chinese medical core journals and 440 Chinese common journals. Impact factor, ratio of articles supported with funding sources (foundation), total yearly pages and average article length of core journals are significantly higher than those of common journals in China. Medical editors can take effective measures to improve academic levels and journal impact by considering factors from this study, such as having a proper and short publication cycle, increasing the impact factor, concentrating on articles with foundation support, publishing more high-impact papers, increasing substantive content and publishing more articles with abstracts. Serials Review 2011; 37:9-13. (C) 2010 Published by Elsevier Inc.

Keywords: Authors, Bibliometric, Characteristics, China, Chinese, Comparative Study, Evaluation, Evidence, Funding, Impact, Impact Factor, Journal, Journal Impact, Journals, Length, Mar, Medical, Medical Journals, Papers, Publication, Publishing, Sources, Support

? Ding, Z.Q., Zheng, X.N. and Wu, X.M. (2012), Strategies for expanding the international influences of academic journals: An example from Chinese pharmaceutical journals. *Serials Review*, **38** (2), 80-85.

Full Text: [2012\Ser Rev38, 80.pdf](2012/Ser%20Rev38,%2080.pdf)

Abstract: Internationalization is the major aim of most Chinese academic journals in their development frameworks to attract a sufficient amount of high quality contributions. This study used Scopus to conduct a bibliometrics analysis of the present international influence of Chinese pharmaceutical journals using multiple indicators including SCImago Journal Rank (SJR) scores, the number of foreign contributions, and the number of citations by foreign author, affiliation, and journal. Five representative titles were selected including Acta Pharmacologica Sinica, Yaoxue Xuebao, Chinese Pharmaceutical Journal, Zhongguo Zhongyao Zazhi, and Chinese Journal of Natural Medicines. Results show that the present international influence of most Chinese pharmaceutical journals still remains unsatisfactory and is characterized by few foreign manuscript contributions, low SJR scores, and narrow international citations. The Chinese government has been making great efforts to boost pharmaceutical development, which provides an unprecedented chance for Chinese pharmaceutical journals to promote their international influence and reputations. Multiple approaches have been proposed based on the successful experiences of some Chinese journals with well established international reputations including constructing an international editorial board, cooperating with international and prestigious publishing groups, creating an international peer review process, and expanding international readerships. (C) 2012 Elsevier Inc. All rights reserved.

Keywords: Academic Journals, Affiliation, Analysis, Bibliometrics, Chinese, Citations, Development, Indicators, International, International Influence, Internationalization, Journal, Journals, Peer Review, Peer-Review, Periodicals, Pharmaceutical, Publishing, Quality, Review, Review Process, Rights, Scimago, Scopus, Self-Citation, SJR

? Jabbour, C.J.C., Jabbour, A.B.L.D. and de Oliveira, J.H.C. (2013), The Perception of Brazilian researchers concerning the factors that influence the citation of their articles: A study in the field of sustainability. *Serials Review*, **39** (2), 93-96.

Full Text: [2013\Ser Rev39, 93.pdf](2013/Ser%20Rev39,%2093.pdf)

Abstract: With growing institutional pressure from the Brazilian government to increase the impact of research that it funds, Brazilian researchers are increasingly interested in discovering factors that affect the citation of their articles. The aim of the present article was to assess the perceptions of Brazilian sustainability researchers to identify factors that influence the impacts of their research. A survey was conducted with researchers in the field of sustainability and 89 questionnaires were completed. All of those researchers have articles or research projects in the field of sustainability (mixing environmental, social and/or economical) recorded in the Scielo or Lattes Curriculum Brazilian databases. Results suggest four factors that may explain the impact of article citations: (1) “prestige.of the author and the research network:” (2) “prestige of the means of publication and indexing:” (3) “accessibility and quality characteristics of the article:” and (4) “international nature of communication and scope of the study”. Surprisingly, such factors were not statistically significant in explaining the citations of the participating researchers. These results show the need to consider other factors that can explain the impact of research, discovering the missing links. (C) 2013 Elsevier Inc. All rights reserved.

Keywords: Area of Sustainability, Articles, Authors, Bibliometrics, Brazil, Characteristics, Citation, Citation Analysis, Citations, Communication, Databases, Environmental, Field, Impact, Impact of Research, Impacts, Influence, Journals, Mixing, Pressure, Publication, Quality, Questionnaires, Research, Researchers, Results, Rights, Scope, Social, South America, Survey, Sustainability

? Anilkumar, N. and Rajaram, S. (2013), Theses submitted by doctoral students of physical research laboratory, India: A citation analysis. *Serials Review*, **39** (2), 114-120.

Full Text: [2013\Ser Rev39, 114.pdf](2013/Ser%20Rev39,%20114.pdf)

Abstract: the most reliable way to know the contribution of research to the world knowledgebase is through publication and citation data. The research papers and doctoral theses are the instruments through which results of the research are communicated to the outside world. Both these scholarly publications conclude with the list of references. The study of these references (citations) gives an idea about the development of any research topic or a researcher and also indicates the kind of literature referred by the researchers. In today’s world of ever escalating cost of serials, citation analysis is also being used to determine which titles to purchase and which ones to discontinue. The present study aims to better understand and manage the library resources by examining the resources used (cited) by the doctoral students of the Physical Research Laboratory (PRL) during 1997-2006. It was found that electronic format was preferred to the printed format from 2001 through 2006. journal articles are used (cited) the most, followed by books and other documents like proceedings and reports. With more and more availability of online resources, use of non-subscribed content was also on the rise from 1997 through 2006. This study also confirms the Bradford’s law that a set of core journals in a subject field satisfy more than 50% of the total number of journal citations. (C) 2013 Elsevier Inc. All rights reserved.

Keywords: Analysis, Availability, Bibliometrics, Bradford’S Law, Citation, Citation Analysis, Citations, Cost, Data, Development, Doctoral Theses, Field, India, Information Usage, Journal, Journal Articles, Journal Citations, Journals, Law, Literature, Online, Papers, PRL, Publication, Publications, Purchase, References, Research, Resources, Rights, Science, Serials, Students, Theses, Topic, World

? Knowlton, S.A., Sales, A.C. and Merriman, K.W. (2014), A comparison of faculty and bibliometric valuation of serials subscriptions at an academic research library. *Serials Review*, **40** (1), 28-39.

Full Text: [2014\Ser Rev40, 28.pdf](2014/Ser%20Rev40,%2028.pdf)

Abstract: Despite their professional training and study in the development of research collections in academic settings, librarians often consult with or even defer to faculty in selecting materials. Faculty often use various methods of evaluation that tend to emphasize qualitative data or even anecdotal evidence. Bibliometric analysis offers emerging tools to quantify these decisions, reflecting fundamental principles of library science. This study compares faculty choices of serials subscription cancellations to the choices that would have been predicted using a bibliometric tool, the California Digital Library Weighted Value Algorithm (CDL-WVA). Faculty choices differed significantly from the decisions predicted by CDL-WVA. However, as the bibliometric score increased, so did the rate of match between faculty choice and decisions predicted by CDL-WVA. Implications of these findings for collection development are discussed.

Keywords: Academic, Algorithm, Analysis, Bibliometric, Bibliometric Analysis, Bibliometrics, Book Selection, California, Cancellation, Choice, Collection, Collection Assessment, Comparison, Data, Development, Digital, Evaluation, Evidence, Faculty, Faculty Selectors, Methods, Principles, Professional Training, Qualitative, Research, Science, Serials, Serials Cancellations, Statistics, Training, Valuation

? Xia, X.D., Wang, Z.G., Wu, Y.W., Ruan, L.Q. and Wang, L. (2014), Country of Authorship and collaboration affect citations of articles by South and East Asian authors in agronomy journals: A case study of China, Japan, and India. *Serials Review*, **40** (2), 118-122.

Full Text: [2014\Ser Rev40, 118.pdf](2014/Ser%20Rev40,%20118.pdf)

Abstract: A total of 7,707 agronomy papers (2006 to 2011) by Chinese, Indian, and Japanese authors were identified in the Web of Science (WoS) database. The impact factors (IFs) of papers and the uncited paper rate (UPR) in a particular journal with a given country’s authorship was calculated as IFs calculated in Journal Citation Reports. For India, the impact factors of articles authored within one country (within-country impact factor) were significantly lower than the overall IF. The impact factors of collaborative articles (collaborative impact factor) and within-country impact factors for the three countries differed significantly. The uncited rates of collaborative papers (uncited collaborative paper rate) and uncited rates of papers authored within one country (uncited within-country paper rate) of China and Japan were significantly different. However, for India, the uncited collaborative paper rate was significantly lower than the uncited within-country paper rate; collaboration (mostly with developed countries) exerted a negative effect.

Keywords: Agronomy, Articles, Asian, Authors, Authorship, Bibliometrics, China, Chinese, Citation, Citations, Collaboration, Country, Database, Impact, Impact Factor, Impact Factors, India, Japan, Journal, Journal Citation Reports, Journal Impact Factors, Journals, Papers, Rates, Science, Web Of Science, Wos

# Title: Series-Journal of the Spanish Economic Association

Full Journal Title: Series-Journal of the Spanish Economic Association

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Ruiz-Castillo, J. (2012), The evaluation of citation distributions. *Series-Journal of the Spanish Economic Association*, **3** (1-2), 291-310.

Full Text: [2012\Ser-J Spa Eco Ass3, 291.pdf](2012/Ser-J%20Spa%20Eco%20Ass3,%20291.pdf)

Abstract: This paper reviews a number of recent contributions that demonstrate that a blend of welfare economics and statistical analysis is useful in the evaluation of the citations received by scientific papers in the periodical literature. The paper begins by clarifying the role of citation analysis in the evaluation of research. Next, a summary of results about the citation distributions’ basic features at different aggregation levels is offered. These results indicate that citation distributions share the same broad shape, are highly skewed, and are often crowned by a power law. In light of this evidence, a novel methodology for the evaluation of research units is illustrated by comparing the high- and low-citation impact achieved by the US, the European Union, and the rest of the world in 22 scientific fields. However, contrary to recent claims, it is shown that mean normalization at the sub-field level does not lead to a universal distribution. Nevertheless, among other topics subject to ongoing research, it appears that this lack of universality does not preclude sensible normalization procedures to compare the citation impact of articles in different scientific fields.

Keywords: Analysis, Articles, Bibliometric Tools, Citation, Citation Analysis, Citation Impact, Citations, Consequences, Economics, European Paradox, Evaluation, Excellence, Impact, Index, Law, Lead, Literature, Methodology, National Research Performance, Papers, Periodical, Poverty, Poverty Measurement, Power, Power Law, Ranking Scientific Institutions, Research, Research Performance, Science System, Statistical, Topics, US

# Title: Sexual Health

Full Journal Title: Sexual Health

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Thompson, S.C., Green, S.K., Stirling, E.J. and James, R. (2007), An analysis of reporting of sexually transmissible infections in indigenous Australians in mainstream Australian newspapers. *Sexual Health*, **4** (1), 9-16.

Abstract: Background: To investigate the nature of, and trends in, Australian print media coverage of sexually transmissible infections (STI) in indigenous Australians. Methods: Newspaper articles from January 1986 to June 2004 were downloaded from the Factiva database. of 164 articles examined based on our search criteria, 100 were included for analysis. An assessment of the tone and content of each article was made by two reviewers, and data were entered and analysed using EpiInfo (Centers for Disease Control and Prevention, Atlanta, GA) Results: Most articles were serious (89%), matter of fact and information dense (50%) and critical of the subject of the article (44%). of the articles that were emotive, 78% evoked a sense of shock or frustration. The stimulus for the article was government related in 65%; a purely academic opinion was presented in 82%; and only one viewpoint was presented in 73%. The papers publishing the greatest number of articles were the Sydney Morning Herald (31%) and the Age (18%). From 1996 there was an increase in the number of articles and improvements in the voice given to indigenous informants. This may reflect initiatives in journalism education and release of a protocol on how STI in indigenous communities should be reported. Conclusion: Overall, the style of reporting was heavy, dry and critical, written in an academic style and failed to critically examine or challenge government initiatives. The potential for print media to educate the general public is poorly utilised. Further exploration of how sensitive indigenous issues can be presented to avoid stereotyping, stigma and nihilism, while initiating more effective action, is needed.

Keywords: Analysis, Assessment, Australian, Challenge, Coverage, Criteria, Data, Database, Education, General, Infections, Informants, Information, Journalism, Media, Papers, Potential, Public, Publishing, Release, Reporting, Shock, Stigma, Sydney, Tone, Trends

# Title: Sexual & Reproductive Healthcare

Full Journal Title: Sexual & Reproductive Healthcare

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Skold, A. and Larsson, M. (2012), Contraceptive use during the reproductive lifecycle as reported by 46-year-old women in Sweden. *Sexual & Reproductive Healthcare*, **3** (1), 43-47.

Full Text: [2012\Sex Rep Hea3, 43.pdf](2012/Sex%20Rep%20Hea3,%2043.pdf)

Abstract: Objectives: the aim of this study was to investigate the contraceptive methods 46-year-old women in Sweden had chosen during different phases of their reproductive lifecycle and, the factors affecting their choice. Study design: the design was a retrospective cross-sectional study and targeted 46-year-old women. Five hundred Swedish women were randomly selected from a national population-based register and sent a questionnaire with 18 multiple response questions: the response rate was 47%. Results: the women used different contraceptive methods during different phases of their reproductive lifecycle. Women mainly used oral contraceptive pills and condoms before pregnancy, copper-IUD between pregnancies and, hormonal- and copper IUD after pregnancy. Condoms were used during all phases of women’s fertile period. Women with early sexual debut were more likely to have used condom as their first contraceptive method than women with late sexual debut, and women who had children were more likely to use IUD as current contraception than women without children. High efficacy, accessibility and advice from a counselor were the most cited reasons for choosing a particular method. The most common reasons for discontinuing contraceptive use were a wish to be pregnant and concerns about side effects. The partner had little or no influence on choice of method, but advice from a gynecologist or midwife was influential. Conclusions: 46-year-old women in Sweden had chosen different contraceptive methods during different phases of their reproductive lifecycle. Partners appear to have limited influence over this choice. Individualized counseling by health care providers seems important. (C) 2011 Elsevier B.V. All rights reserved.

Keywords: 1995 National-Survey, Care, Children, Choice, Condom, Condoms, Contraception, Copper, Counseling, Design, Discontinuation, Effects, Efficacy, Experience, Family Growth, First, Health, Health Care, Lifecycle, Mar, Methods, Oral, Oral Contraceptive, Perceptions, Population, Population Based, Population-Based, Pregnancy, Pregnant, Providers, Questionnaire, Reproductive Phase, Resumption, Rights, Risk, Sexual-Behavior, Side Effects, Students, Sweden, Women

# Title: Sexuality and Disability

Full Journal Title: Sexuality and Disability

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Seidel, A., Wienholz, S., Michel, M., Luppa, M. and Riedel-Heller, S.G. (2014), Sexual knowledge among adolescents with physical handicaps: A systematic review. *Sexuality and Disability*, **32** (3), 429-441.

Full Text: [2014\Sex Dis32, 429.pdf](2014/Sex%20Dis32,%20429.pdf)

Abstract: In the past, many social barriers led to the perception that adolescents with physical handicaps do not have a vivid sexuality. This is the first systematic review aiming to answer how sexual knowledge is provided for adolescents with physical disabilities. Findings might be helpful to construe recommendations for sexual education of adolescents with physical handicaps. Literature search occurred by means of databases PUBMED, Web of Science and PSYCINFO. Papers are included that address sexual education and sexual knowledge of adolescents with physical handicaps, including papers dealing with sexuality of young people with chronic conditions that lead to (extensive) physical limitations. Nine papers could be identified. Subjects researched were between 11 and 25 years old. With the help of a self-administered quality assessment scheme we conducted a scoring with a high score of a maximum of 11 points. We divided three levels: highly informative papers, moderate informative papers and papers with only low information. Just one paper from the Netherlands is highly informative, four papers provide moderate information, and four contain only little information. The majority of physical handicapped adolescents get sexual education in school. Transfer of information is confined to the prevention of pregnancy, sexually transmitted diseases and harassment. Interdisciplinary sexual education appears as a key for self-determined and well informed sexual life for adolescents with and without handicaps. For people with handicaps there should be information available with respect to their physical limitation, additional to general facts.

Keywords: Adolescents, Assessment, Barriers, Behavior, Cerebral-Palsy, Children, Chronic, Databases, Disabilities, Disabled Adolescents, Diseases, Education, First, General, Germany, Harassment, Health, Information, Interdisciplinary, Knowledge, Lead, Life, Limitation, Literature, Papers, Perception, Physical, Physical Handicap, Pregnancy, Prevention, Psycinfo, Quality, Recommendations, Review, Science, Sexual Knowledge, Sexuality, Sexually Transmitted Diseases, Social, Spina-Bifida, Systematic, Systematic Review, The Netherlands, Transfer, Web Of Science, Young-Adults

? de Almeida, E.W. and Greguol, M. (2015), Healthcare for women with disabilities in the climacteric and menopause. *Sexuality and Disability*, **33** (2), 279-298.

Full Text: [2015\Sex Dis33, 279.pdf](2015/Sex%20Dis33,%20279.pdf)

Abstract: Menopause can be defined as the complete interruption of menstrual cycles. The period which precedes this event is termed climacteric. Improvements in medical-care have brought an increase in the life expectancy of people with disabilities and increased the number of women with disabilities who experience climacteric and menopause. The objective of this review was to analyze available data on the health care, health status and symptoms perceived by women with disabilities during the climacteric and menopause period. A search in the literature was performed considering nine electronic databases-Medline, Cinahl, Scielo, Lilacs, SportDiscus, Web of Science, Academic Search Premier and PsycInfo. The inclusion criteria were: (a) field study with the participation of climacteric and/or post-menopausal women with some kind of disability; (b) evaluation of the health conditions of the participating women, with the care taken in order to maintain their health during this period and/or the symptoms perceived during climacteric. Seventeen studies were selected. Specific characteristics of the climacteric and menopause process in disabled women were found in all the studies. This review highlights the necessity to create a questionnaire and evaluation methods for assessing the health status and healthcare, as well as the specific climacteric symptoms of women with disabilities.

Keywords: Age, Assessing, Brazil, Care, Characteristics, Climacteric, Climacteric Symptoms, Criteria, Data, Dementia, Disability, Disabled, Downs-Syndrome, Evaluation, Evaluation Methods, Experience, Experiences, Field, Field Study, Health, Health Care, Health Status, Intellectual Disabilities, Life, Literature, Medical Care, Menopause, Methods, Participation, People With Disabilities, Physical-Disabilities, Post-Menopausal Women, Post-Menopause, Postmenopausal, Postmenopausal Women, Quality-Of-Life, Questionnaire, Review, Science, Search, Spinal-Cord-Injury, Strength, Symptoms, Web Of Science, Woman’S Healthcare, Women, Women With Disabilities

# Title: Sexually Transmitted Diseases

Full Journal Title: Sexually Transmitted Diseases

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Chesson, H.W. (2012), Sexonomics: A commentary and review of selected sexually transmitted disease studies in the economics literature. *Sexually Transmitted Diseases*, **39** (3), 161-166.

Full Text: [2012\Sex Tra Dis39, 161.pdf](2012/Sex%20Tra%20Dis39,%20161.pdf)

Abstract: Background: the purpose of this review is to highlight selected studies in the economics literature that address sexually transmitted disease (STD)-related topics that are typically not examined in the STD literature. Methods: Two databases (EconLit and Web of Science) were searched to locate STD-related articles in the economics journals. Relevant articles were also identified in other ways, such as informal discussions with colleagues familiar with the literature. To maintain a focus on unique STD-related topics, studies with topics common in the STD literature (e.g., cost-effectiveness, transmission modeling) were excluded. Results: Selected STD-related studies in the economics literature were grouped into the following 8 topics: impact of abortion laws and policies on sexual health outcomes; same-sex marriage and syphilis rates; alcohol policy and STD rates; welfare laws and STD rates; discounting the future; HIV disclosure laws; the impact of tolerance for gays on HIV incidence; and economic versus epidemiologic models of. HIV dynamics. Conclusions: A general theme of STD-related studies in the economics literature is that laws and policies that increased the “cost” of risky sex tended to reduce the demand for risky sex, and therefore reduce the incidence of STDs. Economic research can contribute in novel ways to our understanding of influences on risky sexual behavior at the individual level and STD incidence at the population level. Economists and STD experts could mutually benefit from increased collaboration.

Keywords: Abortion, Abortion Laws, Alcohol, Articles, Behavior, Co-Authorship, Collaboration, Cost Effectiveness, Cost-Effectiveness, Criminal HIV, Databases, Demand, Disclosure, Discount Rates, Disease, Dynamics, Economic, Economics, Experts, Exposure Laws, Familiar, General, Health, Health Outcomes, HIV, Impact, Incidence, Journals, Laws, Legalized Abortion, Literature, Mar, Modeling, Models, Outcomes, Parental Involvement Laws, Policies, Policy, Population, Purpose, Rates, Research, Review, San-Francisco, Science, Sex, Sexual Behavior, Sexual Health, Sexually Transmitted Disease, STD, Syphilis, Teen Childbearing, Time Preference, Tolerance, Transmission, Understanding, United-States, Web of Science, Welfare

# Title: Sexually Transmitted Infections

Full Journal Title: Sexually Transmitted Infections

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Yee, L.J. and Rhodes, S.D. (2002), Understanding correlates of hepatitis B virus vaccination in men who have sex with men: What have we learned? *Sexually Transmitted Infections*, **78** (5), 374-377.

Abstract: Objectives: Hepatitis B infection (HBV) is prevalent among men who have sex with men (MSM) and may lead to significant morbidity and death. Although an effective vaccine exists vaccination rates among MSM are low. We conducted a systematic review to synthesise the various findings from empirical correlational studies to understand HBV vaccination and series completion among MSM. Methods: We systematically searched the MEDLINE, PUBMED, EMBASE, CINAHL, ERIC, and Web of Science databases to identify the breadth of published studies pertaining to HBV vaccination among MSM and to synthesise findings from these studies to better identify common themes that may direct future research and intervention approaches. Results: Eight papers specifically addressed correlates of HBV vaccination among MSM. Six domains were identified as predictors of vaccination: (1) demographic variables such as younger age and higher education level; (2) knowledge of the vaccine; (3) access to health care, (4) level of “outness” regarding one’s same sex sexual orientation; (5) behavioural factors including sexual and drug use behaviour,- and (6) psychosocial variables. Three papers addressed predictors of vaccine series completion among MSM, observing two main domains: (1) demographic variables such as younger age and higher income level; and, (2) behavioural factors including sexual and health promotion behaviours. Conclusions: Continued educational efforts, creation of environments that facilitate proper risk factor evaluation, and access to low cost vaccine may facilitate vaccine uptake. Although we observed important trends in the studies we reviewed, there is a lack of empirical research regarding this important public health issue.

Keywords: Awareness, Community-Health-Center, Correlates, Databases, Drug, Drug Use, Education, Embase, Evaluation, Hbv, Health Care, Health Promotion, Hepatitis, Higher Education, Homosexual Men, Immunization, Income, Infection, Intervention, Knowledge, Lead, Men, Methods, Morbidity, National-Health, Nutrition Examination Surveys, Papers, Population, Promotion, Psychosocial, Public Health, Pubmed, Research, Review, Risk, Risk Factor, Science, Systematic, Systematic Review, Trends, United-States, Vaccination, Vaccination Rates, Vaccine, Web of Science, Young Men

? Degenhardt, L., Hall, W. and Warner-Smith, M. (2006), Using cohort studies to estimate mortality among injecting drug users that is not attributable to AIDS. *Sexually Transmitted Infections*, **82**, 56-63.

Abstract: Background: Injecting drug use (IDU) and associated mortality appear to be increasing in many parts of the world. IDU is an important factor in HIV transmission. In estimating AIDS mortality attributable to IDU, it is important to take account of premature mortality rates from other causes to ensure that AIDS related mortality among injecting drug users (IDUs) is not overestimated. The current review provides estimates of the excess non-AIDS mortality among IDUs. Method: Searches were conducted with MEDLINE, PsycINFO, and the Web of Science. The authors also searched reference lists of identified papers and an earlier literature review by English et al (1995). Crude. mortality rates (CMRs) were derived from data on the number of deaths, period of follow UP, and number of participants. In estimating the all-cause mortality, two rates were calculated: one that included all cohort studies identified in the search, and one that only included studies that reported on AIDS deaths in their cohort. This provided lower and upper mortality rates, respectively. Results: the current paper derived weighted mortality rates based upon cohort studies that included 179 885 participants, 1 219 422 person-years of observation, and 16 593 deaths. The weighted crude AIDS mortality rate from studies that reported AIDS deaths was approximately 0.78% per annum. The median estimated non-AIDS mortality rate was 1.08% per annum. Conclusions: Illicit drug users have a greatly increased risk of premature death and mortality due to AIDS forms a significant part of that increased risk; it is, however, only part of that risk. Future work needs to examine mortality rates among IDUs in developing countries, and collect data on the relation between HIV and increased mortality due to all causes among this group.

Keywords: AID, AIDS, Authors, Cohort Studies, Developing Countries, Drug, Drug Use, HIV, Literature, Literature Review, Mortality, Observation, Papers, Review, Risk, Science, Web of Science

? Degenhardt, L., Hall, W. and Warner-Smith, M. (2006), Using cohort studies to estimate mortality among injecting drug users that is not attributable to AIDS. *Sexually Transmitted Infections*, **82**, III56-III63.

Abstract: Background: Injecting drug use (IDU) and associated mortality appear to be increasing in many parts of the world. IDU is an important factor in HIV transmission. In estimating AIDS mortality attributable to IDU, it is important to take account of premature mortality rates from other causes to ensure that AIDS related mortality among injecting drug users (IDUs) is not overestimated. The current review provides estimates of the excess non-AIDS mortality among IDUs. Method: Searches were conducted with MEDLINE, PsycINFO, and the Web of Science. The authors also searched reference lists of identified papers and an earlier literature review by English et al (1995). Crude mortality rates (CMRs) were derived from data on the number of deaths, period of follow up, and number of participants. In estimating the all-cause mortality, two rates were calculated: one that included all cohort studies identified in the search, and one that only included studies that reported on AIDS deaths in their cohort. This provided lower and upper mortality rates, respectively. Results: the current paper derived weighted mortality rates based upon cohort studies that included 179 885 participants, 1 219 422 person-years of observation, and 16 593 deaths. The weighted crude AIDS mortality rate from studies that reported AIDS deaths was approximately 0.78% per annum. The median estimated non-AIDS mortality rate was 1.08% per annum. Conclusions: Illicit drug users have a greatly increased risk of premature death and mortality due to AIDS forms a significant part of that increased risk; it is, however, only part of that risk. Future work needs to examine mortality rates among IDUs in developing countries, and collect data on the relation between HIV and increased mortality due to all causes among this group.

Keywords: 22-Year Follow-Up, Active Antiretroviral Therapy, Aid, Aids, Authors, Cocaine Use, Cohort Studies, Developing Countries, Drug, Drug Use, Follow-up, Hepatitis-C-Virus, Heroin-Addicts, HIV, Hiv-Infection, Human-Immunodeficiency-Virus, Literature, Literature Review, Methadone-Maintenance, Mortality, Observation, Papers, Regular Amphetamine Users, Review, Risk, Science, Serious Suicide Attempts, Web of Science

? Lorenc, T., Marrero-Guillamon, I., Aggleton, P., Cooper, C., Llewellyn, A., Lehmann, A. and Lindsay, C. (2011), Promoting the uptake of HIV testing among men who have sex with men: systematic review of effectiveness and cost-effectiveness. *Sexually Transmitted Infections*, **87** (4), 272-278.

Abstract: What interventions are effective and cost-effective in increasing the uptake of HIV testing among men who have sex with men (MSM)? A systematic review was conducted of the following databases: AEGIS, ASSIA, BL Direct, BNI, Centre for Reviews and Dissemination, Cochrane Database of Systematic Reviews, CINAHL, Current Contents Connect, EconLit, EMBASE, ERIC, HMIC, MEDLINE, MEDLINE In-Process, NRR, PsychINFO, Scopus, SIGLE, Social Policy and Practice, Web of Science, websites, journal hand-searching, citation chasing and expert recommendations. Prospective studies of the effectiveness or cost-effectiveness of interventions (randomised controlled trial (RCT), controlled trial, one-group or any economic analysis) were included if the intervention aimed to increase the uptake of HIV testing among MSM in a high-income (Organization for Economic Co-operation and Development) country. Quality was assessed and data were extracted using standardised tools. Results were synthesised narratively. Twelve effectiveness studies and one cost-effectiveness study were located, covering a range of intervention types. There is evidence that rapid testing and counselling in community settings (one RCT), and intensive peer counselling (one RCT), can increase the uptake of HIV testing among MSM. There are promising results regarding the introduction of opt-out testing in sexually transmitted infection clinics (two one-group studies). Findings regarding other interventions, including bundling HIV tests with other tests, peer outreach in community settings, and media campaigns, are inconclusive. Findings indicate several promising approaches to increasing HIV testing among MSM. However, there is limited evidence overall, and evidence for the effectiveness of key intervention types (particularly peer outreach and media campaigns) remains lacking.

Keywords: Analysis, Behavior, Campaigns, Citation, Cochrane, Cost-Effectiveness, Database, Databases, Effectiveness, Embase, Gay Men, Guidelines, HIV, Infection, Intervention, Interventions, Journal, Men, Policy, Practice, Prospective Studies, Quality, Randomised Controlled Trial, Review, Risk, Science, Scopus, Settings, Strategies, Systematic, Systematic Review, Web of Science, Websites

# Title: Shanghai Kou Qiang Yi Xue

Full Journal Title: Shanghai Kou Qiang Yi Xue

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Wang, Y.H. and Zhang, F.Q. (2007), Analysis of Chinese literatures on evidence-based dentistry between 2001 and 2006. *Shanghai Kou Qiang Yi Xue*, **16** (5), 534-537.

Full Text: [2007\Sha Kou Qia Yi Xue16, 534.pdf](2007/Sha%20Kou%20Qia%20Yi%20Xue16,%20534.pdf)

Abstract: PURPOSE: To explore the research trends and statuses of evidence-based dentistry. METHODS: Analyzing the articles related with EBD from 2001-2006 by bibliometrics, which were CNKI database. RESULTS: 74 articles were found out from the database. The number of articles was increasing. The study was mainly on oral mucosa and oral and maxillofacial surgery and so on. Those important journals on domestic evidence-based dentistry are Chinese Journal of Evidence-Based Medicine, Chinese Journal of Stomatology, China Journal of Oral and Maxillofacial Surgery. CONCLUSION: Many articles are introductions to evidence-based dentistry repeatedly, their innovations are weak and depress of their study is superficial. Supported by Shanghai Leading Academic Discipline Project (Grant No.T0202).

Keywords: Bibliometrics, China, Chinese, Database, Dentistry, Evidence Based, Evidence-Based, Journals, Methods, Oral, Purpose, Research, Surgery, Trends

# Title: Sheng Wu Yi Xue Gong Cheng Xue Za Zhi

Full Journal Title: Sheng Wu Yi Xue Gong Cheng Xue Za Zhi

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 1001-5515

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Zhao, P. (2005), Scientometrics and bibliometrics of chronotherapy. *Sheng Wu Yi Xue Gong Cheng Xue Za Zhi*, **22** (1), 120-124.

Abstract: In order to retrieve Chinese and foreign articles of chronotherapy, we searched Chinese databases of CBM, CMCC and foreign series databases in OVID and hence revealed and assessed the current status, research trend and level of chronotherapy in China and in foreign countries by means of scientometric and bibliometric parameters. ProCite5 software and handsearching were used to manage, check and statistically analyze the searched papers so as to find the parameters which included distributions of databases, years, authors, periodicals, subject headings, organizations and nations. 91 Chinese papers were identified which were distributed in 73 kinds of journals and in subject headings, e.g., Traditional Chinese medicine, cardiovascular diseases, neoplasms, asthma, peptic ulcer, diabetes mellitus, general review of chronotherapy, etc. 480 foreign articles were identified which mainly came from EMBASE and MEDLINE and were distributed in 285 types of journals and 35 nations and regions. There were 14 journals which recorded five or more articles. 12 researchers published more than five articles. Paul Brousse Hospital, University of Texas, University of Connecticut School of Medicine, Jichi Medical School and University of Minnesota were the core research institutes. There was no core author or core journal or core institute in China up till now. However, core authors, core journals and core research institutes had come into being in foreign countries; they were mainly from the Euro-American developed countries and had done well in chronotherapy.

# Title: Shengwu Duoyangxing

Full Journal Title: [Shengwu Duoyangxing](http://www.biodiversity-science.net/CN/article/showTenYearOldVolumn.do)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Chen, J., Zhang, B., Ma, K. and Jiang, Z. (2009), Bibliometric analysis of status quo of conservation biology in China. *Shengwu Duoyangxing*, **17** (4), 423-429.

Full Text: [2009\She Duo17, 423.pdf](2009/She%20Duo17,%20423.pdf)

Abstract: the research in conservation biology started in 1990 and is currently in a stage of rapid development in China. To understand the status quo of conservation biology in China, we used the term “conservation biology” as the keyword to search and collect Chinese and English literatures in conservation biology which were written by Chinese researchers in ISI Web of Knowledge and Chinese Journals Full-Text Database. These publications were analyzed with methods of bibliometrics, on the distribution of the publication year, the author and organization distribution, the journal distribution, the research funds, the research regions and the objects. The results indicate that core research groups working in the field of conservation biology in China have been already formed, although the distribution of research groups was scattered over institutions and universities. Dispersion and concentration coexisted in the journal distribution of Chinese and English publications - a majority of publications was clumped in a small number of journals, while a minority was scattered in a large number of journals. In China, there is only one professional journal publishing papers on conservation biology[long dash]Biodiversity Science. Thus it is reasonable to launch an English conservation biology journal in the country. Research funds for conservation biology have a wide array of sources. An important part of the papers in Chinese was supported by the National Natural Science Foundation of China and provincial foundations, while those in English were supported either by National Natural Science Foundation of China or international funds. Field studies in conservation biology were mainly conducted in the regions of high biodiversities in south and southwest China. Plants, mammals and birds were the main objects of those studies. In the studies on single species, 90% were studies on endangered species. Studies on bio-inventory and genetic diversity represented a significant proportion of publications, while little was published about the strategies and practices of conservation.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometrics, Biology, Birds, China, Chinese, Concentration, Conservation, Conservation Biology, Country, Development, Distribution, Diversity, Endangered Species, Field, Genetic, Genetic Diversity, Institutions, International, ISI, Journal, Journals, Mammals, Methods, Organization, Papers, Practices, Publication, Publications, Publishing, Rapid Development, Research, Science, Small, Sources, Species, Term, Universities

# Title: Shock

Full Journal Title: Shock

ISO Abbreviated Title: Shock

JCR Abbreviated Title: Shock

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Paratz, J.D., Stockton, K., Paratz, E.D., Blot, S., Muller, M., Lipman, J. and Boots, R.J. (2014), Burn resuscitation-hourly urine output versus alternative endpoints: A systematic review. *Shock*, **42** (4), 295-306.

Full Text: 2014\Shock42, 295.pdf

Abstract: Controversy remains over appropriate endpoints of resuscitation during fluid resuscitation in early burns management. We reviewed the evidence as to whether utilizing alternative endpoints to hourly urine output produces improved outcomes. MEDLINE, CINAHL, EMBASE, Cochrane Library, Web of Science, and full-text clinicians’ health journals at OVID, from 1990 to January 2014, were searched with no language restrictions. The keywords burns and fluid resuscitation and monitoring and related synonyms were used. Outcomes of interest included all-cause mortality, organ dysfunction, length of stay (hospital, intensive care), time on mechanical ventilation, and complications such as incidence of pulmonary edema, compartment syndromes, and infection. From 482 screened, eight empirical articles, 11 descriptive studies, and one systematic review met the criteria. Utilization of hemodynamic monitoring compared with hourly urine output as an endpoint to guide resuscitation found an increased survival (risk ratio [RR], 0.58; 95% confidence interval, 0.42Y0.85; P < 0.004), with no effect on renal failure (RR, 0.77; 95% confidence interval, 0.39-1.43; P = 0.38). However, inclusion of the randomized controlled trials only found no survival advantage of hemodynamic monitoring over hourly urine output (RR, 0.72; 95% confidence interval, 0.43-1.19; P = 0.19) for mortality. There were conflicting findings between studies for the volume of resuscitation fluid, incidence of sepsis, and length of stay. There is limited evidence of increased benefit with utilization of hemodynamic monitoring, however, all studies lacked assessor blinding. A large multicenter study with a priori-determined subgroup analysis investigating alternative endpoints of resuscitation is warranted.

Keywords: Alternative, Analysis, Articles, Base Deficit, Blood-Volume, Burn, Burn Shock, Burns, Care, Complications, Confidence, Criteria, Embase, Evidence, Failure, Fluid Resuscitation, From, Goal-Directed Resuscitation, Health, Hemodynamics, Hospital, Incidence, Infection, Intensive Care, Interval, Ischemia-Reperfusion, Journals, Language, Length, Length Of Stay, Major Burns, Management, Mechanical Ventilation, Medline, Monitoring, Mortality, Outcomes, P, Randomized, Randomized Controlled Trials, Renal, Renal Failure, Restrictions, Resuscitation, Review, Risk, Science, Sepsis, Shock Resuscitation, Survival, Systematic, Systematic Review, Thermal-Injury, Transpulmonary Thermodilution, Urine, Utilization, Ventilation, Volume, Volume Resuscitation, Web Of Science

# Title: A Short History of Mathematical Population Dynamics

Full Journal Title: A Short History of Mathematical Population Dynamics

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Bacaër, N. (2011), Lotka and stable population theory (1907–1911). *A Short History of Mathematical Population Dynamics*, 55-58.

Full Text: 2011\Sho His Mat Pop Dyn, 55.pdf

Abstract: In 1907 the American chemist Alfred Lotka started to study the relation between birth rate, age-specific death rates and the rate of population growth using a continuous-time model. In 1911 he published another article on the same subject with F.R. Sharpe, which also included age-specific fertility rates. The implicit equation giving the population growth rate is often called “Lotka’s equation”.

# Title: SIAM Journal on Applied Dynamical Systems

Full Journal Title: SIAM Journal on Applied Dynamical Systems

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? McGehee, R. and Lehman, C. (2012), A paleoclimate model of ice-albedo feedback forced by variations in earth’s orbit. *SIAM Journal on Applied Dynamical Systems*, **11** (2), 684-707.

Full Text: 2012\SIA J App Dyn Sys11, 684.pdf

Abstract: Earth undergoes long-term temperature cycles alternating between glacial and interglacial episodes. It is widely accepted that changes in Earth’s orbit and rotation axis cause variations in solar input which drive the glacial cycles. However, classic papers have clearly established that the response of Earth’s climate system to orbital forcing is not a simple linear phenomenon and must include nonlinear feedback mechanisms. One of these mechanisms is ice-albedo feedback, which can be modeled as a dynamical system. When combined with the cycles in the orbital elements and compared with the climate data, the model confirms that ice-albedo feedback is an important component of Earth’s climate.

Keywords: Changes, Classic Papers, Climate, Data, Drive, Dynamical Systems, Earth, Feedback, Glacial Cycles, Ice-Albedo Feedback, Long Term, Long-Term, Mechanisms, Milankovitch Cycles, Mn, Model, Orbital Forcing, Paleoclimate, Papers, Temperature, USA

# Title: SIAM Journal on Scientific and Statistical Computing

Full Journal Title: SIAM Journal on Scientific and Statistical Computing

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0196-5204

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Zhao, P., Xu, P., Li, B. and Wang, Z. (2005), Scientometrics and bibliometrics of chronotherapy. *Sheng Wu Yi Xue Gong Cheng Xue Za Zhi*, **22** (1), 120-124.

Abstract: In order to retrieve Chinese and foreign articles of chronotherapy, we searched Chinese databases of CBM, CMCC and foreign series databases in OVID and hence revealed and assessed the current status, research trend and level of chronotherapy in China and in foreign countries by means of scientometric and bibliometric parameters. ProCite5 software and handsearching were used to manage, check and statistically analyze the searched papers so as to find the parameters which included distributions of databases, years, authors, periodicals, subject headings, organizations and nations. 91 Chinese papers were identified which were distributed in 73 kinds of journals and in subject headings, e.g., Traditional Chinese medicine, cardiovascular diseases, neoplasms, asthma, peptic ulcer, diabetes mellitus, general review of chronotherapy, etc. 480 foreign articles were identified which mainly came from EMBASE and MEDLINE and were distributed in 285 types of journals and 35 nations and regions. There were 14 journals which recorded five or more articles. 12 researchers published more than five articles. Paul Brousse Hospital, University of Texas, University of Connecticut School of Medicine, Jichi Medical School and University of Minnesota were the core research institutes. There was no core author or core journal or core institute in China up till now. However, core authors, core journals and core research institutes had come into being in foreign countries; they were mainly from the Euro-American developed countries and had done well in chronotherapy.

Keywords: Asthma, Bibliometric, Bibliometrics, Cardiovascular, China, Chinese, Connecticut, Databases, Diabetes, Diabetes Mellitus, Diseases, Distributed, General, Journal, Journals, Medicine, MEDLINE, Nations, Neoplasms, Papers, Periodicals, Research, Research Trend, Review, Scientometric, Software, Texas, Till, Trend

? Zhao, P., Xu, P., Li, B. and Wang, Z. (2003), Scientometrics and bibliometrics of biomedical engineering periodicals and papers. *Sheng Wu Yi Xue Gong Cheng Xue Za Zhi*, **20** (3), 515-520.

Abstract: This investigation was made to reveal the current status, research trend and research level of biomedical engineering in Chinese mainland by means of scientometrics and to assess the quality of the four domestic publications by bibliometrics. We identified all articles of four related publications by searching Chinese and foreign databases from 1997 to 2001. All articles collected or cited by these databases were searched and statistically analyzed for finding out the relevant distributions, including databases, years, authors, institutions, subject headings and subheadings. The source of sustentation funds and the related articles were analyzed too. The results showed that two journals were cited by two foreign databases and five Chinese databases simultaneously. The output of Journal of Biomedical Engineering was the highest. Its quantity of original papers cited by EI, CA and the totality of papers sponsored by funds were higher than those of the others, but the quantity and percentage per year of biomedical articles cited by EI were decreased in all. Inland core authors and institutions had come into being in the field of biomedical engineering. Their research topics were mainly concentrated on ten subject headings which included biocompatible materials, computer-assisted signal processing, electrocardiography, computer-assisted image processing, biomechanics, algorithms, electroencephalography, automatic data processing, mechanical stress, hemodynamics, mathematical computing, microcomputers, theoretical models, etc. The main subheadings were concentrated on instrumentation, physiopathology, diagnosis, therapy, ultrasonography, physiology, analysis, surgery, pathology, method, etc.

Keywords: Algorithms, Analysis, Automatic Data Processing, Bibliometrics, Biocompatible, Biomechanics, Biomedical, Chinese, Data, Databases, Diagnosis, Engineering, Field, Hemodynamics, Image Processing, Institutions, Instrumentation, Investigation, Journals, Mathematical Computing, Models, Papers, Pathology, Periodicals, Physiology, Publications, Quality, Quality of, Research, Research Trend, Scientometrics, Source, Stress, Surgery, Theoretical Models, Therapy, Trend, Ultrasonography

# Title: Sibirskii Biologicheskii Zhurnal

Full Journal Title: Sibirskii Biologicheskii Zhurnal

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0869-1347

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Markova, O. (1992), The tendency of development of research on ecological and phytocoenotic diversity of natural grasslands of Siberia: Experience with bibliometric analysis. *Sibirskii Biologicheskii Zhurnal*, **0** (1), 56-60.

Abstract: the present paper was devoted to application of bibliometric analysis of documentary information current for the purpose of determining the state and the tendency of the development of a specific scientific direction. The results of this research are used for prediction of the development of science, because the information current is an information model of the system of the scientific knowledge. A bibliometric analysis of the information current on the theme ‘Ecological and phytocoenotic diversity of natural grassland of Siberia’ was done. This theme is one of the most important aspects in research of rational use and reproduction of plant resources of hayfields and pastures. The analysis was based on materials of abstract journals of VINITI ‘Biology’ and ‘Plant-growing’ and the bibliography ‘Soils, vegetable and animals of Siberia and Far East’ during 1985-1989 years. 671 documents on ecological and phytocoenotic investigations of natural grassland in this country and abroad were exposed. The tendency of quantitative rise of the information current and fluctuation character of its temporal dynamics were established. The part of the home information in general information current constitutes 50-60 per cent. The part of the Siberian information (current in home information current constitutes 40-50 per cent. It is explained by significant areas of natural grassland in this country and in Siberia, which are represented by different types of plant communities. A wide range of editions, which publicate this information was exposed. They are: monographs, thematic collections, periodic editions, author’s abstracts of dissertations, materials of conferences, deposited papers. A fundamental part of the home information was presented in thematic collections, and the foreign information was presented in periodic editions. The results of this research show the high degree of elaboration of this thematic direction, its scientific and practical importance and the possibility of using the bibliometric analysis for estimation and prediction of the development of the scientific direction.

# Title: SIGMOD Record

Full Journal Title: [SIGMOD Record](http://portal.acm.org/browse_dl.cfm?linked=1&part=newsletter&idx=J689&coll=portal&dl=ACM); [SIGMOD Record](http://www.informatik.uni-trier.de/~ley/db/journals/sigmod/index.html)

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JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Notes: MModel

Elmacioglu, E. and Lee, D.W. (2005), On six degrees of separation in DBLP-DB and more. *SIGMOD Record*, **34** (2), 33-40.

Full Text: [2005\Sig Rec34, 33.pdf](2005/Sig%20Rec34,%2033.pdf)

Abstract: An extensive bibliometric study on the db community using the collaboration network constructed from DBLP data is presented. Among many, we have found that (1) the average distance of all db scholars in the network has been stabilized to about 6 for the last 15 years, coinciding with the so-called six degrees of separation phenomenon; (2) In sync with Lotka’s law on the frequency of publications, the db community also shows that a few number of scholars publish a large number of papers, while the majority of authors publish a small number of papers (i.e., following the power-law with exponent about -2); and (3) with the increasing demand to publish more, scholars collaborate more often than before (i.e., 3.93 collaborators per scholar and with steadily increasing clustering coefficients).

Keywords: Bibliometric, Bibliometric Study, Collaboration, Network, Publications

# Title: Signal Processing

Full Journal Title: Signal Processing

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? (2007), Most cited paper award - Asok Ray. *Signal Processing*, **87** (7), 1816.

Full Text: 2007\Sig Pro87, 1816.pdf

? Fletcher, T. and Joshi, S. (2010), Most cited paper award 2010. *Signal Processing*, **90** (10), 2898.

Full Text: [2010\Sig Pro90, 2898.pdf](2010/Sig%20Pro90,%202898.pdf)

# Title: Simulation Modelling Practice and Theory

Full Journal Title: Simulation Modelling Practice and Theory

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Huerta-Barrientos, A., Elizondo-Cortés, M. and de la Mota, I.F. (2014), Analysis of scientific collaboration patterns in the co-authorship network of Simulation-Optimization of supply chains. *Simulation Modelling Practice and Theory*, **46**, 135-148.

Full Text: [2014\Sim Mod Pra The46, 135.pdf](2014/Sim%20Mod%20Pra%20The46,%20135.pdf)

Abstract: In the 1970s, a co-authorship network in the field of Simulation Optimization of supply chains was established, supported by local associations. Then, the development of this network was favored by the foundation of new co-authorships and the consolidation of already existing. The purpose of this study is to analyze the structure, collaboration patterns and the time-evolution of the co-authorship network of Simulation Optimization of supply chains. Data are based upon 202 peer-reviewed contributions published from 1970 to August 2012 in relevant journals indexed in the ISI/Web of Science database and International Conferences. The analysis is conducted using exploratory social network analysis technique. Results indicate that the development of knowledge in Simulation Optimization of supply chains has been carried out mainly by 353 authors from 35 countries. Also, there have been proposed over forty Simulation Optimization methods by different authors however the most usual is response surface methodology, followed by gradient based search method and genetic algorithms. In addition, applications of Simulation Optimization methods and techniques are found mainly in areas as health care, management, transport, airline, telecommunications, aerospace, and financial. Although research in Simulation Optimization of supply chains has received much attention by the simulation community, its application in key industries continues to be still small, limiting its support in decision-making. (C) 2014 Elsevier B.V. All rights reserved.

Keywords: Algorithms, Analysis, Application, Attention, Authors, Care, Co-Authorship, Coauthorship, Coauthorship Network, Collaboration, Collaboration Patterns, Community, Conferences, Data, Database, Decision Making, Decision-Making, Development, Field, Genetic, Genetic Algorithms, Health, Health Care, International, Journals, Knowledge, Local, Management, Methodology, Methods, Network, Network Analysis, Optimization, Peer-Reviewed, Purpose, Research, Response, Response Surface Methodology, Results, Rights, Science, Scientific Collaboration, Si, Simulation, Simulation Optimization, Small, Social, Social Network, Social Network Analysis, Structure, Supply Chain, Support, Surface, Techniques, Transport

# Title: Simulation-Transactions of the Society for Modeling and Simulation International

Full Journal Title: Simulation-Transactions of the Society for Modeling and Simulation International

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Mustafee, N., Katsaliaki, K. and Taylor, S.J.E. (2010), Profiling literature in healthcare simulation. *Simulation-Transactions of the Society for Modeling and Simulation International*, **86** (8-9), 543-558.

Abstract: the publications that relate to the application of simulation to healthcare have steadily increased over the years. These publications are scattered amongst various journals that belong to several subject categories, including operational research, health economics and pharmacokinetics. The simulation techniques that are applied to the study of healthcare problems are also various. The aim of this study, therefore, is to review healthcare simulation literature that have been published between 1970 and 2007 in high-quality journals belonging to various subject categories and that report on the application of four simulation techniques, namely, Monte Carlo simulation, discrete-event simulation, system dynamics and agent-based simulation. Arguably, journal impact factor is fundamental in assessing the quality of publications. Thus, the 201 publications selected for review have been queried from the ISI Web of Science (R) bibliographic database of high-impact research journals. Through a review of healthcare simulation literature the following three objectives have been realized: (a) papers have been categorized under the different simulation techniques, and the healthcare problems that each technique is employed to investigate are identified; (b) variables such as authors, article citations, etc., within our dataset of healthcare papers have been profiled; (c) turning point (strategically important) papers and authors have been identified through co-citation analysis of references cited by the papers in our dataset. The above objectives have been realized by devising and then employing a methodology for profiling literature. It is expected that this review paper will help the readers gain a broader understanding of research in healthcare simulation.

Keywords: Analysis, Authors, Bibliographic, Bibliographic Database, Citations, Co-Citation Analysis, Cocitation, Discrete-Event Simulation, Economics, Emergency, Health Economics, Healthcare, Healthcare Research, Impact, Impact Factor, Information-Systems, Intellectual Structure, ISI, ISI Web of Science, Journal, Journal Impact Factor, Journals, Knowledge, Literature, Methodology, Papers, Profiling Research, Public-Health, Publications, Quality of Publications, Research, Review, Risk Assessment, Science, Simulation Research, Time, Web of Science

# Title: Singapore Medical Journal

Full Journal Title: Singapore Medical Journal

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Peh, W.C.G. and Ng, K.H. (2010), Publication ethics and scientific misconduct. *Singapore Medical Journal*, **51** (12), 908-912.

Abstract: To maintain the readers’ trust and to uphold the journal’s reputation, it is paramount for the entire research, peer reviewer and publication process to follow ethical principles and decisions. Studies involving humans, animals, medical records and human tissues/organs need to be conducted ethically, and the appropriate approvals obtained. The privacy and confidentiality of patients, authors and reviewers should be respected. When required, rights and permissions should be sought. Common forms of scientific misconduct include misappropriation of ideas, violation of generally accepted research practices, failure to comply with legislative and regulatory requirements, falsification of data, and inappropriate behaviour in relation to misconduct. Authors can expect editorial action to be taken, should duplicate publication, plagiarism and other forms of scientific misconduct be attempted or detected.

Keywords: Authors, Data Falsification, Duplicate Publication, Ethics, Ethics Committee, Institutional Review Board, Joint Statement, Malaysia, Misconduct, Plagiarism, Publication, Publication Ethics, Research, Rights and Permissions, Scientific Misconduct

Notes: CCountry

? López-Muñoz, F., Sim, K., Shen, W.W., Huelves, L., Moreno, R., Molina, J.D., Rubio, G., Noriega, C., Perez-Nieto, M.A. and Álamo, C. (2014), A bibliometric study of scientific research conducted on second-generation antipsychotic drugs in Singapore. *Singapore Medical Journal*, **55** (1), 24-33.

Full Text: [2014\Sin Med J55, 24.pdf](2014/Sin%20Med%20J55,%2024.pdf)

Abstract: INTRODUCTION A bibliometric study was carried out to ascertain the volume and impact of scientific literature published on second-generation antipsychotic drugs (SGAs) in Singapore from 1997 to 2011. METHODS A search of the EMBASE and MEDLINE databases was performed to identify articles originating from Singapore that included the descriptors ‘atypic\* antipsychotic\*’, ‘second-generation antipsychotic\*’, ‘clozapine’, ‘risperidone’, ‘olanzapine’, ‘ziprasidone’, ‘quetiapine’, ‘sertindole’, ‘aripiprazole’, ‘paliperidone’, ‘amisulpride’, ‘zotepine’, ‘asenapine’, ‘iloperidone’, ‘lurasidone’, ‘perospirone’ and ‘blonanserin’ in the article titles. Certain bibliometric indicators of production and dispersion (e. g. Price’s Law on the increase of scientific literature, and Bradford’s Law) were applied, and the participation index of various countries was calculated. The bibliometric data was also correlated with some social and health data from Singapore, such as the total per capita expenditure on health and gross domestic expenditure on research and development. RESULTS From 1997 to 2011, a total of 51 articles on SGAs in Singapore were published. Our results suggested non-fulfilment of Price’s Law (r = 0.0648 after exponential adjustment vs. r = 0.2140 after linear adjustment). The most widely studied drugs were clozapine (21 articles), risperidone (16 articles) and olanzapine (8 articles). Division into Bradford zones yielded a nucleus occupied by the Journal of Clinical Psychopharmacology (6 articles) and the Singapore Medical Journal (4 articles). The analysed material was published in a total of 30 journals, with the majority from six journals. Four of these six journals have an impact factor greater than 2. CONCLUSION Publications on SGAs in Singapore are still too few to confirm an exponential growth of scientific literature.

Keywords: Atypical Antipsychotics, Bibliometric, Bibliometric Data, Bibliometric Indicators, Bibliometric Study, Bibliometry, Bipolar Disorder, Bradford’s Law, Clozapine, Data, Databases, Development, Dispersion, Drugs, East-Asia, Embase, Growth, Health, Impact, Impact Factor, Index, Indicators, Inpatients, Journal, Journals, Law, Literature, Medical, Medline, Methods, Olanzapine, Participation, Psychotropic Prescription Reap, Publications, Quetiapine, Research, Research and Development, Risperidone, Schizophrenia, Schizophrenia, Scientific Literature, Scientific Research, Second-Generation Antipsychotics, Singapore, Social, Volume, Ziprasidone

# Title: Skin Pharmacology and Physiology

Full Journal Title: Skin Pharmacology and Physiology

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Hafeez, F. and Maibach, H. (2013), Occlusion effect on in vivo percutaneous penetration of chemicals in man and monkey: Partition coefficient effects. *Skin Pharmacology and Physiology*, **26** (2), 85-91.

Full Text: 2013\Ski Pha Phy26, 85.pdf

Abstract: Background/Aim: Skin occlusion can increase the hydration of the stratum corneum up to 50%, which can have substantial effects on the percutaneous absorption of penetrants by altering skin barrier physiology. Though occlusion is widely utilized to enhance the penetration of applied drugs in clinical practice, it is not well known for which chemicals occlusion enhances the penetration through skin. In this review, we focus on what effect occlusion has on the percutaneous absorption of compounds of varying lipophilicities/hydrophilicities in vivo in the monkey and man. Methods: Studies and prior reviews of the effects of occlusion on the in vivo percutaneous penetration of penetrants of varying liphophilicities/hydrophilicities were identified in the MEDLINE, Pubmed, Embase and Science Citation Index databases. Results: After examining the research articles generated by the search results, 7 original research studies were obtained that used in vivo occlusion models and provided insight regarding the role of partition coefficients in predicting the effects of occlusion on percutaneous penetration. From these studies, one can conclude the following: (1) occlusion enhances the percutaneous absorption of many but not all compounds, (2) penetration can increase as the amount of time of occlusion increases, (3) occlusion seems to enhance the penetration of very lipophilic compounds more than that of very hydrophilic compounds, but (4) a relationship between a compound’s octanol-water partition coefficient and its occlusion-induced enhancement has not been determined. Conclusion: These in vivo studies reinforce the conclusions drawn from in vitro studies that partition coefficients incompletely predict the effect of occlusion on percutaneous penetration. Copyright (C) 2013 S. Karger AG, Basel.

Keywords: Absorption, Ag, Barrier, Barrier Function, Barrier Function, Bioavailability, Chemicals, Citation, Clinical, Clinical Practice, Databases, Dressings, Drugs, Effects, Epidermal Water-Loss, Human-Skin, Hydration, Hydrophilicity, Liphophilicity, MEDLINE, Methods, Models, Occlusion, Octanol-Water Partition Coefficient, Partition, Percutaneous, Percutaneous Absorption, Percutaneous Absorption-Penetration In Vivo, Physiology, Practice, Prolonged Occlusion, Research, Results, Review, Reviews, Role, Science, Science Citation Index, Skin, Steroids, Stratum Corneum, Stratum-Corneum, Superficial Wounds

# Title: Skull Base-An Interdisciplinary Approach

Full Journal Title: Skull Base-An Interdisciplinary Approach

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Figueiredo, E.G., Soga, Y., Amorim, R.L.O., Oliveira, A.M.P. and Teixeira, M.J. (2011), The puzzling olfactory groove schwannoma: A systematic review. *Skull Base-An Interdisciplinary Approach*, **21** (1), 31-35.

Abstract: We systematically reviewed the literature concerning the anterior cranial fossa schwannomas to understand their pathogenesis, determine their origin, and standardize the terminology. We performed a MEDLINE, EMBASE, and Science Citation Index Expanded search of the literature; age, gender, clinical presentation, presence or absence of hyposmia, radiological features, and apparent origin were analyzed and tabulated. Cases in a context of neurofibromatosis and nasal schwannomas with intracranial extension were not included. Age varied between 14 and 63 years (mean = 30.9). There were 22 male and 11 female patients. The clinical presentation included seizures (n = 15), headache (n = 16), visual deficits (n = 7), cognitive disturbances (n = 3), and rhinorrhea (n = 1). Hyposmia was present in 14 cases, absent in 13 cases (39.3%), and unreported in five. Homogeneous and heterogeneous contrast enhancement was observed in 14 and 15 cases, respectively. The region of the olfactory groove was the probable site in 96.5%. Olfactory tract could be identified in 39.3%. The most probable origin is the meningeal branches of trigeminal nerve or anterior ethmoidal nerves. Thus, olfactory groove schwannoma would better describe its origin and pathogenesis and should be the term preferentially used to name it.

Keywords: Age, Anterior Cranial Fossa, Clinical, Context, Disturbances, Enigmatic Origin, Female, Gender, Hyposmia, Intracranial Subfrontal Schwannoma, Literature, Male, MEDLINE, Nerves, Olfactory Groove, Olfactory Nerve, Origin, Pathogenesis, Patients, Presentation, Schwannomas, Science Citation Index, Seizures, Site, Subfrontal Tumors, Term, Terminology, Tumor

# Title: Slavic Review

Full Journal Title: Slavic Review

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Ermolaev, H. (2007), Boris Pil’njaks des selbstzitats in den 30er jahren. *Slavic Review*, **66** (3), 570-571.

? Ermolaev, H. (2007), Boris Pil’njak’s poetics of the self citation in the 30s. *Slavic Review*, **66** (3), 570-571.

Full Text: [2007\Sla Rev66, 570.pdf](2007/Sla%20Rev66,%20570.pdf)

Keywords: Citation, Self-Citation

# Title: Sleep

Full Journal Title: Sleep

ISO Abbreviated Title: Sleep

JCR Abbreviated Title: Sleep

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Notes: TTopic

? Lu, S., Wu, C. and Ho, Y.S. (2007), Bibliometric analysis of insomnia-related research in the period of 1991-2005. *Sleep*, **30** (S), A260-A261.

Full Text: [2007\Sleep30, A260.pdf](2007/Sleep30,%20A260.pdf)

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Research

? Lu, S., Wu, C. and Ho, Y. (2007), Bibliometric analysis of insomnia-related research in the period of 1991-2005. *Sleep*, **30**, 763.

Full Text: 2007\Sleep30, 763.pdf

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Research

? Camacho, M., Riaz, M., Capasso, R., Ruoff, C.M., Guilleminault, C., Kushida, C.A. and Certal, V. (2015), The effect of nasal surgery on continuous positive airway pressure device use and therapeutic treatment pressures: A systematic review and meta-analysis. *Sleep*, **38** (2), 279-286.

Full Text: 2015\Sleep38, 279.pdf

Abstract: Background: The relationship between nasal surgery and its effect on continuous positive airway pressure (CPAP) device therapeutic treatment pressures and CPAP device use has not been previously systematically examined. Study Objectives: To conduct a systematic review and meta-analysis evaluating the effect of isolated nasal surgery on therapeutic CPAP device pressures and use in adults with obstructive sleep apnea. Methods: MEDLINE, Scopus, Web of Science, and The Cochrane Library were searched through July 15, 2014. The MOOSE consensus statement and PRISMA statement were followed. Results: Eighteen studies (279 patients) reported CPAP data after isolated nasal surgery. Seven studies (82 patients) reported preoperative and postoperative mean therapeutic CPAP device pressures and standard deviations, which reduced from 11.6 +/- 2.2 to 9.5 +/- 2.0 centimeters of water pressure (cwp) after nasal surgery. Pooled random effects analysis demonstrated a statistically significant pressure reduction, with a mean difference of -2.66 cwp (95% confidence intervals, -3.65 to -1.67); P < 0.00001. Eleven studies (153 patients) described subjective, self-reported data for CPAP use; and a subgroup analysis demonstrated that 89.1% (57 of 64 patients) who were not using CPAP prior to nasal surgery subsequently accepted, adhered to, or tolerated it after nasal surgery. Objective, device meter-based hours of use increased in 33 patients from 3.0 +/- 3.1 to 5.5 +/- 2.0 h in the short term (< 6 mo of follow-up). Conclusion: Isolated nasal surgery in patients with obstructive sleep apnea and nasal obstruction reduces therapeutic CPAP device pressures and the currently published literature’s objective and subjective data consistently suggest that it also increases CPAP use in select patients.

Keywords: Adherence, Adults, Analysis, Confidence, Confidence Intervals, Consensus, Continuous Positive Airway Pressure, Cpap, Cpap Therapy, Data, Effect, Effects, Follow-Up, From, Intervals, Interventions, Long-Term Compliance, Management, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Nasal Surgery, Obstructive Sleep Apnea, Obstructive Sleep-Apnea, P, Patients, Postoperative, Preoperative, Pressure, Pressures, Reduction, Resistance, Results, Review, Science, Scopus, Sleep, Sleep Apnea, Sleep Apnea Syndromes, Standard, Surgery, Symptoms, Systematic, Systematic Review, Term, Therapeutic, Tolerance, Treatment, USA, Uvulopalatopharyngoplasty, Water, Web, Web Of Science

# Title: Sleep and Breathing

Full Journal Title: Sleep and Breathing

ISO Abbreviated Title:

JCR Abbreviated Title:

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Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Wang, L.F., Long, H., Deng, M., Xu, H., Fang, J., Fan, Y., Bai, D. and Han, X.L. (2014), Biofeedback treatment for sleep bruxism: A systematic review. *Sleep and Breathing*, **18** (2), 235-242.

Full Text: [2014\Sle Bre18, 235.pdf](2014/Sle%20Bre18,%20235.pdf)

Abstract: The aim of this systematic review was to evaluate the efficacy of any biofeedback treatment on sleep bruxism. We searched the Cochrane Central Register of Controlled Trials, MEDLINE, Embase, ISI Web of Science, System for Information on Grey Literature in Europe, Chinese Biomedical Literature Database, and PsycINFO up to October 2012 for randomized controlled trials and controlled clinical trials involving biofeedback treatment for sleep bruxism. Reference lists of relevant studies were hand searched. Quality assessment and data extraction were performed by two reviewers independently. Seven eligible studies involving 240 participants were finally included. Three of them had moderate risk of bias, and four had high risk of bias. In an electromyographic-measured sleep bruxism episode, meta-analysis showed no significant difference between contingent electrical stimulation and blank control (95 % confidence interval = -12.33, 3.38, P = 0.26). Moreover, five studies reported electromyographic activity index. Due to the diversity of biofeedback modalities (auditory, electrical, and visual stimulus) and controls (splint, occlusal adjustment, etc.), these data were unable to be pooled, so only qualitative description was provided. In the current stage, there is no powerful evidence to support the use of biofeedback technology on sleep bruxism treatment. Contingent electrical stimulation which is defined as a kind of biofeedback modality shows no effect on reducing sleep bruxism episode compared with the no-treatment group. Although many studies support the efficacy of biofeedback treatment, more large sample-sized randomized controlled trials which adopt uniform outcome index are necessitated to verify its application.

Keywords: Activity, Application, Assessment, Bias, Biofeedback, Biomedical, Chinese, Clinical, Clinical Trials, Confidence, Control, Data, Database, Diversity, Efficacy, Europe, Evidence, Extraction, Feedback, Grey Literature, Index, Information, Interval, ISI, ISI Web Of Science, Jaw Muscle-Activity, Literature, Management, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Modalities, Nocturnal Bruxism, Outcome, P, Parameters, Psycinfo, Qualitative, Quality, Quality Assessment, Randomized, Randomized Controlled Trials, Reference, Reference Lists, Review, Reviewers, Risk, Science, Sleep, Sleep Bruxism, Stimulation, Support, Systematic, Systematic Review, Technology, Treatment, Web Of Science

? Lin, H., Lin, D., Zheng, C.Q., Li, J. and Fang, L. (2014), Association of ACE I/D polymorphism with obstructive sleep apnea susceptibility: Evidence based on 2,228 subjects. *Sleep and Breathing*, **18** (3), 509-516.

Full Text: [2014\Sle Bre18, 509.pdf](2014/Sle%20Bre18,%20509.pdf)

Abstract: Whether the insertion/deletion (I/D) polymorphism of the angiotensin-converting enzyme (ACE) gene increases susceptibility to obstructive sleep apnea (OSA) is controversial and still undetermined. Therefore, this meta-analysis was performed to systematically assess the possible association between them. The OVID, Medline, Embase, Web of Science, CNKI, and Wangfang databases were searched to identify eligible studies focusing on the association between ACE polymorphism I/D and susceptibility to OSA. A total of 2,228 subjects from nine studies were subjected to meta-analysis. Overall, ACE polymorphism I/D had no statistically significant association with increased OSA risk under all genetic models (P > 0.05). In the subgroup analysis by ethnicity or study design, still no significant associations were found for all genetic models (P > 0.05). However, ACE polymorphism I/D was significantly associated with susceptibility to OSA with hypertension in Asians under heterozygous comparison and dominant model. The ID genotype carriers and D allele carriers (ID + DD) were about 53 % less likely (odds ratio (OR) = 0.47, 95 % confidence interval (CI) = 0.29-0.74; P = 0.001) and about 52 % less likely (OR = 0.48, 95 % CI = 0.24-0.99; P = 0.047), respectively, to have OSA with hypertension compared to carriers of the II genotype. ACE polymorphism I/D had no statistically significant association with increased OSA risk, but the II genotype of ACE may be a risk factor for OSA with hypertension in Asians. OSA cases who develop hypertension may derive from a different mechanism compared to essential hypertension. Studies with large sample size and representative population are warranted to verify this finding.

Keywords: Ace, Analysis, Angiotensin-Converting Enzyme, Angiotensin-Converting Enzyme, Asians, Association, Chinese Patients, Comparison, Confidence, Databases, Design, Ethnicity, Evidence, Evidence Based, Evidence-Based, From, Gene, Gene Insertion, Deletion Polymorphism, Genetic, Hypertension, Interval, Mechanism, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Model, Models, Obstructive Sleep Apnea, Odds Ratio, P, Polymorphism, Population, Risk, Risk Factor, Sample Size, Science, Size, Sleep, Sleep Apnea, Study Design, Susceptibility, Web Of Science

# Title: Sleep Medicine

Full Journal Title: Sleep Medicine

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Wu, Y.L., Zhai, L. and Zhang, D.F. (2014), Sleep duration and obesity among adults: A meta-analysis of prospective studies. *Sleep Medicine*, **15** (12), 1456-1462.

Full Text: [2014\Sle Med15, 1456.pdf](2014/Sle%20Med15,%201456.pdf)

Abstract: Background: Results from longitudinal studies on sleep duration and incidence of obesity remain controversial. Methods: PubMed and Web of Science updated on 20 February 2014 were searched for eligible publications. Pooled odds ratio (OR) with 95% confidence interval (CI) was calculated using a random-effects model. Results: Eleven published articles were included, involving 197,906 participants for short sleep duration and 164,016 participants for long sleep duration. Compared with the normal sleep duration, the pooled OR for obesity was 1.45 (95% CI, 1.25-1.67) for the short sleep duration overall. After removing the three studies that had strong effects on heterogeneity, the pooled OR was 1.25 (95% CI, 1.14-1.38). The positive association was consistent among all subgroups analysis except in the European group (OR, 1.45; 95% CI, 0.79-2.64). No significant association was found between long sleep duration and risk of obesity overall (OR, 1.06; 95% CI, 0.98-1.15) and in subgroup analysis. Conclusion: This meta-analysis indicated that short sleep duration was significantly associated with incidence of obesity, whereas long sleep duration had no effect on future obesity among adults. (C) 2014 Elsevier B.V. All rights reserved.

Keywords: Adults, Analysis, Articles, Association, Cohort, Confidence, Duration, Effects, Epidemiology, From, Heterogeneity, Incidence, Interval, Long Sleep Duration, Longitudinal, Longitudinal Studies, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Model, Normal, Obesity, Odds Ratio, Prospective, Prospective Studies, Publications, Published Articles, Pubmed, Quebec Family, Random Effects Model, Reduced Sleep, Results, Rights, Risk, Science, Short Sleep Duration, Sleep, Sleep Duration, Web, Web Of Science, Weight-Gain

? Kajeepeta, S., Gelaye, B., Jackson, C.L. and Williams, M.A. (2015), Adverse childhood experiences are associated with adult sleep disorders: A systematic review. *Sleep Medicine*, **16** (3), 320-330.

Full Text: [2015\Sle Med16, 320.pdf](2015/Sle%20Med16,%20320.pdf)

Abstract: Adverse childhood experiences (ACEs) represent substantial threats to public health and affect about 58% of youth in the US. In addition to their acute effects such as injury and physical trauma, ACEs are associated with an increased risk of several negative health outcomes throughout the life course. Emerging evidence suggests that sleep disorders may be one such outcome, but existing studies have not been systematically reviewed and summarized. We conducted a systematic review to summarize the evidence concerning the relationship between ACEs and sleep disorders and disturbances, with a focus on adult women. Original publications were identified through searches of the electronic databases MEDLINE, Embase, and Web of Science using the keywords “childhood,” “adversity,” “abuse,” and “sleep” as well as searches of the reference lists of eligible studies. Studies evaluating ACEs that occurred before 18 years of age and sleep outcomes that were assessed at 18 years or older were adjudicated and included. A total of 30 publications were identified. Of the 30 studies, 28 were retrospective analyses and there was vast heterogeneity in the types of ACEs and sleep outcomes measured. The majority of retrospective studies (N = 25 of 28) documented statistically significant associations between sleep disorders including sleep apnea, narcolepsy, nightmare distress, sleep paralysis, and psychiatric sleep disorders with a history of childhood adversity. In many studies, the strengths of associations increased with the number and severity of adverse experiences. These associations were corroborated by the two prospective studies published to date. Notably, investigators have documented statistically significant associations between family conflict at 7-15 years of age and insomnia at 18 years of age (odds ratio, OR = 1.4; 95% confidence interval, CI = 1.2-1.7) and between childhood sexual abuse and sleep disturbances 10 years later in adult women (beta = 0.24, p < 0.05). There is a growing scientific body of knowledge suggesting an association between ACEs and multiple sleep disorders in adulthood. The available evidence indicates the need to develop treatment strategies such as trauma-informed care for survivors of abuse who suffer from sleep disorders and disturbances. Further, longitudinal studies among diverse populations are needed to improve the overall understanding of this association and to investigate potential gender and racial/ethnic disparities in the strength of the association. (C) 2014 Elsevier B.V. All rights reserved.

Keywords: Abuse, Adult, Adverse Childhood Experience, Affect, Age, Analyses, Association, Care, Childhood, Chronic Nightmares, Confidence, Course, Databases, Disparities, Distress, Disturbances, Effects, Evidence, Eye-Movement Sleep, Family, From, Gender, Gender-Differences, Health, Health Outcomes, Heterogeneity, History, Household Dysfunction, Injury, Insomnia, Interval, Knowledge, Life, Life Course, Longitudinal, Longitudinal Studies, Mar, Medline, Mental-Health, N, National Sample, Negative, Odds Ratio, Older, Outcome, Outcomes, Physical, Populations, Potential, Primary Insomnia, Prospective, Prospective Studies, Public, Public Health, Publications, Racial, Ethnic Disparities, Reference, Reference Lists, Retrospective, Retrospective Studies, Review, Rights, Risk, Risk-Factor, Science, Sexual Abuse, Sexual-Abuse, Sleep, Sleep Apnea, Strength, Systematic, Systematic Review, Trauma, Traumatic Stress, Treatment, Understanding, Us, Web, Web Of Science, Women, Youth

# Title: Sleep Medicine Reviews

Full Journal Title: [Sleep Medicine Reviews](http://www.sciencedirect.com/science/journal/10870792)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 1087-0792

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Notes: TTopic

? Lavie, P. (2008), Who was the first to use the term Pickwickian in connection with sleepy patients? History of sleep apnoea syndrome. *Sleep Medicine Reviews*, **12** (1), 5-17.

Full Text: [2008\Sle Med Rev12, 5.pdf](2008/Sle%20Med%20Rev12,%205.pdf)

Abstract: the symptoms and characteristics of steep apnoea syndrome-excessive daytime sleepiness, loud snoring, restless and non-restorative steep-are so impressive that it is difficult to understand why its recognition was delayed until the 1970s. The Centennial book of the American Thoracic Society credited Sidney Burwell for the discovery of Obstructive Steep Apnoea Syndrome. This is only one of the many mistakes and misattributions regarding the history of steep apnoea syndrome. The earliest descriptions of patients who presumably suffered from steep apnoea were made in the 19th century. The term “Pickwickian” in connection with sleepy patients was introduced in 1889. The first electrophysiological steep recordings of Pickwickian patients and the understanding of the syndrome as disordered breathing in sleep, were made during the late 1950s and 1960s. Its recognition as a public health problem was facilitated by Young et at.’s [Young T, Palta M, Dempsey J, et at. The occurrence of steep-disordered breathing among middle-aged adulte. N Engl J Med 1993;328:1230-5] seminal paper documenting the prevalence of the syndrome in the general population, and by the accumulated evidence that the syndrome is a major cardiovascular risk factor. Bibliometric analysis of the literature on steep apnoea reveals that future research will focus on the tong-term outcomes of the syndrome, on the effects of treatment, and on the underlying mechanisms linking it with cardiovascular morbidity. (C) 2007 Elsevier Ltd. All rights reserved.

Keywords: Pickwickian, Sleep Apnoea, History, Bibliometric Analysis, Positive Airway Pressure, Excessive Daytime Sleepiness, C-Reactive Protein, Heart-Failure, Cardiovascular Outcomes, Blood-Pressure, Controlled-Trial, Association, Hypopnea, Men

Notes: TTopics

? Cooper, K.L. and Relton, C. (2010), Homeopathy for insomnia: A systematic review of research evidence. *Sleep Medicine Reviews*, **14** (5), 329-337.

Full Text: [2010\Sle Med Rev14, 329.pdf](2010/Sle%20Med%20Rev14,%20329.pdf)

Abstract: Background: Insomnia is a common problem which impacts on quality of life. Current management includes psychological and behavioural therapies and/or pharmacological treatments.

Objective: To systematically review research evidence for effectiveness of homeopathy in the management of insomnia.

Methods: Comprehensive searches of biomedical databases (MEDLINE, EMBASE, CINAHL, Cochrane library, Science Citation Index), homeopathy-specific and complementary medicine-specific databases were conducted.

Results: (A) Homeopathic medicines: four randomised controlled trials (RCTs) compared homeopathic medicines to placebo. All involved small patient numbers and were of low methodological quality. None demonstrated a statistically significant difference in outcomes between groups, although two showed a trend favouring homeopathic medicines and three demonstrated significant improvements from baseline in both groups. A cohort study reported significant improvements from baseline. (B) Treatment by a homeopath: No randomised controlled trials of treatment by a homeopath were identified. One cohort study, three case series and over 2600 case studies were identified. Conclusions: the limited evidence available does not demonstrate a statistically significant effect of homeopathic medicines for insomnia treatment. Existing RCTs were of poor quality and were likely to have been underpowered. Well-conducted studies of homeopathic medicines and treatment by a homeopath are required to examine the clinical and cost effectiveness of homeopathy for insomnia. (c) 2009 Elsevier Ltd. All rights reserved.

Keywords: Systematic Review, Insomnia, Homeopathy, Homeopathic Medicines, Treatment by a Homeopath, Clinical Effectiveness Trial, Randomized-Controlled-Trial, Cognitive-Behavior Therapy, Hypnotic Drug-Use, Psychological Treatment, Persistent Insomnia, General-Practice, Double-Blind, Medicine, Health

# Title: Small Business Economics

Full Journal Title: Small Business Economics

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

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Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Benavides-Velasco, C.A., Quintana-García, C. and Guzmán-Parra, V.F. (2013), Trends in family business research. *Small Business Economics*, **40** (1), 41-57.

Full Text: [2013\Sma Bus Eco40, 41.pdf](2013/Sma%20Bus%20Eco40,%2041.pdf)

Abstract: This study describes the structure and trends of the family business literature. We analyze the content of the papers focused on family firms published in any journal of the categories ‘business’, ‘business finance’, ‘economics’ and ‘management’ of the Social Science Citation Index during the 1961-2008 period. Bibliometric methods are used to describe the evolution of publication activity, the most representative contributors, the methodologies applied, and the content of the articles in order to explore the main themes researched. These analyses enable the identification of potential avenues for future research that could be meaningful to advance in the consolidation of the discipline.

Keywords: Advance, Agency, Altruism, Analyses, Bibliometric, Bibliometric Methods, Business, Citation, Co-Word Analysis, Dynamic Capabilities, Economics, Evolution, Family, Family Firms, Firm Performance, Identification, Journal, Keyword Analysis, Literature, Management, Methodologies, Methods, Model, Ownership Dispersion, Papers, Perspective, Potential, Publication, Publication Activity, Research, Research Methodology, Resource-Based View, Science, Science Citation Index, Social Science Citation Index, Strategic Management, Structure, Succession, Trends

? Álvarez, C., Urbano, D. and Amorós, J.E. (2014), GEM research: Achievements and challenges. *Small Business Economics*, **42** (3), 445-465.

Full Text: [2014\Sma Bus Eco42, 445.pdf](2014/Sma%20Bus%20Eco42,%20445.pdf)

Abstract: This article analyzes the content and evolution of research based on the Global Entrepreneurship Monitor (GEM) project. We conducted a rigorous search of articles published in journals within the Thomson Reuters’ Social Sciences Citation Index(A (R)) through an exploratory analysis focused on articles using GEM data. The main findings of this study reveal that the institutional approach is the most commonly used conceptual framework. Also, although there are still few academic publications using GEM data, the number of articles is increasing, as are opportunities for future research.

Keywords: Analysis, Approach, Citation, Data, Developed-Countries, Entrepreneurship, Evolution, Female Entrepreneurship, Framework, Gem, Global Entrepreneurship Monitor, Global-Entrepreneurship-Monitor, Informal Investment, Institutional Approach, Institutional Context, Journals, Latin-America, Literature Review, Mar, Nascent Entrepreneurship, National Economic-Growth, Opportunity Recognition, Publications, R, Research, Sciences, Si, Social Sciences, Social Sciences Citation Index, Thomson Reuters, Thomson-Reuters, United-Kingdom

? Ghio, N., Guerini, M., Lehmann, E.E. and Rossi-Lamastra, C. (2015), The emergence of the knowledge spillover theory of entrepreneurship. *Small Business Economics*, **44** (1), 1-18.

Full Text: [2015\Sma Bus Eco44, 1.pdf](2015/Sma%20Bus%20Eco44,%201.pdf)

Abstract: In the past decade, a new and promising literature has been established linking endogenous growth theory to knowledge spillovers and entrepreneurship theory: the knowledge spillover theory of entrepreneurship (KSTE). This study conducts a bibliometric analysis of scholarly research on this fruitful and promising strand of the literature. It highlights the increasing importance and acceptance of KSTE in the scientific community worldwide, its emergence across different fields in economics, management and policy and also the issues and questions raised. Based on all articles on KSTE published in refereed journals in the past 15 years (1999-2013), we identify the key academic journals, the main issues and subjects addressed and the backward and forward citations. We also identify the authors and their connections in terms of coauthorships to reconstruct the scientific community debating on KSTE. We are confident that our work will benefit scholars intending to leverage KSTE in their research in that it summarizes the main academic conversations within this theoretical perspective and set the boundaries of the network of scholars developing it.

Keywords: Acceptance, Analysis, Articles, Authors, Bibliometric, Bibliometric Analysis, Boundaries, Citations, Community, Developing, Economic-Growth, Economics, Entrepreneurship, Firm Formation, Growth, Increasing Returns, Issues, Journals, Knowledge, Knowledge Spillover Theory Of Entrepreneurship, Knowledge Spillovers, Literature, Management, Management and Policy, Network, Policy, Regional Entrepreneurship, Research, Research-And-Development, Scientific Community, Spin-Offs, Start-Ups, Technology-Transfer, Theoretical, Theory, United-States, University Spillovers, Work

# Title: Social Biology

Full Journal Title: Social Biology

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Osborne, R.H. (1982), Introduction to the memorial volume - the Most frequently cited articles of *Social Biology*. *Social Biology*, **29** (1-2), 1-3.

Full Text: 1982\Soc Bio29, 1.pdf

? Osborne, R.H. (1982), The osborn, frederick memorial volume - Introduction to Part-2 of the memorial volume - the most frequently cited articles of *Social Biology*. *Social Biology*, **29** (3-4), R3-R5.

Full Text: 1982\Soc Bio29, R3.pdf

? Osborne, R.H. and Osborne, B.T. (1999), The most frequently cited articles published in *Social Biology*, 1961-1999. *Social Biology*, **46** (3-4), 194-206.

Full Text: [1999\Soc Bio46, 194.pdf](1999/Soc%20Bio46,%20194.pdf)

# Title: Social Dynamics-A Journal of the Centre for African Studies University of Cape Town

Full Journal Title: Social Dynamics-A Journal of the Centre for African Studies University of Cape Town

ISO Abbrev. Title: Soc. Dyn.-J. Cent. Afr. Stud. Univ. Cape Town

JCR Abbrev. Title: Soc Dynamics

ISSN: 0253-3952

Issues/Year: 2

Language: English

Journal Country/Territory: South Africa

Publisher: Routledge Journals, Taylor & Francis Ltd

Publisher Address: 4 Park Square, Milton Park, Abingdon OX14 4RN, Oxfordshire, England

Subject Categories:

Area Studies: Impact Factor 0.237, 32/44 (2009)

? Ross, R. (1990), The top-hat in South African history - the changing significance of an article of material culture. *Social Dynamics-A Journal of the Centre for African Studies University of Cape Town*, **16** (1), 90-100.

Keywords: History, Jun

# Title: Social Forces

Full Journal Title: [Social Forces](http://www.jstor.org/journals/00377732.html)

ISO Abbrev. Title: Soc. Forces

JCR Abbrev. Title: Soc Forces

ISSN: 0037-7732

Issues/Year: 4

Language: English

Journal Country/Territory: United States

Publisher: Univ North Carolina Press

Publisher Address: Box 2288, Journals Dept, Chapel Hill, NC 27515-2288

Subject Categories:

Sociology: Impact Factor 1.379, 23/114 (2009)

Merton, R.K. (1995), The Thomas theorem and the Matthew effect. *Social Forces*, **74** (2), 379-424.

Full Text: [1995\Soc For74, 379.pdf](1995/Soc%20For74,%20379.pdf)

# Title: Social Indicators Research

Full Journal Title: [Social Indicators Research](http://www.springerlink.com/(iytdfsi5jwld2bzo4i2azj45)/app/home/journal.asp?referrer=backto&backto=linkingpublicationresults,1:102994,1;&absoluteposition=208#A208)

ISO Abbreviated Title: Soc. Indic. Res.

JCR Abbreviated Title: Soc Indic Res

ISSN: 0303-8300

Issues/Year: 9

Journal Country Netherlands

Language: English

Publisher: Springer

Publisher Address: Van Godewijckstraat 30, 3311 GZ Dordrecht, Netherlands

Subject Categories:

Social Sciences, Interdisciplinary: Impact Factor 0.835, 25/68 (2009)

Sociology: Impact Factor 0.835, 56/114 (2009)

Notes: JJournal

Hubert, J.J. (1977), Bibliometric models for journal productivity. *Social Indicators Research*, **4** (4), 441-473.

Full Text: [1960-80\Soc Ind Res4, 441.pdf](1960-80/Soc%20Ind%20Res4,%20441.pdf)

Abstract: Bibliometrics is the collection of statistical methods which are applicable to various media of communication. for scientific discourse, such as journals, many models have characterized their productivity. This paper presents a detailed chronological survey of these models. One common notation is used, derivation and proofs are in a statistical framework and new relationships are illustrated. We also provide a list of relevant papers and examine those which have used these models.

Keywords: Bibliometric, Models

? Nonnenmacher, A. and Friedrichs, J. (2013), The missing link: Deficits of country-level studies. A review of 22 articles explaining life satisfaction. *Social Indicators Research*, **110** (3), 1221-1244.

Full Text: [2013\Soc Ind Res110, 1221.pdf](2013/Soc%20Ind%20Res110,%201221.pdf)

Abstract: To explain country differences in an analytical or structural dependent variable, the application of a macro-micro-model containing contextual hypotheses is necessary. Our methodological study examines whether empirical studies apply such a model. We propose that a theoretical base for country differences is well described in multilevel studies, but aggregate and individual data analyses fail to specify contextual hypotheses ex ante (in the theory section of an article) and instead elaborate on macro-micro explanations ex post (in the discussion section). To test our assumptions, we analyzed 22 studies published in journals cited in the Social Science Citation Index between 2007 and 2010, which compare countries with respect to life satisfaction. Results are in accordance with our expectations. We conclude that cross-country comparisons should apply a macro-micro-model theoretically and empirically, if possible, and include the meso level, if appropriate. In case of insufficient data (i.e. only individual level or aggregate level data), applying a macro-micro-model theoretically may prevent premature conclusions.

Keywords: Analyses, Application, Articles, Assumptions, Citation, Corruption, Country, Cross-Country Comparison, Data, Disorder, Empirical Studies, Expectations, Happiness, Happiness, Institutions, Journals, Life, Life Satisfaction, Macro-Micro-Model, Methodological Study, Model, Neighborhood, Perspective, Planned Behavior, Premature, Results, Review, Satisfaction, Science, Science Citation Index, Social Science Citation Index, Society, Theoretical, Theory, Welfare, Well-Being, Worldwide

# Title: Social Networks

Full Journal Title: [Social Networks](http://www.sciencedirect.com/science?_ob=JournalURL&_cdi=5969&_auth=y&_acct=C000047720&_version=1&_urlVersion=0&_userid=2007471&md5=0582953df589a90f467f204cb765fe49)

ISO Abbrev. Title: Soc. Networks

JCR Abbrev. Title: Soc Networks

ISSN: 0378-8733

Issues/Year: 4

Language: English

Journal Country/Territory: Switzerland

Publisher: Elsevier Science BV

Publisher Address: Po Box 211, 1000 Ae Amsterdam, Netherlands

Subject Categories:

Anthropology: Impact Factor 2.349, 5/67 (2009)

Sociology: Impact Factor 2.349, 4/114 (2009)

Hummon, N.P. and Doreian, P. (1989), Connectivity in a citation network - the development of DNA theory. *Social Networks*, **11** (1), 39-63.

Full Text: [1989\Soc Net11, 39.pdf](1989/Soc%20Net11,%2039.pdf)

? De Stefano, D., Fuccella, V., Vitale, M.P. and Zaccarin, S. (2013), The use of different data sources in the analysis of co-authorship networks and scientific performance. *Social Networks*, **35** (3), 370-381.

Full Text: [2013\Soc Net35, 370.pdf](2013/Soc%20Net35,%20370.pdf)

Abstract: Scientific collaboration is usually derived from archival co-authorship data. Several data sources may be examined, but they all have advantages and disadvantages, especially when a specific discipline or community is of interest. The aim of this paper is to explore the effect of the use of three data sources Web of Science, Current Index to Statistics and nationally funded research projects - on the analysis of co-authorship networks among Italian academic statisticians. Results provide evidence of our hypotheses on distinct collaboration patterns among statisticians, as well as distinct effects of scientist network positions on scientific performance, by both Statistics subfield and data source. (c) 2013 Elsevier B.V. All rights reserved.

Keywords: Analysis, Article, Bibliometric Databases, Co-Authorship, Co-Authorship Data, Co-Authorship Networks, Coauthorship, Collaboration, Community, Data, Economics, Effects, Evidence, Gev Model, h-Index, Index, Italy, Knowledge, Law, Netherlands, Network, Network Topology, Networks, Number, Performance, Research, Research Collaboration, Results, Rights, Science, Scientific Collaboration, Scientific Performance, Small-World, Source, Sources, Statistics, Web of Science

# Title: Social Policy & Administration

Full Journal Title: Social Policy & Administration

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? McKay, S. (2012), Social policy excellence - Peer review or metrics? Analyzing the 2008 research assessment exercise in social work and social policy and administration. *Social Policy & Administration*, **46** (5), 526-543.

Full Text: [2012\Soc Pol Adm46, 526.pdf](2012/Soc%20Pol%20Adm46,%20526.pdf)

Abstract: A metrics-based assessment can predict reasonably well the overall outcome of the Research Assessment Exercise 2008 for social work and social policy and administration in terms of research environment, but not in terms of research outputs. It is not possible to replicate peer review of the research outputs using existing data. It is sometimes argued that citation counts provide an alternative approach that might help research assessment, but it is one fraught with difficulties. Academics did not, in fact, routinely chose to submit their most cited work. At least in this subject, metrics are more suited as handmaiden to peer review than its replacement.

Keywords: Administration, Alternative, Approach, Assessment, Citation, Citation Counts, Data, Environment, Excellence, Metrics, Outcome, Peer Review, Peer-Review, Policy, Quality, Rae, Ratings, Research, Research Assessment, Research Assessment Exercise, Review, Science, Social, Social Policy, UK Universities, Work

# Title: Social Psychiatry and Psychiatric Epidemiology

Full Journal Title: Social Psychiatry and Psychiatric Epidemiology

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Reigstad, B., Jorgensen, K. and Wichstrom, L. (2004), Changes in referrals to child and adolescent psychiatric services in Norway 1992-2001. *Social Psychiatry and Psychiatric Epidemiology*, **39** (10), 818-827.

Full Text: [2004\Soc Psy Psy Epi39, 818.pdf](2004/Soc%20Psy%20Psy%20Epi39,%20818.pdf)

Abstract: Background the study analyzes changes in types of problems referred to child and adolescent psychiatry in Norway from 1992 to 2001, and investigates if referral practices and media attention account for these changes. Method All referrals to child and adolescent psychiatry in Norway in the period 1992-2001 were analyzed, as well as frequencies of articles in media on psychiatric problems. Results the shares of referrals for sadness/depression increased from 0.5 % to 15.4 %. Referrals for hyperactivity/attention problems increased from 1.2 % to 13.6 %. The increases could be statistically attributed to decreased use of other referral categories, and/or alternatively to media attention on these and related topics. Convergence between diagnosis and corresponding referral problem increased in the period. Conclusions Referrals for sadness/depression and hyperactivity/attention problems increased sharply in Norway during the 1990s. This increase may be attributed to a different understanding of and a sharper look at these problems by referral agencies and by increased media attention.

Keywords: Adolescent, Adolescent Psychiatry, Changes, Child, Diagnosis, Media, Norway, Practices, Psychiatry, Services, Understanding

? Mestdagh, A. and Hansen, B. (2014), Stigma in patients with schizophrenia receiving community mental health care: A review of qualitative studies. *Social Psychiatry and Psychiatric Epidemiology*, **49** (1), 79-87.

Full Text: [2014\Soc Psy Psy Epi49, 79.pdf](2014/Soc%20Psy%20Psy%20Epi49,%2079.pdf)

Abstract: Purpose the aim of this review is to identify consistent themes among the qualitative literature on stigma as experienced by patients with schizophrenia receiving community mental health care. With the treatment focus of schizophrenia nowadays shifting more and more towards community-based mental health care, professionals need to be aware of the increased vulnerability of their clients in their social environment as a result of stigma towards their disease. In-depth knowledge on stigma is critical in order to offer a dignifying community mental health care. Methods A systematic search of the qualitative literature in Web of Science, PubMed, PsycINFO and Francis was performed to review the subjective experiences and ideas on stigma in outpatients with schizophrenia. Results Three major themes were identified in 18 studies and need to be taken into consideration when implementing an adequate community mental health care: (i) the continuing existence of stigma inherent in the health care setting, (ii) the importance of relational aspects of stigma encounters in daily life and (iii) the significance of the behavioural aspects related to previous stigma experiences and beliefs among patients. Conclusions Despite much effort in community treatment, patients still experience stigma and discrimination. Community mental health care professionals should not only be aware of structural problems in mental health care, but should also pay considerable attention towards the relational and behavioural aspects in their clients’ life concerning stigma. Furthermore, they have the crucial role in the community to raise awareness about stigma in order to increase their clients’ acceptance in society.

Keywords: Acceptance, Attention, Care, Community, Community Based, Community Mental Health Care, Consumers, Discrimination, Discrimination, Disease, Environment, Experience, Health, Health Care, Illness, Impact, Knowledge, Life, Literature, Mental Health, Methods, Outpatients, Patients, People, Perspectives, Psychosis, Psycinfo, Pubmed, Qualitative, Results, Review, Risk, Role, Schizophrenia, Science, Significance, Social, Society, Stigma, Students, Treatment, Vulnerability, Web of Science

? Bassett, D., Buchwald, D. and Manson, S. (2014), Posttraumatic stress disorder and symptoms among American Indians and Alaska Natives: A review of the literature. *Social Psychiatry and Psychiatric Epidemiology*, **49** (3), 417-433.

Full Text: [2014\Soc Psy Psy Epi49, 417.pdf](2014/Soc%20Psy%20Psy%20Epi49,%20417.pdf)

Abstract: Purpose American Indians and Alaska Natives (AI/ANs) experience high rates of trauma and posttraumatic stress disorder (PTSD). We reviewed existing literature to address three interrelated questions: (1) What is the prevalence of PTSD and PTSD symptoms among AI/ANs? (2) What are the inciting events, risk factors, and co-morbidities in AI/ANs, and do they differ from those in the general U. S. population? (3) Are studies available to inform clinicians about the course and treatment of PTSD in this population? Methods We searched the PubMed and Web of Science databases and a database on AI/AN health, capturing an initial sample of 77 original English-language articles published 1992-2010. After applying exclusion criteria, we retained 37 articles on prevalence of PTSD and related symptoms among AI/AN adults. We abstracted key information and organized it in tabular format. Results AI/ANs experience a substantially greater burden of PTSD and related symptoms than U. S. Whites. Combat experience and interpersonal violence were consistently cited as leading causes of PTSD and related symptoms. PTSD was associated with bodily pain, lung disorders, general health problems, substance abuse, and pathological gambling. In general, inciting events, risk factors, and co-morbidities appear similar to those in the general U. S. population. Conclusions Substantial research indicates a strikingly high incidence of PTSD in AI/AN populations. However, inciting events, risk factors, and co-morbidities in AI/ANs, and how they may differ from those in the general population, are poorly understood. Very few studies are available on the clinical course and treatment of PTSD in this vulnerable population.

Keywords: Abuse, Alaska, Alaska Natives, American Indians, Burden, Clinical, Course, Criteria, Database, Databases, Events, Experience, General, Health, Help-Seeking, Incidence, Information, Literature, Lung, Mar, Mental-Disorders, Methods, Pain, Pathological Gambling, Population, Populations, Posttraumatic Stress, Posttraumatic Stress Disorder, Prevalence, Primary-Care, Psychiatric-Disorders, Ptsd, Pubmed, Rates, Research, Reservation Populations, Results, Review, Risk, Risk Factors, Science, Sexual-Abuse, Stress, Substance Abuse, Symptoms, Telemental Health, Trauma, Traumatic Events, Treatment, U, Vietnam Veterans, Violence, Web of Science, Web of Science Databases, Young-Adults

? Bosqui, T.J., Hoy, K. and Shannon, C. (2014), A systematic review and meta-analysis of the ethnic density effect in psychotic disorders. *Social Psychiatry and Psychiatric Epidemiology*, **49** (4), 519-529.

Full Text: [2014\Soc Psy Psy Epi49, 519.pdf](2014/Soc%20Psy%20Psy%20Epi49,%20519.pdf)

Abstract: Purpose A number of studies have found an ethnic density effect in psychotic disorders, where the incidence for ethnic minorities increases as the neighbourhood proportional ethnic composition decreases [Morgan and Hutchinson, Psychol Med 40:705-709, (2010); Singh, Psychol Med 39:1402-1403, (2009); Schofield et al., Psychol Med 41:1263-1269, (2010)]. However, there is a mixed picture with some studies reporting no effect [Schofield et al., Psychol Med 41:1263-1269, (2010)]. This review aimed to establish the existence of the effect by answering the review question: is there an ethnic density dose effect in the prevalence of psychotic disorders? Methods A systematic review and meta-analysis was conducted by two independent reviewers using PsychINFO, Web of Science and PubMed databases. Studies were measured against eligibility criteria and then pooled with any discrepancies discussed between reviewers. Studies were then assessed for quality using a standardised quality assessment. Results In total, eight studies were included. A meta-analysis was conducted which found that the incidence of psychotic disorders was higher in low ethnic density areas than high ethnic density areas. A narrative synthesis reflected the complexity when results were broken down by individual ethnic groups where some ethnic groups had inverse or no associations with ethnic density. The synthesis also analysed methodological differences between studies. Conclusions the review reports evidence of an overall ethnic density dose effect for ethnic minorities, but with more mixed results for individual ethnic groups. The possible mechanisms behind this effect are explored, including exposure to racism, social capital and social cohesion hypotheses. The wide-ranging implications of the review are discussed along with recommendations for future research to continue to inform public health policy.

Keywords: Aesop, Assessment, Care, Community, Complexity, Composition, Criteria, Databases, Ethnic Density, Ethnic Groups, Ethnic Minorities, Evidence, Exposure, Groups, Health, Health Policy, Incidence, London, Mechanisms, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Minorities, Minority Populations, Policy, Prevalence, Psychotic Disorders, Public, Public Health, Public Health Policy, Pubmed, Quality, Recommendations, Reporting, Research, Results, Review, Schizophrenia, Science, Social, Synthesis, Systematic, Systematic Review, Web of Science

? Blair, A., Ross, N.A., Gariepy, G. and Schmitz, N. (2014), How do neighborhoods affect depression outcomes? A realist review and a call for the examination of causal pathways. *Social Psychiatry and Psychiatric Epidemiology*, **49** (6), 873-887.

Full Text: [2014\Soc Psy Psy Epi49, 873.pdf](2014/Soc%20Psy%20Psy%20Epi49,%20873.pdf)

Abstract: This realist review seeks to elucidate the modifiable causal pathways through which neighborhoods affect depressive symptoms in adult populations. Studies were identified using Medline, PubMed, PsycInfo, Geobase, and Web of Science databases, and chosen using reproducible selection criteria and systematic critical appraisal. A total of 14 longitudinal studies, published between 2003 and 2011, were included. Eleven of the articles observed a significant relationship between depression and at least one of the following neighborhood-level variables: neighborhood deprivation, disorder, instability, and social ties. Proposed modifiable pathways linking neighborhood characteristics and depression include: (1) the level of neighborhood-based stress that is placed on individuals, (2) the formation and strength of protective and supportive social networks, (3) the level of resiliency to negative affectivity and stress, (4) the perceptions of the esthetic and form of residential space, and (5) the sense of control and agency in place of residence. These pathways represent potential areas for future research and intervention. Further research requires a more systematic use of longitudinal design and a diversity of physical and social environmental measures. Interventions aimed at improving affective resiliency need to be tested.

Keywords: Adult, Articles, Characteristics, Cohort, Control, Criteria, Databases, Depression, Depressive Symptoms, Deprivation, Design, Disadvantage, Diversity, Environmental, Epidemiology, Examination, Intervention, Interventions, Life Events, Longitudinal, Longitudinal Studies, Major Depression, Measures, Medline, Mental-Disorders, Mexican-Americans, Neighborhood, Networks, Outcomes, Pathways, Physical, Populations, Potential, Public Health, Public-Health, Pubmed, Research, Residential, Residents, Review, Science, Selection, Selection Criteria, Social, Social Networks, Strength, Stress, Symptoms, Systematic, Web Of Science, Web Of Science Databases

? Panagioti, M., Gooding, P.A., Triantafyllou, K. and Tarrier, N. (2015), Suicidality and posttraumatic stress disorder (PTSD) in adolescents: A systematic review and meta-analysis. *Social Psychiatry and Psychiatric Epidemiology*, **50** (4), 525-537.

Full Text: [2015\Soc Psy Psy Epi50, 525.pdf](2015/Soc%20Psy%20Psy%20Epi50,%20525.pdf)

Abstract: There is growing evidence in the literature that a diagnosis of Posttraumatic Stress Disorder (PTSD) is an important contributory factor to suicidality in adolescents. However, there is no existing review of the literature examining the relationship between PTSD and suicidality in adolescents. This study aims to provide the first systematic review and meta-analysis of the association between PTSD and suicidality in adolescents. Five bibliographic databases (Medline, EMBASE, PsycINFO, Web of Science and PILOT) were screened for suitable articles. Twenty-eight studies (which provided 28 independent samples) were included in the review. The overall meta-analyses of the association between PTSD and suicidality were followed by subgroup and meta-regression analyses. A highly significant positive association was found between PTSD and suicidality (d = 0.701, 95 % CI 0.555-0.848). The subgroup and meta-regression analyses showed that the association between PTSD and suicidality persisted whilst adjusting for various sources of between-study heterogeneity, such as, different levels of severity of suicidality, target groups, and methodological quality of the studies. Suicidality in adolescents with PTSD is a major problem which requires further research effort. The implications of these results are discussed.

Keywords: Adolescents, American Adolescents, Analyses, Articles, Association, Bibliographic, Bibliographic Databases, Childhood Sexual-Abuse, Children And Adolescents, Community Sample, Databases, Diagnosis, Embase, Evidence, First, Groups, Heterogeneity, Juvenile-Delinquents, Literature, Low-Income, Mediating Role, Medline, Meta Analysis, Meta-Analyses, Meta-Analysis, Meta-Regression, Metaanalysis, Methodological Quality, Nonsuicidal Self-Injury, Posttraumatic Stress, Posttraumatic Stress Disorder, Psychiatric Comorbidity, Psycinfo, Ptsd, Quality, Quality Of, Research, Review, Risk-Factors, Science, Sources, Stress, Suicidality, Systematic, Systematic Review, Web, Web Of Science, Young-Adults

# Title: Social Science Information Studies

Full Journal Title: [Social Science Information Studies](http://www.sciencedirect.com/science?_ob=JournalURL&_cdi=7256&_auth=y&_acct=C000011279&_version=1&_urlVersion=0&_userid=1134284&md5=c133a705c36f327ddc8ca5cdf6fb8111)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Roberts, S.A. and Chak, M. (1981), Size, growth and characteristics of the serial literature of geography. *Social Science Information Studies*, **1** (5), 317-338.

Full Text: [1981\Soc Sci Inf Stu1, 317.pdf](1981/Soc%20Sci%20Inf%20Stu1,%20317.pdf)

Abstract: This paper summarizes the findings of a detailed study of the serial literature of geography using the *International List of Geographical Serials (ILGS)* as the data base. In 1970 there were some 640 active primary titles published, together with another 500 or more currently appearing in a variety of forms on a less regular basis. Data are provided on the geographical and linguistic distribution of titles, as well as on form of publication, frequency of issue and issuing body. Between 1945 and 1970 the growth rate for all serial titles was 4.5 per cent per year. Mortality and longevity rates are discussed as well as the evidence for changes in characteristics over time. Some comparisons are made with other social science subjects. Some data are presented on the structure of the secondary bibliographical literature. In conclusion some comments on bibliometric data and subject documentation patterns are offered, by way of critical interpretation.

Hay, A. (1985), Some differences in citation between articles based on thesis work and those written by established researchers: Human geography in the UK 1974–1984. *Social Science Information Studies*, **5** (2), 81-85.

Full Text: [1985\Soc Sci Inf Stu1, 81.pdf](1985/Soc%20Sci%20Inf%20Stu1,%2081.pdf)

Abstract: the paper reports an investigation of citation (as recorded by *SSCI* in the five years after publication) for 209 articles in human geography published by British authors between 1974 and 1978.

Notes: JJournal, CCountry

Persson, O. (1985), Scandinavian social science in international journals. *Social Science Information Studies*, **5** (4), 185-190.

Full Text: [1985\Soc Sci Inf Stu1, 185.pdf](1985/Soc%20Sci%20Inf%20Stu1,%20185.pdf)

Abstract: the publication of articles by Scandinavian authors is analysed using the *Social Science Citation Index*. An online search in *SSCI* revealed a stagnation of article production from the Scandinavian countries during the late 1970s. This may be due to an increase of applied research, financed by non-traditional research councils. Economics is the discipline that produces the largest number of articles in non-Scandinavian journals. Sociology is much more oriented to a Scandinavian public. There is also a tendency that Scandinavian journals, even when they are in English, are mainly cited by other Nordic periodicals. These data suggest that measures should be taken to stimulate basic research and international diffusion of Scandinavian social science research.

# Title: Social Science Information Sur les Sciences Sociales

Full Journal Title: [Social Science Information Sur les Sciences Sociales](http://ssi.sagepub.com/archive/)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Bontems, V. and Gingras, Y. (2007), From normal science to marginal science. Analysis of scientific trajectory bifurcation: the case of theory of scale relativity. *Social Science Information Sur les Sciences Sociales*, **46** (4), 607-653.

Full Text: [2009\Soc Sci Inf Sci Soc46, 607.pdf](2009/Soc%20Sci%20Inf%20Sci%20Soc46,%20607.pdf)

Abstract: In the scientific field, agents can choose to contribute to ‘normal’ science, operate within the most highly legitimated avant-garde science (‘superstrings’, dark matter, etc.) or instead, develop theories within an entirely new theoretical framework, despite the risks which this entails. But the marginality of such theories raises a problem of strategy: those who choose to work on them do so at the expense of their own short-term interests, which would normally be oriented towards occupying a central position in already well-established fields. The theory of scale-relativity (TSR) demonstrates the interest of such a situation: the door is open to new possibilities, but ones that must be built ‘from scratch’. To pursue work in this direction is more demanding than to choose a project considered risky (due to its inherent difficulty) within the confines of an existing paradigm. On the one hand, TSR proposes to ‘innovate’ and branch out from already widely-accepted conceptual bases, while, on the other hand, it finds itself in a marginal position with respect to the most legitimate avant-garde theories, such as ‘superstrings’. The case of the TSR thus allows us to study a region of the scientific field which has hardly been explored by a sociology of science that focuses primarily on ‘extreme’ cases: histories of theories which have since been vindicated or spectacular controversies. In 2006, TSR occupies a marginal position within the field of physics. Its status differs widely from ‘theories’ produced outside the field, yet does not correspond to any form of stable, accepted science. As we will show, using a detailed bibliometric analysis, the theory’s diffusion throughout the scientific field has been limited - albeit real and its results, when sanctioned by an official publication, are rarely taken into account by researchers who are not already TSR collaborators. This isolation within the field reveals conflict and tension between the transformation intended by a theoretical innovation and the norms of standard peer review. As a conclusion, we will compare the strategies of TSR’s founder with those of other researchers who - at some point in their career - have attempted to reorient their scientific trajectory, which in turn reveals the social conditions of these bifurcations that put previously accumulated scientific capital at risk.

Keywords: 7 Sexes, Analysis, Bibliometric, Bibliometric Analysis, Bifurcation, Clusters, Diffusion, Field, Fine-Structure Constant, Fractal Space-Time, Galaxies, Gravitational Lenses, Innovation, Laurent Nottale, Marginal Science, Peer Review, Peer-Review, Physics, Publication, Quantization, Quantum-Mechanics, Researchers, Scale Relativity, Science, Scientific Controversy, Scientific Field, Sociology of Science, Superstrings, Theory

? Godin, B. (2009), The value of science: Changing conceptions of scientific productivity, 1869 to circa 1970. *Social Science Information Sur les Sciences Sociales*, **48** (4), 547-586.

Full Text: [2009\Soc Sci Inf Sci Soc48, 547.pdf](2009/Soc%20Sci%20Inf%20Sci%20Soc48,%20547.pdf)

Abstract: Productivity is now a buzzword in science studies. Whether you consult the literature on research management, the economic literature on technology and innovation, the literature on bibliometrics or the official literature on science policy and its conceptual frameworks, what you find is analyses on productivity, often accompanied by a plea, and recipes, for increased productivity. This article documents how the concept of productivity got into the analysis of science, through the statistics on which the concept rested, and its transformation over one hundred years. It argues that, through history, the concept as applied to science has carried four meanings: productivity as reproduction, productivity as output, productivity as efficiency and productivity as outcome.

Keywords: Age, American-Psychological-Association, Bibliometrics, Economic-Growth, Economics of Science, History of Science, Men, Organization, Performance, Rates, Research, Return, Scientific Productivity, Statistics, United-States, Vital-Statistics

? Leydesdorff, L. (2011), ‘Meaning’ as a sociological concept: A review of the modeling, mapping and simulation of the communication of knowledge and meaning. *Social Science Information Sur les Sciences Sociales*, **50** (3-4), 391-413.

Full Text: [2011\Soc Sci Inf Sci Soc50, 391.pdf](2011/Soc%20Sci%20Inf%20Sci%20Soc50,%20391.pdf)

Abstract: the development of discursive knowledge presumes the communication of meaning as analytically different from the communication of information. Knowledge can then be considered as a meaning which makes a difference. Whereas the communication of information is studied in the information sciences and scientometrics, the communication of meaning has been central to Luhmann’s attempts to make the theory of autopoiesis relevant for sociology. Analytical techniques such as semantic maps and the simulation of anticipatory systems enable us to operationalize the distinctions which Luhmann proposed as relevant to the elaboration of Husserl’s ‘horizons of meaning’ in empirical research: (1) interactions among communications, (2) the organization of meaning in instantiations, and (3) the self-organization of interhuman communication in terms of symbolically generalized media such as truth, love and power. Horizons of meaning, however, remain uncertain orders of expectations, and one should caution against reification from the meta-biological perspective of systems theory.

Keywords: Anticipation, Base, Communication, Development, Dynamics, Economy, Information, Innovation Systems, Knowledge, Mapping, Meaning, Media, Modeling, Power, Research, Review, Sciences, Scientometrics, Self-Organization, Self-Organization, Semantic Map, Simulation, Social-Systems, Sociology, Terms, Theory, Triple-Helix

# Title: Social Science Journal

Full Journal Title: [Social Science Journal](http://www.sciencedirect.com/science?_ob=JournalURL&_cdi=6588&_auth=y&_acct=C000011279&_version=1&_urlVersion=0&_userid=1134284&md5=3c54b12c4c65e20476b5da8132db62f4)

ISO Abbrev. Title: Soc. Sci. J.

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ISSN: 0362-3319

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Subject Categories:

Social Sciences, Interdisciplinary: Impact Factor 0.253, 58/68 (2009)

Notes: JJournal

Michaels, J.W. and Pippert, J.M. (1986), *Social Science Journal* characteristics and journal citation measures. *Social Science Journal*, **23** (1), 33-42.

Full Text: [1986\Soc Sci J23, 33.pdf](1986/Soc%20Sci%20J23,%2033.pdf)

Abstract: This article examines the relationship between structural characteristics of journals and journal citation measures. Journals listed in the *Social Science Citation Index* were found to differ from unlisted journals on 11 of 18 characteristics. for listed journals, journal characteristics accounted for 58 percent of the variance in 1981 citations to all years, but only 33 and 15 percent respectively of the variances in the more restrictive impact factor and immediacy index measures. The effects of several journal characteristics on citations to all years and impact factor were different for journals sponsored by professional associations compared to other journals. Journal characteristics identified as having independent impacts on citation measures are suggestive of the directions journal editors might choose to move in as their journals mature.

Hoaas, D.J. and Madigan, L.J. (1999), A citation analysis of economists in principles of economics textbooks. *Social Science Journal*, **36** (3), 525-532.

Full Text: [1999\Soc Sci J36, 525.pdf](1999/Soc%20Sci%20J36,%20525.pdf)

Abstract: This paper uses citation analysis to identify those economists from the history of economic thought most often referenced in principles of economics textbooks. The textbooks considered for the study represent 10 of the top-selling principles textbooks in the field. The analysis includes a simple page count of the number of citations an economist receives in principles texts and a more thorough discussion of each specific economist’s contributions. The results generated mirror the results of previous citation analysis conducted on the entire field of economics.

# Title: Social Science & Medicine

Full Journal Title: [Social Science & Medicine](http://www.sciencedirect.com/science?_ob=JournalURL&_cdi=5925&_auth=y&_acct=C000011279&_version=1&_urlVersion=0&_userid=1134284&md5=a114123cc12a8b8a3c98f798ff059aa8&chunk=19#19)

ISO Abbreviated Title: Soc. Sci. Med.

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ISSN: 0277-9536

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Publisher Address: the Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, England

Subject Categories:

Public, Environmental & Occupational Health: Impact Factor 1.691,/(2000)

Social Sciences, Biomedical: Impact Factor 1.691,/(2000)

Notes: TTopic

? Skolbekken, J.A. (1995), The risk epidemic in medical journals. *Social Science & Medicine*, **40** (3), 291-305.

Full Text: [1995\Soc Sci Med40, 291.pdf](1995/Soc%20Sci%20Med40,%20291.pdf)

Abstract: Searches in MEDLINE databases show a rapid increase in the number of articles with the term ‘risk(s)’ in the title and/or abstract in the period from 1967 to 1991. This trend is found in medical journals giving a general coverage of medicine and journals covering obstetrics and gynaecology in U.S.A., Britain and Scandinavia. The most rapid increase is, however, found in epidemiological journals. Comparisons of the developments in the occurrence of such terms as risk, hazard, danger and uncertainty show that the increasing frequency of the term risk in the medical literature can not be explained as a change in terminology alone. It is hypothesized that the ongoing trend, which resembles an epidemic, is a result of developments in science and technology, that has changed our beliefs about the locus of control from factors outside human control to factors inside our control. The origins of the epidemic may be traced to the development of such disciplines as probability statistics, increased focus on risk management and health promotion, with recent developments in computer technology as the factor responsible for the escalation seen in the past decade. With the cultural selection of risks in mind, the social construction of risk is discussed. Potentially harmful effects of such an epidemic are discussed, exemplified through controversies over current epidemiological risk construction and strategies for coronary risk reduction. It is finally argued that the risk epidemic reflects the social constructions of a particular culture at a particular time in history.

Keywords: Britain, Construction, Control, Coverage, Cultural, Culture, Databases, Development, Epidemic, General, Gynaecology, Hazard, Health, Health Promotion, History, Human, Journals, Literature, Locus of Control, Management, Medical, Medical Journals, Medical Literature, Medicine, MEDLINE, Obstetrics, Promotion, Reduction, Risk, Risk Management, Risks, Science, Science and Technology, Social, Statistics, Technology, Term, Terminology, Trend, Uncertainty

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Full Text: [2001\Soc Sci Med53, 349.pdf](2001/Soc%20Sci%20Med53,%20349.pdf)

Abstract: In order to investigate change and continuity in the concerns and practices of psychiatry in Britain during the 20th century we examined contents of the British Journal of Psychiatry. Specifically we sought to examine the paradigms used by psychiatry to conceptualise mental illness during this time. Back issues of the journal for 1 year at the mid-point of each decade were examined. We undertook a quantitative analysis categorising each article in terms of its form and content and a qualitative analysis in order to summarise the subjects that were covered. The results show that there has been continuous interest in biological aspects and treatments of mental illness with relatively little coverage of psychoanalysis or social psychiatry. Little support was found for the suggestion that major shifts have occurred in the explanatory paradigms used by psychiatry over the century. Modern interest in biological psychiatry is therefore not a new departure, but appears rather as the continuation of a long-standing inclination. The decline of the asylum-based system of care has been accompanied by a broadening in the scope of psychiatric concerns with a greater emphasis on milder mental disorders such as neurosis and depression. (C) 2001 Elsevier Science Ltd. All rights reserved.

Keywords: Analysis, Biological, Britain, Care, Coverage, Depression, Journal, Mental Disorders, Mental Illness, Midpoint, Practices, Psychiatry, Qualitative, Qualitative Analysis, Quantitative Analysis, Rights, Scope, Social, Social Psychiatry, Support

? Keskimaki, I. (2003), How did Finland’s economic recession in the early 1990s affect socio-economic equity in the use of hospital care? *Social Science & Medicine*, **56** (7), 1517-1530.

Full Text: [2003\Soc Sci Med56, 1517.pdf](2003/Soc%20Sci%20Med56,%201517.pdf)

Abstract: the study evaluates the changes in socio-economic equity in the use of general hospital care in Finland from the late 1980s to the mid 1990s. In the early 1990s the Finnish economy plunged into a deep recession which slashed over 10% of GDP and resulted in a 12% decrease in national health expenditure. At the same time, the administration and financing of specialised health services were reformed. The impact on general hospital care was controversial: budgets were reduced but better productivity increased the supply of many services. According to the study, data, based on individual linkage of nationwide hospital registers to disposable family income data in population censuses, overall acute general hospital admission rates among Finns aged 25-74 increased by over 10% from 1988 to 1996. for some surgical procedures, such as cataract, coronary revascularisation and some orthopaedic operations, rates more than doubled. In both years, lower-income groups generally used hospital care more than the better-off. However, there was a slight shift towards a pro-rich distribution, mainly due to a larger increase in surgical care among the high-income groups. In 1988 the lowest income quintile used 8% and in 1996 15% fewer operations than the highest. for individual procedures and surgical diagnostic categories, the general trends of increasing disparities were similar. Despite cuts in expenditures in the early 1990s, the Finnish general hospital system based on public funding and provision managed to increase the supply of services. However, this increase coincided with widening socio-economic discrepancies in the use of surgical services. The paper proposes that these increasing inequities were due to certain features of the Finnish health care system which create social discrepancies in access to hospital care. These include the high profile of the private sector in specialised ambulatory care and in the supply of some elective procedures, and semi-private public hospital services requiring supplementary payments from patients.

Keywords: Economic Recession, Hospital Care, Surgical Procedures, Socio-Economic Equity, Income Groups, Finland, Health-Care, Inequalities

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Full Text: [2004\Soc Sci Med58, 577.pdf](2004/Soc%20Sci%20Med58,%20577.pdf)

Abstract: This study examines how Selective Serotonin Reuptake Inhibitor (SSRI) antidepressants have played a contributing role in expanding categories of women’s “mental illness” in relation to categories of “normal” behavior. We hypothesized that between 1985 and 2000, as PremenopaUSAl Dysphoric Disorder (PMDD), postpartum depression, and perimenopaUSAl depression were increasingly treated with SSRIs, popular categories of depressive illness expanded to encompass what were previously considered normative women’s life events such as motherhood, menstruation, or child birth. We quantified and qualified this expansion through an in-depth analysis of popular representations of depressive illness during the time period when SSRIs were introduced. Using established coding methods, we analyzed popular articles about depression from a mix of American magazines and newspapers spanning the years 1985-2000. Through this approach, we uncovered a widening set of gender-specific criteria outside of the Diagnostic and Statistical Manual criteria for dysthymic or depressive disorders that have, over time, been conceived as indicative of treatment with SSRIs. Our results suggest that SSRI discourse may have helped shift popular categories of “normal/acceptable” and “pathological/treatable” womanhood, in much the same way that the popularity of Ritalin has shifted these categories for childhood. (C) 2003 Elsevier Ltd. All rights reserved.

Keywords: Analysis, Approach, Behavior, Birth, Child, Childhood, Coding, Criteria, Depression, Discourse, Events, Gender-Specific, Impact, Life, Menstruation, Methods, Postpartum, Postpartum Depression, Rights, Role, Treatment

Weeks, W.B., Wallace, A.E. and Kimberly, B.C.S. (2004), Changes in authorship patterns in prestigious US medical journals. *Social Science & Medicine*, **59** (9), 1949-1954.

Full Text: [2004\Soc Sci Med59, 1949.pdf](2004/Soc%20Sci%20Med59,%201949.pdf)

Abstract: To improve identification of contributors to manuscripts, editors of medical journals have developed authorship responsibility criteria. Some have specified an acceptable number of authors per manuscript. We wanted to examine changes in patterns of authorship in the context of the development of these specifications. Therefore, we used a retrospective cohort design to calculate the average number of authors per manuscript and the prevalence of group and corporate authorship between 1980 and 2000 for original, scientific, non-serial articles published in four prestigious medical journals: the Annals of Internal Medicine, Archives of Internal Medicine, Journal of the American Medical Association, and the New England Journal of Medicine. Group authorship identifies individual authors in the byline who are writing for a group; in corporate authorship, contributors are not individually listed in the byline.

We found that the number of authors per article increased dramatically over time in each journal, from an average of 4.5 in 1980 to 6.9 in 2000 across journals. As a proportion of published manuscripts, group authorship (authors listed in the byline) increased from virtually zero to over 15%, while corporate authorship (authors not listed in the byline) remained rare and stagnant. Manuscripts published by single authors all but vanished. Group authorshi was most prevalent in journals that limited the acceptable number of authors per manuscript.

These findings suggest that the number of authors per manuscript continues to grow. The growth in the number of authors on bylines and the proportion of group-authored manuscripts is likely to reflect the increasing complexity of medical research.

Keywords: Academic Medicine, Publications

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Full Text: [2005\Soc Sci Med61, 731.pdf](2005/Soc%20Sci%20Med61,%20731.pdf)

Abstract: Controversies about biotechnologics often centre not so much on present scientific facts as on speculations about risks and benefits in the future. It is this key futuristic element in these arguments that is the focus of this article. We examine how competing visions of utopia or dystopia are defended through the use of diverse vocabularies, metaphors, associations and appeals to authority. Our case study explores how these rhetorical processes play out in the debate about embryo stem cell research in UK national press and TV news media. The findings show how predictions from those in favour of embryo stem cell research are supported by both hype and by anti-hype, by inconsistent appeals to the technologies’ innovative status and by the selective deconstruction of concepts such as ‘potential’ and ‘hope’. The debate also mobilises binary oppositions around reason versus emotion, science versus religion and fact versus fiction. This article highlights how traditional assertions of expertise are now combined with ideas about compassion and respect for democracy and diversity. It also highlights the fact that although news reporters are often responding to topical events the real focus is often on years, even decades ahead. Close attention to how images of the future are constructed, and the evolution of new strategies for legitimation are, we suggest, important areas of on-going research, particularly in discussions of scientific and medical developments and policy. (c) 2005 Elsevier Ltd. All rights reserved.

Keywords: Case Study, Constructed, Democracy, Diversity, Embryo, Events, Evolution, Media, Medical, Policy, Potential, Predictions, Religion, Research, Rights, Risks, Science, Stem Cell, Technologies, Topical, UK, Visions

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Full Text: 2010\Soc Sci Med70, 1091.pdf

Abstract: the literature addressing the use of the race variable to study causes of racial inequities in health is characterized by a dense discussion on the pitfalls in interpreting statistical associations as caUSAl relationships. In contrast, fewer studies have addressed the use of racial discrimination scales to estimate discrimination effects on health, and none of them provided a thorough assessment of the scales’ psychometric properties. Our aim was to systematically review self-reported racial discrimination scales to describe their development processes and to provide a synthesis of their psychometric properties. A computer-based search in PUBMED, LILACS, PsycInfo, Scielo, Scopus and Web of Science was conducted without any type of restriction, using search queries containing free and controlled vocabulary. After initially identifying 3060 references, 24 scales were included in the review. Despite the fact that discrimination stands as topic of international relevance, 23 (96%) scales were developed within the United States. Most studies (67%, N = 16) were published in the last 12 years, documenting initial attempts at scale development, with a dearth of investigations on scale refinements or cross-cultural adaptations. Psychometric properties were acceptable; sixteen of all scales presented reliability scores above 0.7, 19 out of 20 instruments confirmed at least 75% of all previously stated hypotheses regarding the constructs under consideration, and conceptual dimensional structure was supported by means of any type of factor analysis in 17 of 21 scales. However, independent researchers, apart from the original scale developers, have rarely examined such scales. The use of racial terminology and how it may influence self-reported experiences of discrimination has not yet been thoroughly examined. The need to consider other types of unfair treatment as concurrently important health-damaging exposures, and the idea of a universal instrument which would permit cross-cultural adaptations, should be discussed among researchers in this emerging field of inquiry. (C) 2010 Elsevier Ltd. All rights reserved.

Keywords: African-Americans, Analysis, Assessment, Blood-Pressure, CaUSAlity, Community, Development, Discrimination, Disparities, Factor-Analysis, Inventory, Literature, Perceived Ethnic Discrimination, Prejudice, Psychometrics, Pubmed, Questionnaires, Race, Race Relations, Racial Discrimination, Reliability, Researchers, Review, Science, Scopus, Self-Report, Statistical, Stress, Systematic, Systematic Review, Treatment, Validation, Web of Science

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Full Text: [2010\Soc Sci Med70, 1458.pdf](2010/Soc%20Sci%20Med70,%201458.pdf)

Keywords: Authorship, Health, Research

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Full Text: [2012\Soc Sci Med74, 1204.pdf](2012/Soc%20Sci%20Med74,%201204.pdf)

Abstract: There has been increasing interest in investigating whether inhabitants in socially or physically deprived neighborhoods have higher mortality when individual socioeconomic status is adjusted for. Results so far appear ambiguous and the objective of this study was to conduct a systematic literature review of previous studies and to quantify the association between area-level socioeconomic status (ALSES) and all-cause mortality in a meta-analysis. Current guidelines for systematic reviews and meta-analyses were followed. Articles were retrieved from MEDLINE, Embase, Social Sciences Citation Index and PsycInfo and individually evaluated by two researchers. Only peer-reviewed multilevel studies from high-income countries, which analyzed the influence of at least one area-level indicator and which controlled for individual SES, were included. The ALSES estimates in each study were first combined into a single estimate using weighted linear regression. In the meta-analysis we calculated combined estimates with random effects to account for heterogeneity between studies. Out of the 40 studies found eligible for the systematic review 18 studies were included in the meta-analysis. The systematic review suggests that there is an association between social cohesion and mortality but found no evidence for a clear association for area-level income inequality or for social capital. Studies including more than one area level suggest that characteristics on different area levels contribute to individual mortality. In the meta-analysis we found significantly higher mortality among inhabitants living in areas with low ALSES. Associations were stronger for men and younger age groups and in studies analyzing geographical units with fewer inhabitants. (C) 2012 Elsevier Ltd. All rights reserved.

Keywords: Age, Air-Pollution, Articles, Association, Breast Cancer, Characteristics, Citation, Community-Level, Countries, Effects, Estimates, Evidence, First, Guidelines, Heart-Disease Mortality, Heterogeneity, Hierarchical Analysis, Income Inequality, Indicator, Inequality, Linear Regression, Literature, Literature Review, Living, Low, MEDLINE, Men, Meta-Analysis, Metaanalysis, Mortality, Neighborhoods, No Association, Peer-Reviewed, Regression, Residence Characteristics, Review, Reviews, Rights, Risk Factors, SE, SES, Small-Area Analysis, Social, Social Sciences, Social Sciences Citation Index, Social-Context, Socioeconomic Status, Socioeconomic-Status, Spatial-Analysis, Survival Analysis, Systematic Review, Systematic Reviews

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Full Text: [2012\Soc Sci Med75, 505.pdf](2012/Soc%20Sci%20Med75,%20505.pdf)

Abstract: Most ex-post evaluations of research funding programs are based on bibliometric methods and, although this approach has been widely used, it only examines one facet of the project’s impact, that is, scientific productivity. More comprehensive models of payback assessment of research activities are designed for large-scale projects with extensive funding. The purpose of this study was to design and implement a methodology for the ex-post evaluation of small-scale projects that would take into account both the fulfillment of projects’ stated objectives as well as other wider benefits to society as payback measures. We used a two-phase ex-post approach to appraise impact for 173 small-scale projects funded in 2007 and 2008 by a Spanish network center for research in epidemiology and public health. In the internal phase we used a questionnaire to query the principal investigator (PI) on the outcomes as well as actual and potential impact of each project: in the external phase we sent a second questionnaire to external reviewers with the aim of assessing (by peer-review) the performance of each individual project. Overall, 43% of the projects were rated as having completed their objectives “totally”, and 40% “considerably”. The research activities funded were reported by Pis as socially beneficial their greatest impact being on research capacity (50% of payback to society) and on knowledge translation (above 11%). The method proposed showed a good discriminating ability that makes it possible to measure, reliably, the extent to which a project’s objectives were met as well as the degree to which the project contributed to enhance the group’s scientific performance and of its social payback. (C) 2012 Elsevier Ltd. All rights reserved.

Keywords: Approach, Assessing, Assessment, Bibliometric, Bibliometric Methods, Capacity, Design, Epidemiology, Evaluation, Evaluation Methodology, Ex Post Evaluation, Ex-Post Research Evaluation, Funding, Health, Impact, Knowledge, Knowledge Translation, Measure, Method, Methodology, Methods, Models, Network, Outcomes, Peer Review, Peer-Review, Performance, Potential, Productivity, Projects, Public, Public Health, Public Health Research, Purpose, Questionnaire, Research, Research Capacity, Research Funding, Rights, Scientific Performance, Scientific Productivity, Small-Scale Projects, Social, Society, Spain, Translation

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Full Text: [2014\Soc Sci Med101, 61.pdf](2014/Soc%20Sci%20Med101,%2061.pdf)

Abstract: the important role that monitoring plays in advancing global health is well established. However, the role of social monitoring as a tool for addressing social determinants of health (SDH) and health equity-focused policies remains under-researched. This paper assesses the extent and ways in which New Zealand’s (NZ) Social Reports (SRs) supported a SDH- and health equity-oriented policy programme nationally over the 2000-2008 period by documenting the SRs’ history and assessing its impact on policies across sectors in government and civil society. We conducted key-informant interviews with five senior policy-makers and an e-mail survey with 24 government and civil society representatives on SRs’ history and policy impact. We identified common themes across these data and classified them accordingly to assess the intensity of the reports’ use and their impact on SDH- and health equity-focused policies. Bibliometric analyses of government publications and media items were undertaken to empirically assess SRs’ impact on government and civil society. SRs in NZ arose out of the role played by government as the “benevolent social welfare planner” and an understanding of the necessity of economic and social security for “progress”. The SRs were linked to establishing a government-wide programme aimed at reducing inequalities. They have been used moderately to highly in central and local government and in civil society, both within and outside the health sector, but have neither entered public treasury and economic development departments nor the commercial sector. The SRs have not reached the more universal status of economic indicators. However, they have had some success at raising awareness of, and have stimulated isolated action on, SDH. The NZ case suggests that national-level social monitoring provides a valuable tool for raising awareness of SDH across government and civil society. A number of strategies could improve social reports’ effectiveness in stimulating action on SDH. (C) 2013 Elsevier Ltd. All rights reserved.

Keywords: Alcohol, Analyses, Assessing, Bibliometric, Data, Determinants of Health, Development, Drug, Economic, Economic Development, Effectiveness, Equity, Global, Global Health, Health, Health Equity, Health Policy, History, Impact, Indicators, Inequalities, Intensity, Interviews, Local, Local Government, Media, Monitoring, New Zealand, Perspective, Policies, Policy, Public, Publications, Rights, Role, Sector, Security, Social, Social Determinants of Health, Social Monitoring, Social Reporting, Social Security, Social Welfare, Society, Success, Survey, Treatment Needs, Understanding, Welfare

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Full Text: [2015\Soc Sci Med128, 95.pdf](2015/Soc%20Sci%20Med128,%2095.pdf)

Abstract: Social capital is a neglected determinant of health in low and middle income countries. To date, majority of evidence syntheses on social capital and health are based upon high income countries. We conducted this systematic review to identify the methods used to measure social capital in low and middle-income countries and to evaluate their relative strengths and weaknesses. An electronic search was conducted using Pubmed, Science citation index expanded, Social science citation index expanded, Web of knowledge, Cochrane, Trip, Google scholar and selected grey literature sources. We aimed to include all studies conducted in low and middle-income countries, published in English that have measured any aspect of social capital in relation to health in the study, from 1980 to January 2013. We extracted data using a data extraction form and performed narrative synthesis as the measures were heterogeneous. Of the 472 articles retrieved, 46 articles were selected for the review. The review included 32 studies from middle income countries and seven studies from low income countries. Seven were cross national studies. Most studies were descriptive cross sectional in design (n = 39). Only two randomized controlled trials were included. Among the studies conducted using primary data (n = 32), we identified18 purposely built tools that measured various dimensions of social capital. Validity (n = 11) and reliability (n = 8) of the tools were assessed only in very few studies. Cognitive constructs of social capital, namely trust, social cohesion and sense of belonging had a positive association towards measured health outcome in majority of the studies. While most studies measured social capital at individual/micro level (n = 32), group level measurements were obtained by aggregation of individual measures. As many tools originate in high income contexts, cultural adaptation, validation and reliability assessment is mandatory in adapting the tool to the study setting. Evidence on causality and assessing predictive validity is a problem due to the scarcity of prospective study designs. We recommend Harpham et al. s’ Adapted Social Capital Assessment Tool (A-SCAT), Hurtado et al. s’ six item tool and Elgar et al. s’ World Value Survey Social Capital Scale for assessment of social capital in low and middle income countries. (C) 2015 Elsevier Ltd. All rights reserved.

Keywords: Adaptation, Aggregation, Articles, Assessing, Assessment, Association, Causality, Child Health, China, Citation, Citation Index, Communities, Cross-Sectional, Cultural, Data, Design, English, Evidence, Extraction, From, Google, Google Scholar, Health, Income, Index, Injuries, Knowledge, Literature, Low And Middle Income Countries, Low And Middle-Income Countries, Mandatory, Mar, Measure, Measurement, Measures, Mental-Health, Methods, Nicaragua, Outcome, Philippines, Predictive, Primary, Prospective, Prospective Study, Randomized, Randomized Controlled Trials, Reliability, Residents, Review, Rights, Rural South-Africa, Scale, Science, Science Citation, Science Citation Index, Science Citation Index Expanded, Self-Rated Health, Social, Social Capital, Social Science, Sources, Survey, Synthesis, Systematic, Systematic Review, Trust, Validation, Validity, Value, Web, Web Of Knowledge

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Full Text: [2015\Soc Sci Med130, 32.pdf](2015/Soc%20Sci%20Med130,%2032.pdf)

Abstract: Paid maternity leave has become a standard benefit in many countries throughout the world. Although maternal health has been central to the rationale for paid maternity leave, no review has specifically examined the effect of paid maternity leave on maternal health. The aim of this paper is to provide a systematic review of studies that examine the association between paid maternity leave and maternal health. We conducted a comprehensive search of electronic databases (Medline, Embase, CINAHL, PsycINFO, Web of Science, Sociological Abstracts) and Google Scholar. We searched websites of relevant organisations, reference lists of key papers and journals, and citation indices for additional studies including those not in refereed journals. There were no language restrictions. Studies were included if they compared paid maternity leave versus no paid maternity leave, or different lengths of paid leave. Data were extracted and an assessment of bias was performed independently by authors. Seven studies were identified, with participants from Australia, Sweden, Norway, USA, Canada, and Lebanon. All studies used quantitative methodologies, including cohort, cross-sectional, and repeated cross-sectional designs. Outcomes included mental health and wellbeing, general health, physical wellbeing, and intimate partner violence. The four studies that examined leave at an individual level showed evidence of maternal health benefits, whereas the three studies conducting policy-level comparisons reported either no association or evidence of a negative association. The synthesis of the results suggested that paid maternity leave provided maternal health benefits, although this varied depending on the length of leave. This has important implications for public health and social policy. However, all studies were subject to confounding bias and many to reverse causation. Given the small number of studies and the methodological limitations of the evidence, longitudinal studies are needed to further clarify the effects of paid maternity leave on the health of mothers in paid employment. (C) 2015 Elsevier Ltd. All rights reserved.

Keywords: Assessment, Association, Australia, Authors, Benefits, Bias, Britain, Canada, Childbirth, Citation, Cohort, Confounding, Cross-Sectional, Data, Databases, Effects, Employment, Evidence, From, General, Google, Google Scholar, Health, Health Outcomes, Indices, Inequalities, Intimate Partner Violence, Journals, Language, Leave, Lebanon, Length, Longitudinal, Longitudinal Studies, Maternal, Maternal Health, Maternity, Maternity Leave, Medline, Mental Health, Mental-Health, Methodological Limitations, Methodologies, Mothers, Negative, Norway, Outcomes, Papers, Partner, Physical, Policies, Policy, Psycinfo, Public, Public Health, Reference, Reference Lists, Restrictions, Review, Rights, Science, Small, Social, Social Policy, Standard, Sweden, Synthesis, Systematic, Systematic Review, USA, Violence, Web, Web Of Science, Websites, Women, Work, World

# Title: Social Science Quarterly

Full Journal Title: Social Science Quarterly

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0038-4941

Issues/Year:

Journal Country/Territory:

Language:

Publisher: Sage Publications Ltd, London

Publisher Address:

Subject Categories:

: Impact Factor

Christenson, J.A. and Sigelman, L. (1985), Accrediting knowledge - journal stature and citation impact in social-science. *Social Science Quarterly*, **66** (4), 964-975.

Full Text: [1985\Soc Sci Qua66, 964.pdf](1985/Soc%20Sci%20Qua66,%20964.pdf)

# Title: Social Studies of Science

Full Journal Title: [Social Studies of Science](http://www.jstor.org/action/showPublication?journalCode=socistudscie)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0306-3127

Issues/Year:

Journal Country/Territory:

Language:

Publisher: Sage Publications Ltd, London

Publisher Address:

Subject Categories:

: Impact Factor

? Moravcsik, M. and Murugesan, P. (1975), Some results on the function and quality of citations. *Social Studies of Science*, **5** (1), 86-92.

Full Text: [1960-80\Soc Stu Sci5, 86.pdf](1960-80/Soc%20Stu%20Sci5,%2086.pdf)

? Chubin, D. and Moitra, S. (1975), Content analysis of references: Adjunct or alternative to citation counting? *Social Studies of Science*, **5** (4), 423-441.

Full Text: [1960-80\Soc Stu Sci5, 423.pdf](1960-80/Soc%20Stu%20Sci5,%20423.pdf)

? Spiegelrosing, I. (1977), Science studies - Bibliometric and content-analysis. *Social Studies of Science*, **7** (1), 97-113.

Full Text: [1960-80\Soc Stu Sci7, 97.pdf](1960-80/Soc%20Stu%20Sci7,%2097.pdf)

Abstract: the paper evaluates the first four volumes of the journal Science Studies (now Social Studies of Science) with bibliometric and content analysis methods. The analyses refer to four major areas of characterization of the journal’s articles: 1. Emphasis and balance with respect to their objects and methods of analysis; 2. The range of validity of their results in terms of (a) the disciplines covered, (b) the time period investigated, and (c) the country to which the data or discussions refer; 3. Several quantitative and qualitative analyses of previous research taken into account; and 4. A content analysis of their self-legitimating language.

Keywords: Bibliometric, Science

? Sullivan, D., White, D.H. and Barboni, E.J. (1977), The state of a science: Indicators in the specialty of weak interactions. *Social Studies of Science*, **7** (2), 167-200.

Full Text: [1960-80\Soc Stu Sci7, 167.pdf](1960-80/Soc%20Stu%20Sci7,%20167.pdf)

Abstract: An analysis is presented of article production, demography, and referencing patterns for the period 1950-72 in a specialty within elementary particle physics: the physics of weak interactions. Special attention is paid to differences between theorists and experimentalists and to the impact on article production, demography, and referencing patterns of three major intellectual events (parity violation, the emergence of V-A theory, and CP nonconservation) which occurred during the period under study. Patterns of article production were shown to be quite different for theorists and experimentalists while demographic and referencing patterns were seen often to be similar. The increasing complexity of experimental research technology is suggested as the explanation for the differences in patterns of article production for theory and experiment. The effects of the three major intellectual events are visible in most of the graphs presented. Parity and CP were events which perturbed the system, while the emergence of V-A theory returned the system to normalcy after the discovery of parity violation.

Notes: highly cited

? Small, H.G. (1978), Cited documents as concept symbols. *Social Studies of Science*, **8** (3), 327-340.

Full Text: [1960-80\Soc Stu Sci8, 327.pdf](1960-80/Soc%20Stu%20Sci8,%20327.pdf)

Abstract: An interpretation of citation practice in scientific literature is offered which regards citation of a document as an act of symbol Usage. By examining the language of the text around the footnote number the particular idea the citing author is associating with the cited document may be determined: the document is viewed as symbolic of the idea expressed in the text. This analysis was done for a sample of very highly cited documents in chemistry. A high degree of uniformity is revealed in the association of specific concepts with specific documents. These documents may be seen, in Leach’s terms, as ‘standard sym- bols’ for particular ideas, methods, and experimental data in chemical science. Some implications of these findings for the social determination of scientific knowledge (conceived as a dialogue among citing authors on the ‘meaning’ of earlier texts), and the relationship between cited documents as concept symbols and Kuhn’s exemplars, are discussed.

? Frame, J.D. and Carpenter, M.P. (1979), International research collaboration. *Social Studies of Science*, **9** (4), 481-497.

Full Text: [1960-80\Soc Stu Sci9, 481.pdf](1960-80/Soc%20Stu%20Sci9,%20481.pdf)

? Koester, D., Sullivan, D. and White, D.H. (1982), Theory selection in particle physics: A quantitative case study of the evolution of weak-electromagnetic unification theory. *Social Studies of Science*, **12** (1), 73-100.

Full Text: [1982\Soc Stu Sci12, 73.pdf](1982/Soc%20Stu%20Sci12,%2073.pdf)

Abstract: Drawing a distinction between the micro-level process of theory choice and the macro-level process of theory selection within science, this paper presents an analysis of the development of the weak-electromagnetic unification programme within the specialty of weak interactions in high energy physics. Bibliometric techniques are used to understand the process of theory selection during the rapid interaction of new theoretical and empirical developments. Employing an evolutionary analogy, the interplay of theory and experiment is analyzed during the theory selection process in the context of the history of the specialty. From this perspective, theory and experiment are seen to be closely dependent, as theorists depend heavily on experimental results for both the construction and confirmation of models, while at the same time experimental work depends on theory for understanding the relevance of results.

Notes: MModel

? Macroberts, M.H. and Macroberts, B.R. (1982), A re-evaluation of Lotka’s law of scientific productivity. *Social Studies of Science*, **12** (3), 443-450

Full Text: [1982\Soc Stu Sci12, 443.pdf](1982/Soc%20Stu%20Sci12,%20443.pdf)

Abstrct: This Note examines the data base used by Lotka in propounding his Law, and by Price in elaborating it, and questions the validity of the generalizations drawn from it.

? Cozzens, S.E. (1985), Comparing the Sciences - Citation Context Analysis of Papers from Neuropharmacology and the Sociology of Science. *Social Studies of Science*, **15** (1), 127-153.

Full Text: [1985\Soc Stu Sci15, 127.pdf](1985/Soc%20Stu%20Sci15,%20127.pdf)

Abstract: Classical analyses of differences among the sciences have measured social but not cognitive structure. This paper suggests a method for describing differences among fields in the processes of knowledge growth. The method examines closely what is said about a particular scientific paper when it is cited in later works, and traces changes over time, if they occur. A comparative analysis of cases drawn from neuropharmacology and the sociology of science is used to illustrate the approach. The two papers analyzed show strong differences in the level of generality at which the contents of the original papers are cited. Lack of change over time in how the sociology of science paper is cited is attributed to the lack of attention to its main empirical knowledge claim.

? Martin, B.R. and Irvine, J. (1985), Evaluating the evaluators: A reply to our critics. *Social Studies of Science*, **15** (3), 558-575.

Full Text: [1985\Soc Stu Sci15, 558.pdf](1985/Soc%20Stu%20Sci15,%20558.pdf)

? Levy, D.C. (1987), Science on the periphery - science and society in venezuela - Spanish - Diaz, E, Texera, Y, Vessuri, H. *Social Studies of Science*, **17** (3), 569-573.

Full Text: [1987\Soc Stu Sci17, 569.pdf](1987/Soc%20Stu%20Sci17,%20569.pdf)

? Hicks, D. (1988), Limitations and more limitations of co-citation analysis bibliometric modeling: A reply to Franklin. *Social Studies of Science*, **18** (2), 375-384.

Full Text: [1988\Soc Stu Sci18, 375.pdf](1988/Soc%20Stu%20Sci18,%20375.pdf)

Keywords: Bibliometric, Modeling

? Campanario, J.M. (1993), Consolation for the scientist - sometimes it is hard to publish papers that are later highly-cited. *Social Studies of Science*, **23** (2), 342-362.

Full Text: [1993\Soc Stu Sci23, 342.pdf](1993/Soc%20Stu%20Sci23,%20342.pdf)

Abstract: A set of 316 commentaries by authors of highly-cited papers was reviewed, to identify any difficulty encountered by the authors in producing or publishing their articles. The commentaries were selected from those published each week in the Citation Classic(R) feature of Current Contents. According to their commentaries, a small proportion (5.7%) of the authors of these papers had some difficulty when doing the research, or when trying to publish the results. Three more highly-cited papers which had also encountered difficulties in getting published were identified from Citation Classic(R) commentaries: one of them was co-authored by a Nobel Prize winner. Three of the papers which encountered publication problems are the most cited from their respective journals. In part, the problematic papers reported innovative methods or theories, or presented new interpretations of previous data. Those in the peer review system should have access to these findings, to improve their review of innovative work. Evaluative criteria that are too narrow can sometimes lead to the initial rejection of very important papers.

Keywords: Reliability, Manuscript, Journals, Referees

? Schubert, A. and Maczelka, H. (1993), Cognitive changes in scientometrics during the 1980s, as reflected by the reference patterns of its core journal. *Social Studies of Science*, **23** (3), 571-581.

Full Text: [1993\Soc Stu Sci23, 571.pdf](1993/Soc%20Stu%20Sci23,%20571.pdf)

Abstract: the journal Scientometrics (and the research field it represents) has moved slightly from the ‘soft’ towards the ‘harder’ sciences. This proposition has been tested and supported by analyzing the references of the research articles published in the journal in the periods 1980-81 and 1990-91, respectively.

Keywords: 1980s, Field, Journal, References, Research, Sciences, Scientometrics

? Baldi, S. and Hargens, L.L. (1997), Re-examining Price’s conjectures on the structure of reference networks: Results from the special relativity, spatial diffusion modeling and role analysis literatures. *Social Studies of Science*, **27** (4), 669-687.

Full Text: [1997\Soc Stu Sci27, 669.pdf](1997/Soc%20Stu%20Sci27,%20669.pdf)

Abstract: In his influential article ‘Networks of Scientific Papers’, Derek Price used data on the N-rays reference network to exemplify his argument that natural science research literatures overcite recently published papers. In subsequent work, he further argued that this tendency is weaker in social science literatures, and may be entirely absent in scholarly literatures in the humanities. We report results from a replication of Price’s N-rays analysis and data for three additional reference networks: special relativity theory, spatial diffusion modeling and role algebra analysis. Our analyses indicate that the N-rays reference network provides little support for Price’s conjectures, but that those for the other three areas are generally consistent with them. We find, however, that the two social science literatures exhibit structures more closely resembling the pattern that Price claimed to be characteristic of the humanities, and suggest that the variety of structures that reference networks exhibit may be greater than Price anticipated.

Keywords: Analysis, Diffusion, Modeling, Network, Networks, Research, Science, Sciences, Self-Citations

? Godin, B. (2007), From eugenics to scientometrics: Galton, catell, and men of science. *Social Studies of Science*, **37** (5), 691-728.

Full Text: [2007\Soc Stu Sci37, 691.pdf](2007/Soc%20Stu%20Sci37,%20691.pdf)

Abstract: In 1906, James McKeen Cattell, editor of Science, published a directory of men of science. American Men of Science was a collection of biographical sketches of thoUSAnds of men of science in the USA and was published periodically. It launched, and was used in, the very first systematic quantitative studies on science. Cattell used two concepts for his statistics: productivity, defined as the number of men of science a nation produces, and performance or merit, defined as scientific contributions to research as judged by peers. These are the two dimensions that still define measurement of scientific productivity today: quantity and quality. This paper analyzes the emergence of statistics on science and the very first uses to which they were put. It argues that the measurement of science emerged out of interest in great men, heredity and eugenics, and the contribution of eminent men to civilization. Among these eminent men were men of science, the population of whom was thought to be in decline and insufficiently appreciated and supported. Statistics on men of science thus came to be collected to document the case, and to contribute to the advancement of science and the scientific profession.

Keywords: Academy, American, American Men, Civilization, Collection, Contribution, Emergence, Eugenics, First, Heredity, James Mckeen Cattell, Measurement, Men, Men of Science, Performance, Population, Productivity, Profession, Quality, Rankings, Research, Science, Scientific Productivity, Scientometrics, Society, Statistics, Statistics on Science, Systematic, University Control, USA, Vital-Statistics

? Klenk, N.L., Hickey, G.M. and MacLellan, J.I. (2010), Evaluating the social capital accrued in large research networks: the case of the Sustainable Forest Management Network (1995-2009). *Social Studies of Science*, **40** (6), 931-960.

Full Text: [2010\Soc Stu Sci40, 931.pdf](2010/Soc%20Stu%20Sci40,%20931.pdf)

Abstract: This paper examines the social capital that evolved in the Sustainable Forest Management Network (SFMN), one of the Canadian Networks of Centres of Excellence. Our longitudinal study shows a sevenfold increase in the total number of researchers and a high density of relationships among (researchers from) provinces across the country. The results of a social network analysis revealed that 52.6 percent of the network researchers maintained the same number of collaborators while 46.7 percent increased their number of collaborators enormously: the maximum increase in number of collaborators being 6900 percent and the minimum 6 percent. A bibliometric analysis suggested that the number of publications was strongly correlated to measures of social capital. From a science and innovation policy perspective, the finding that more than half of the researchers in the SFMN did not increase their personal networks of collaborators raises important questions. A theoretical model is proposed to examine whether funding agencies should focus on fostering various network structures and evolutions or rely on competition in the distribution of research funds through networks. The proposed model is designed to measure the impact of various network structures on the development of social capital and research output.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Collaboration, Density, Development, Dynamics, Impact, Industry, Innovation, Innovation, Management, Model, Network, Networks, Number of Publications, Output, Productivity, Publications, Research, Research Collaboration, Research Output, Research-and-Development, Researchers, Science, Science Policy, Scientific Co-Authorship, Self-Organization, Small-World Problem, Social Capital, Social Network Analysis, Structural Holes, Sustainable

? van Heur, B., Leydesdorff, L. and Wyatt, S. (2013), Turning to ontology in STS? Turning to STS through ‘ontology’. *Social Studies of Science*, **43** (3), 341-362.

Full Text: [2013\Soc Stu Sci43, 341.pdf](2013/Soc%20Stu%20Sci43,%20341.pdf)

Abstract: We examine the evidence for the claim of an ontological turn’ in science and technology studies (STS). Despite an increase in references to ontology’ in STS since 1989, we show that there has not so much been an ontological turn as multiple discussions deploying the language of ontology, consisting of many small movements that have changed the landscape within STS and beyond. These movements do not point to a shared STS-wide understanding of ontology, although it can be seen that they do open up STS to neighbouring disciplines. Three main thematic complexes are identified in this literature: constructivism and realism; instruments and classification; and the social sciences and the humanities. The introduction of ontology into the long-running constructivism-realism debate can be considered as an acknowledgement on both sides that objects are real (i.e. pre-existing the situation) and constructed at the same time. The second thematic complex focuses on the role of instruments and classification in establishing not only relations of heterogeneity, but also of stability. The third thematic complex broadens the debate and actively seeks to promote an STS-driven ontological turn for research concerned with the humanities and the social sciences more generally. This study is based on both quantitative and qualitative interpretations of the literature.

Keywords: Bibliometrics, Classification, Classifications, Communication, Conceptual Change, Constructed, Constructivism, Constructivism, Evidence, Flows, Heterogeneity, Humanities, Knowledge, Landscape, Language, Literature, Ontology, Open, Perspectives, Philosophy, Philosophy, Qualitative, Realism, References, Relations, Research, Role, Science, Science and Technology, Science and Technology Studies, Sciences, SI, Small, Social, Social Sciences, Stability, STS, Technology, Understanding

# Title: Social Work in Health Care

Full Journal Title: [Social Work in Health Care](http://rsw.sagepub.com/archive/)

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JCR Abbreviated Title:

ISSN: 0098-1389

Issues/Year:

Journal Country/Territory:

Language:

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Publisher Address:

Subject Categories:

: Impact Factor

? Holden, G., Rosenberg, G. and Barker, K. (2005), Tracing thought through time and space: A selective review of bibliometrics in social work. *Social Work in Health Care*, **41** (3-4), 1-34.

Full Text: [2005\Soc Wor Hea Car41, 1.pdf](2005/Soc%20Wor%20Hea%20Car41,%201.pdf)

Abstract: Bibliometrics is a field of research that examines bodies of knowledge within and across disciplines. Citation analysis, a component of bibliometrics, focuses on the quantitative assessment of citation patterns within a body of literature. Citation analysis has been used in social work to examine the quantity and the impact of the work of individuals and academic institutions. This paper presents a selective review of these uses of bibliometrics within social work.

Keywords: Academic, Academic Affiliations, Analysis, Assessment, Bibliometrics, Bodies, Citation, Citation Analysis, Citation Analysis, Citation Patterns, Consulting Editors, Editor-in-Chief, Editorial-Board Members, Faculty Publications, Field, Impact, Impact Factors, Informetrics, Institutions, Knowledge, Literature, Multiple Authorship, Publication Productivity, Research, Review, Scholarly Productivity, Scientometrics, Social, Social Work, Social Work Education, Social-Work, Sociology of Science, Space, Time, Work

? Rosenberg, G., Holden, G. and Barker, K. (2005), What happens to our ideas? A bibliometric analysis of articles in *Social Work in Health Care* in the 1990s. *Social Work in Health Care*, **41** (3-4), 35-66.

Full Text: [2005\Soc Wor Hea Car41, 35.pdf](2005/Soc%20Wor%20Hea%20Car41,%2035.pdf)

Abstract: Scholars spend a considerable amount of time reflecting upon their professional work. When individuals decide to communicate their professional thoughts beyond informal venues, the penultimate expression of their reflection is the peer reviewed journal article. The Study reported here entailed a bibliometric analysis of articles appearing in the journal Social Work in Health Care during the 1990s, in order to better understand what happens to our ideas after they appear in a peer reviewed journal article.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Bibliometrics, Citation Analysis, Citation Analysis, Decision-Making, Editorial-Board, Expression, Impact Factors, Informal, Informetrics, Journal, Journal Article, Journals, Multiple Authorship, Peer, Peer-Reviewed, Professional, Professional Work, Publication Productivity, Quality, Reflection, Scholarly Productivity, Scholarship, Science, Scientometrics, Social Work in Health Care, Social Work Journals, Sociology of Science, Time, Work

? Holden, G., Rosenberg, G. and Barker, K. (2005), Bibliometrics: A potential decision making aid in hiring, reappointment, tenure and promotion decisions. *Social Work in Health Care*, **41** (3-4), 67-92.

Full Text: [2005\Soc Wor Hea Car41, 67.pdf](2005/Soc%20Wor%20Hea%20Car41,%2067.pdf)

Abstract: the assessment of scholarship assumes a central role in the evaluation of individual faculty, educational programs and academic fields. Because the production and assessment of scholarship is so central to the faculty role, it is incumbent upon decision makers to strive to make assessments of scholarship fair and equitable. This paper will focus on an approach to the assessment of the quantity and impact of the most important Subset of an individual’s scholarship-peer-reviewed journal articles. The primary goal of this paper is to stimulate discussion regarding scholarship assessment in hiring, reappointment, tenure and promotion decisions.

Keywords: Academic, Approach, Assessment, Assessments, Bibliometric, Bibliometrics, Citation Analysis, Citation Analysis, Community-Service, Decision, Decision Making, Decision-Making, Decisions, Doctoral Programs, Evaluation, Faculty, Faculty, Hiring, Impact, Impact Factors, Informetrics, Journal, Journal Articles, Multiple Authorship, Potential, Primary, Production, Promotion, Publication Productivity, Reappointment, Role, Scholarly Productivity, Scholarship, Scientometrics, Self-Efficacy, Social Work Education, Social-Work Journals, Sociology of Science, Tenure, Tenure and Promotion Decisions

Epstein, I. (2005), Following in the footnotes of giants: Citation analysis and its discontents. *Social Work in Health Care*, **41** (3-4), 93-101.

Full Text: [2005\Soc Wor Hea Car41, 93.pdf](2005/Soc%20Wor%20Hea%20Car41,%2093.pdf)

Abstract: Reflecting on his own personal history with bibliometrics, the author places it in the broader context of research with available information and data-mining. In so doing, he considers the utility of bibliometrics for raising new questions and its limitations for guiding decision-making.

Keywords: Available Information, Bibliometrics, Data-Mining

? Green, R.G. (2005), The paradox of faculty publications in professional journals. *Social Work in Health Care*, **41** (3-4), 103-108.

Full Text: [2005\Soc Wor Hea Car41, 103.pdf](2005/Soc%20Wor%20Hea%20Car41,%20103.pdf)

Abstract: the author reviews the companion papers about bibliometrics prepared for this Volume and concludes that each makes a unique contribution to the growth of scholarship within the profession. However, a major practical limitation of the system advocated by the authors of these papers for faculty in schools of social work is also identified. Because only a limited number of social work faculty members produce the Volume of articles required by the proposed system, the proposed system can be used Currently by only a small number of schools and departments of social work.

Keywords: Bibliometrics, Evaluating Scholarship, Faculty, Faculty Publication, Publications, Scholarship

? Kirk, S.A. (2005), Politics of personnel and landscapes of knowledge. *Social Work in Health Care*, **41** (3-4), 109-116.

Full Text: [2005\Soc Wor Hea Car41, 109.pdf](2005/Soc%20Wor%20Hea%20Car41,%20109.pdf)

Abstract: This is a commentary on three articles on bibliometrics in social work that appear in this volume. I argue that bibliometrics call make many contributions to the study of the structure and evolution of social work’s knowledge base, but it cannot completely remove subjectivity in the evaluation of the scholarship of individual faculty, where legitimate differences of professional opinion will remain.

Keywords: Bibliometrics, Citaton Analysis, Evaluation, Faculty, Faculty Evaluation, Knowledge Base, Scholarship

? Klein, W.C. and Bloom, M. (2005), Bibliometrics: the best available information? *Social Work in Health Care*, **41** (3-4), 117-121.

Full Text: [2005\Soc Wor Hea Car41, 117.pdf](2005/Soc%20Wor%20Hea%20Car41,%20117.pdf)

Abstract: This commentary raises significant cautions related to inherent shortcomings in the use of bibliographic analytic technology, and in particular its use in Substantive decision making around promotion and tenure. Questions are raised concerning the continued use of scholarly energy for bibliometric analysis of Subtly different settings. The recommendation is offered that future efforts in bibliometrics Must target methods to reduce methodological shortcomings. These include clarifying the metric used to ‘Count’ sole, multiple authorship, and to evaluate the ‘merit’ of manuscripts as well as journals in which they appear. Finally, the fundamental meaning of the information produced in these analyses (i.e., the validity of the measure) must be clearly presented in order for it to be credibly used.

Keywords: Analysis, Authorship, Bibliometric, Bibliometric Analysis, Bibliometrics, Citation Analysis, Decision Making, Decision-Making, Energy, Information, Meaning, Methods, Promotion, Promotion and Tenure, Tenure, Validity

? Ligon, J. and Thyer, B.A. (2005), Bibliometrics and social work: A two-edged sword can still be a blunt instrument. *Social Work in Health Care*, **41** (3-4), 123-128.

Full Text: [2005\Soc Wor Hea Car41, 123.pdf](2005/Soc%20Wor%20Hea%20Car41,%20123.pdf)

Abstract: In order to improve the productivity and impact of social work scholarship, the profession must look beyond bibliometrics to other issues that Must be considered. These include the lag time between acceptance and publication of articles, the quality of peer review experienced by social work authors, and the overabundance of journals being published in social work.

Keywords: Affiliation, Bibliometrics, Citation Analysis, Criminal-Justice, Gender, Institutional Productivity, Journals, Peer Reviewed Journals, Publication, Scholarly Productivity, Scholarship, Social Work Authors, Social Work Scholarship, Textbooks

? Holden, G., Rosenberg, G. and Barker, K. (2005), Shallow science or meta-cognitive insights: A few thoughts on reflection via bibliometrics. *Social Work in Health Care*, **41** (3-4), 129-148.

Full Text: [2005\Soc Wor Hea Car41, 129.pdf](2005/Soc%20Wor%20Hea%20Car41,%20129.pdf)

Abstract: the authors conclude this Volume by responding to the commentaries of their colleagues and reviewing relevant scholarship that appeared in the bibliometric literature since their literature reviews for the initial three articles in this issue were completed. They conclude, in part, that examination of bibliometric data regarding the entry of an article into the profession’s knowledge base, and its ongoing life therein, may provide insights about the scientific communication process that lead to improvements of that process.

Keywords: Achievement Levels, Author Self-Citations, Authors, Bibliometric, Bibliometrics, Citation Analysis, Communication, Consulting Editors, Data, Decision-Making, Editorial-Board Members, Entry, Examination, Faculty, Faculty, Informetrics, Knowledge, Knowledge Base, Lead, Life, Literature, Process, Promotion, Psychology Journals, Publication, Reflection, Reviews, Scholarly Productivity, Scholarship, Science, Scientific Communication, Sciento-Metrics, Social-Work Journals, Sociology of Science, Tenure

? Natale, A.P. and Baker, D. (2010), HIV/AIDS scholarship: An analysis of groundbreaking programs and individuals. *Social Work in Health Care*, **49** (7), 669-686.

Full Text: [2010\Soc Wor Hea Car49, 669.pdf](2010/Soc%20Wor%20Hea%20Car49,%20669.pdf)

Abstract: the authors report on a bibliometric study of human immunodeficiency virus (HIV)/acquired immune deficiency syndrome (AIDS) scholarship among scholars in schools of social work in the United States. A sample of these HIV/AIDS scholars were accumulated from the faculty interest pages at social work programs accredited by the Council on Social Work Education. From this sample, the publication records, including citations, were examined and those individuals meeting the operational definition of oscholaro were ranked in the final analysis. Social work institutions are also ranked in terms of productivity and impact. Last, the journal outlets that publish the work of social work HIV/AIDS scholars are ranked by publication productivity. The article concludes with a discussion of the strengths and limitations of the method used and future research directions.

Keywords: Academic Affiliations, AIDS, Articles, Bibliometric, Bibliometrics, Citation Analysis, Faculty Publications, HIV, Impact, Journals, Moratorium, Publication, Publication Productivity, Rank Schools, Research, Scholarship, Science, Social Work, Social-Work Journals

# Title: Social Work in Public Health

Full Journal Title: Social Work in Public Health

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Rosen, D., Engel, R.J., Hunsaker, A.E., Engel, Y., Detlefsen, E.G. and Reynolds, C.F. (2013), Just say know: An examination of substance use disorders among older adults in gerontological and substance abuse journals. *Social Work in Public Health*, **28** (3-4), 377-387.

Full Text: [2013\Soc Wor Pub Hea28, 377.pdf](2013/Soc%20Wor%20Pub%20Hea28,%20377.pdf)

Abstract: This article examines the extent to which studies of alcohol abuse, illicit drug use, and prescription drug abuse among older adults appear in the leading gerontological and substance abuse journals. The authors reviewed articles published in the 10 social science gerontological journals and the 10 social science substance abuse journals with the highest 5-year impact factors in PubMed from 2000 to 2010. Articles were selected that presented original research on alcohol, substance, or prescription abuse with older adults aged 50 and older; and were identified through aging and substance abuse-related Medical Subject Headings and word searches of titles and abstracts (N = 634). Full text of each article was reviewed by the authors, and consensus determined inclusion in the final sample. of the 19,953 articles published respectively in the top 10 gerontological and substance abuse journals, 181 articles met the inclusion criteria of reporting findings related to substance use disorders among older adults. Specifically, 0.9% (102 of 11,700) of articles from the top 10 gerontology journals and 1.0% (79 of 8,253) of articles from the top 10 substance abuse journals met the criteria. Most published articles addressed alcohol misuse/abuse or polysubstance abuse with few articles addressing illicit drug use or the misuse of prescription medications. Less than 1% of articles published in the 10 gerontology journals and the 10 substance abuse journals with the highest 5-year impact scores addressed substance abuse in older adults. Practitioners treating health and/or mental health problems are at a disadvantage in accurately identifying and treating these conditions in older adult populations without a proper understanding of the role of comorbid substance use disorders.

Keywords: Abuse, Addiction, Admissions, Adult, Aged, Aging, Alcohol, Alcohol-Related Disorders, Articles, Authors, Bibliometric Analysis, Consensus, Criteria, Drug, Drug Abuse, Drug Use, Examination, Gerontology, Health, Illicit, Impact, Impact Factors, Journals, Medical, Mental Health, N, Nonmedical Drug-Use, Older Adults, Populations, Prescription, Prescription Drug Abuse, Published Articles, Pubmed, Reporting, Research, Role, Science, SI, Social, Substance Abuse, Substance Use, Substance Use Disorders, Substance-Related Disorders, Understanding, United-States

# Title: Social Work Research

Full Journal Title: Social Work Research

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Scheyett, A., DeLuca, J. and Morgan, C. (2013), Recovery in severe mental illnesses: A literature review of recovery measures. *Social Work Research*, **37** (3), 286-303.

Full Text: 2013\Soc Wor Res37, 286.pdf

Abstract: Recovery is an increasingly important construct in mental health services for adults with serious mental illnesses. It is defined as an active process of integrating mental health care with daily existence, creating a purposeful life regardless of diagnosis. Social work principles align with central values of recovery. Social workers who provide services to consumers may find it helpful to use a standardized recovery instrument in practice. The authors conducted a literature review to identify recovery instruments and assess the characteristics of those instruments, examining specifically the definitions of recovery, the nature of consumer involvement in instrument development, and the psychometric properties of recovery instruments. Multiple databases (CINHAL, JSTOR, PubMed, PsycARTICLES, PsycINFO, Social Sciences Citation Index, Social Services Abstracts, and Social Work Abstracts) were searched, as well as the gray literature. Seventeen articles discussing 12 recovery instruments were identified, with widely different conceptualizations of recovery, types of consumer involvement, and psychometric properties. Social workers should consider the purposes for which they wish to use a recovery instrument and, when appropriate, discuss recovery conceptualizations and goals with consumers. They should then select an instrument that best matches these goals. On the basis of this review, several instruments may be helpful to social workers in providing services to consumers.

Keywords: Assessment Scale, Authors, Care, Characteristics, Citation, Clinician, Databases, Development, Diagnosis, Gray Literature, Health, Health Care, Health Services, Instrument, Instruments, Inventory, Life, Literature, Literature Review, Management, Measures, Mental Health, Multiple Databases, People, Practice, Principles, Properties, Psychometric Properties, Psycinfo, Pubmed, Recovery, Review, Sample, Serious Mental Illness, Services, Social, Social Sciences, Social Sciences Citation Index, Social Work Practice, Symptoms, Validity, Work

# Title: Social Work Research & Abstracts

Full Journal Title: Social Work Research & Abstracts

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Macroberts, M.H. and Macroberts, B.R. (1992), Problems of citation analysis. *Social Work Research & Abstracts*, **28** (4), 4.

Full Text: Soc Wor Res Abs28, 4.pdf

Keywords: DEC, Discourse, Science

? Baker, D.R. (1992), Problems of citation analysis - Reply. *Social Work Research & Abstracts*, **28** (4), 4-5.

Full Text: Soc Wor Res Abs28, 4-5.pdf

Keywords: DEC

# Title: Socio-Economic Planning Sciences

Full Journal Title: [Socio-Economic Planning Sciences](http://www.sciencedirect.com/science/journal/00380121)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Avkiran, N.K. and Parker, B.R. (2010), Pushing the DEA research envelope. *Socio-Economic Planning Sciences*, **44** (1), 1-7.

Full Text: [2010\Soc-Eco Pla Sci44, 1.pdf](2010/Soc-Eco%20Pla%20Sci44,%201.pdf)

Abstract: This brief article first investigates key dimensions underlying the progress realized by data envelopment analysis (DEA) methodologies. The resulting perspective is then used to encourage reflection on future paths for the field. Borrowing from the social sciences literature, we distinguish between problematization and gap identification in suggesting strategies to push the DEA research envelope. Emerging evidence of a declining number of influential methodological (theory)-based publications, and a flattening diffusion of applications imply an unfolding maturity of the field. Such findings suggest that focusing on known limitations of DEA, and/or of its applications, while searching for synergistic partnerships with other methodologies, can create new and fertile grounds for research. Possible future directions might thus include ‘DEA in practice’, ‘opening the black-box of production,’ ‘rationalizing inefficiency,’ and ‘the productivity dilemma.’ What we are therefore proposing is a strengthening of the methodology’s contribution to fields of endeavor both including, and beyond, those considered in the past.

Keywords: Advancing Research, Data Envelopment Analysis, Gap Identification, Problematization

# Title: Sociologia Ruralis

Full Journal Title: Sociologia Ruralis

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Tanaka, K., Juska, A. and Busch, L. (1999), Globalization of agricultural production and research: the case of the rapeseed subsector. *Sociologia Ruralis*, **39** (1), 54-77.

Full Text: [1999\Soc Rur39, 54.pdf](1999/Soc%20Rur39,%2054.pdf)

Abstract: In the realms of business, policy and intellectual discussion, science and technology have been treated historically as enabling agents for the development of new products, technologies, knowledge, organizational and geographical arrangements of economic activities. However, relatively little attention has been paid to the analysis of how the globalization of production activities, which has been made possible in part by various scientific achievements, is changing technoscience itself. This paper examines the worldwide interaction between agricultural research and agricultural production by using the rapeseed subsector as an example. Bibliometric data on rapeseed, and economic statistics of production, import and export of rapeseed and its products between 1940 and 1996 are used simultaneously to examine the globalization of the rapeseed subsector and research activities in Canada, the US, Japan, China, India, the UK, France and Germany. A typology of production and research strategies that major rapeseed producing countries use to compete on the world oilseed market is developed.

Keywords: Analysis, Bibliometric, Canola, China, Countries, Development, France, Germany, Globalization, Interaction, Japan, Knowledge, Research, Science, Science and Technology, Statistics, Technologies, Technology, US

# Title: Sociological Research Online

Full Journal Title: Sociological Research Online

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 1360-7804

Issues/Year:

Journal Country

Language:

Publisher: Sage Publications Ltd, London

Publisher Address:

Subject Categories:

: Impact Factor

? Boudourides, M. and Antypas, G. (2002), A simulation of the structure of the World-Wide Web. *Sociological Research Online*, **7** (1).

Abstract: In this paper we are presenting a simple simulation of the Internet World-Wide Web, where one observes the appearance of web pages belonging to different web sites, covering a number of different thematic topics and possessing links to other web pages. The goal of our simulation is to reproduce the form of the observed World-Wide Web and of its growth, using a small number of simple assumptions. In our simulation, existing web pages may generate new ones as follows: First, each web page is equipped with a topic concerning its contents. Second, links between web pages are established according to common topics. Next, new web pages may be randomly generated and subsequently they might be equipped with a topic and be assigned to web sites. By repeated iterations of these rules, our simulation appears to exhibit the observed structure of the World-Wide Web and, in particular, a power law type of growth. In order to visualise the network of web pages, we have followed N. Gilbert’s (1997) methodology of scientometric simulation, assuming that web pages can be represented by points in the plane. Furthermore, the simulated graph is found to possess the property of small worlds, as it is the case with a large number of other complex networks.

Keywords: Complex, Internet, Lotka’s and Power Laws, Networks, Small World Complex Networks, Social Simulation, Topic, Topics, Web Pages, Web Sites, World-Wide Web As A Graph

# Title: Sociological Theory and Methods

Full Journal Title: Sociological Theory and Methods

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0913-1442

Issues/Year:

Journal Country

Language:

Publisher: Sage Publications Ltd, London

Publisher Address:

Subject Categories:

: Impact Factor

? Tsuzuki, K. (2002), An attempt to construct a mathematical model of the growth of mathematical sociology in Japan. *Sociological Theory and Methods*, **17** (1), 71-87.

Abstract: Scientometrics studies had made clear that the growth of science indexed by the number of the scientists or the number of the scientific papers shows exponential or logistic curve. On the other hand, according I Kuhn, the history of science shows cyclical pattern: paradigm revolution --> ripen --> normal science --> appearance of anomaly --> crisis --> paradigm revolution. The purpose of this paper is to try to integrate these two views, by building the mathematical model of the growth of science.

We present a model in which ‘possibility’ and ‘aporia’ are interacting. As a result of interaction of these, pattern of the growth of science prescribed. The model is formulated by differential equations. The solutions to the equations correspond to two growth patterns previously described.

Keywords: Sociology of Science, Scientific Growth, Possibility, Aporia, Differential Equation

# Title: Sociologicky Casopis-Czech Sociological Review

Full Journal Title: Sociologicky Casopis-Czech Sociological Review

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Skovajsa, M. (2014), Total and foreign-journal citedness of sociologicky casopis: The results of a citation analysis. *Sociologicky Casopis-Czech Sociological Review*, **50** (5), 671-712.

Full Text: [2014\Soc Cas-Cze Soc Rev50, 671.pdf](2014/Soc%20Cas-Cze%20Soc%20Rev50,%20671.pdf)

Abstract: This citation analysis of Sociologicky casopis / Czech Sociological Review looks at the journal’s total influence and the influence outside Czech(oslovak) sociology as measured by the number of citations in foreign journals. Indexed since the 1970s, SC/CSR is the longest-covered East European sociology journal in the Web of Science. Beyond citation counts available through the WoS’s Basic Search option, foreign-journal citation data were collected by examining the reference lists of all WoS-indexed foreign-journal articles listed as citing SC/CSR in the WoS’s Cited Reference Search or Google Scholar. In total, 690 foreign-journal citations of SC/CSR between 1965 and 2013 were retrieved, including 113 author self-citations and 253 citations made by Czech and Slovak authors. Among the 690 citations, 379 are not indexed correctly in the WoS. The number of foreign citations missing from the WoS ranges from 14% for the Czech issues in 2002-2013 to 32% for the English issues in the same period. WoS is missing all 221 citations to the Czech Sociological Review between 1993 and 2001; this was a separate journal not included in the SSCI, which resulted in an important loss of international visibility for Czech sociology. In terms of per-article-citedness by foreign journals, the English-language edition of SC/CSR was expectably cited more often than the Czech edition. The highest foreign citation numbers were received by the English-language edition in 1993-2001, followed by the English issues in 2002-2013. The author’s expanded foreign citation data set yields a very different ranking of most-cited articles from SC/CSR than the one based on WoS citation counts, suggesting that WoS is not a reliable source of data for identifying most-cited articles. A comparison between most-cited articles by any journal and by foreign journals only indicates that different articles are influential nationally and internationally.

Keywords: Analysis, Articles, Authors, Bibliometrics, Citation, Citation Analysis, Citation Counts, Citations, Citedness, Comparison, Czech Sociological Review, Czech Sociology, Czech Sociology, Data, Data Set, English, European Sociology, From, Google, Google Scholar, Impact Factor, Index, Influence, International, Issues, Journal, Journals, Most Cited Articles, Ranking, Reference, Reference Lists, Results, Review, Science, Scopus, Search, Self-Citations, Slovak, Social-Sciences, Sociologicky Casopis, Sociology, Source, Ssci, Visibility, Web, Web of Science, Wos

? Skovajsa, M. (2014), In lieu of The Sociological review/Czech Sociological Review between sociological journals according to bibliometric indicators. Reflections on not an anniversary. *Sociologicky Casopis-Czech Sociological Review*, **50** (5), 759-778

Full Text: [2014\Soc Cas-Cze Soc Rev50, 759.pdf](2014/Soc%20Cas-Cze%20Soc%20Rev50,%20759.pdf)

Keywords: Bibliometric, Bibliometric Indicators, Czech Sociological Review, Humanities, Indicators, Journals, Review, Scopus, Social-Sciences

# Title: Sociologie du Travail

Full Journal Title: Sociologie du Travail

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher: Sage Publications Ltd, London

Publisher Address:

Subject Categories:

: Impact Factor

? Torny, D. (2014), The derivatives of the evaluation of the research. The good use of bibliometrics. *Sociologie du Travail*, **56** (3), 404-406.

Full Text: [2014\Soc Tra56, 404.pdf](2014/Soc%20Tra56,%20404.pdf)

Keywords: Bibliometrics, Evaluation, Research

# Title: Sociologija I Prostor

Full Journal Title: [Sociologija I Prostor](http://hrcak.srce.hr/index.php?show=toc&id_broj=5390)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher: Sage Publications Ltd, London

Publisher Address:

Subject Categories:

: Impact Factor

? Mali, F. (2010), Policy issues of the international productivity and visibility of the social sciences in Central and Eastern European countries. *Sociologija I Prostor*, **48** (188), 415-435.

Full Text: [2010\Soc Pro48, 415.pdf](2010/Soc%20Pro48,%20415.pdf)

Abstract: the contribution deals with the issue of the international productivity and visibility of the social sciences in Central and Eastern European (CEE) countries. The reasons why the social sciences in CEE countries lag behind in being more internationalised stem not only from the past, but also the present. The intellectual potential of the social sciences is often neither fully acknowledged nor effectively used by different groups of social actors. There is also a lack of institutional support from R&D policy decision-makers to encourage social scientists to publish more abroad and to establish excellent networks beyond national borders. In the paper, the main focus is national R&D evaluation systems. R&D evaluation systems play a crucial role in the allocation of financial support to scientists, the promotion of individual scientific careers, ensuring disciplinary (or interdisciplinary) standards etc. Last but not least, it is impossible to fully understand the state-of-the-art in the social sciences’ international productivity and visibility in CEE countries without explaining the context of how these national R&D evaluation systems function. Some analytical data are used to illustrate the international orientation of social scientists. These data warn that the great expectations that social scientists from this part of Europe would easily “break through” into publication channels in the West and thereby have a big scientific impact have yet to be realised.

Keywords: Bibliometrics, Co-Authorship, Europe, International Productivity and Visibility, Knowledge, Patterns, Peer Review, Policy, Publication, Publications, R&D Evaluation System, Research Collaboration, Social Sciences, Standards, State of the Art, Visibility

? Prpić, K. and Petrović, N. (2010), Croatian social scientists’ productivity and a bibliometric study of sociologists’ output. *Sociologija I Prostor*, **48** (188), 437-459.

Full Text: [2010\Soc Pro48, 437.pdf](2010/Soc%20Pro48,%20437.pdf)

Abstract: According to (pseudo)longitudinal empirical studies, the publication productivity of Croatian social scientists has been following the main global trends, especially the increase in co-authored and international/foreign publications. However, it shows more similarities to the social science output of other post-socialist countries than to the techno-scientifically developed European regions. The most recent bibliometric study of sociologists’ publication productivity offers a more detailed picture of social science publication practices, as well as a specific disciplinary culture. Books form an essential part of sociological and SS&H output and thus they should also be included in any system of research productivity monitoring and evaluation. Web of Science (WoS) and Google Scholar (GS) bibliographical and citation data bases differ in covering sociological publications (especially books), which results in considerably different indicators of the quantity and visibility of published output. Empirical typology of visibility of sociologists’ publications detects the difference between article and book visibility, as well as local and international visibility combined with WoS and GS coverage. The predictors of visibility types suggest that increasing the impact of Croatian sociological research should be based on stimulating publication by sociologists in both international books and journals.

Keywords: Australian Sociology, Bibliometric, Bibliometric Studies, Citation, Citation Patterns, Collaboration, Departments, Determinants, Disciplines, Humanities, Influential Books, Journals, Productivity, Productivity Patterns, Productivity Predictors, Publication, Publication Practices, Publication Productivity, Publications, Questionnaire Studies, Research, Sciences, Social Scientists, Sociologists, Visibility, Web of Science

# Title: Sociologisk Forskning

Full Journal Title: Sociologisk Forskning

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0038-0342

Issues/Year:

Journal Country/Territory:

Language:

Publisher: Sage Publications Ltd, London

Publisher Address:

Subject Categories:

: Impact Factor

? Broady, D. and Persson, O. (1989), Bourdieu in the USA - Bibliometric notes. *Sociologisk Forskning*, **26** (4), 54-73.

Keywords: Bibliometric

? Melin, G. (1999), Globalization or internationalization in the sciences. *Sociologisk Forskning*, **36** (3), 22-36.

Abstract: the main question in this study is whether we can find empirical evidence of globalization in science or not. Usually the increasing number of co-authorships in the sciences is seen as an indicator of increasing research collaboration, which in turn is seen as part of the globalization-trend. Here, this chain is questioned and the relation and the difference between globalization and internationalization in science is investigated and discussed. A number of studies have shown how the amount of research collaboration is increasing but it is not clear that this is actually leading to globalization in science rather than internationalization. Through a number of empirical results the structure of international research collaboration is described. It is concluded that there may very well be an ongoing globalization-trend but this is hardly evident in empirical studies of research collaboration. What can be seen though is a strengthened internationalization-trend. Globalization seems to be a phenomenon that ought to be used more carefully and studied through both bibliometric and other methods.

Keywords: Bibliometric, Collaboration, Empirical Studies, Evidence, Globalization, Indicator, International, Internationalization, Methods, Research, Research Collaboration, Science, Sciences, Structure

? Ingwersen, P. (2003), Internationalization and homogenization: A bibliometric study of international management research. by Danell R. *Sociologisk Forskning*, **40** (1), 115-117.

? Ekerwald, H. (2009), Sociologisk Forskning, Web of Science Och Sociological Abstracts. *Sociologisk Forskning*, (3), 3-4

# Title: Sociology of Education

Full Journal Title: [Sociology of Education](http://www.jstor.org/journals/00380407.html)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0038-0407

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Notes: highly cited

? Bayer, A.E. and Folger, J. (1966), Some correlates of a citation measure of productivity in science. *Sociology of Education*, **39** (4), 381-390.

Full Text: [1960-80\Soc Edu39, 381.pdf](1960-80/Soc%20Edu39,%20381.pdf)

Fox, M.F. (1992), Research, teaching, and publication productivity: Mutuality versus competition in academia. *Sociology of Education*, **65** (4), 293-305.

Full Text: [1992\Soc Edu65, 293.pdf](1992/Soc%20Edu65,%20293.pdf)

Abstract: This article assesses two theoretical views about which there has been considerable, unresolved speculation: the mutuality versus the competition of research and teaching in academia. Going beyond previous restrictions in aims and methods of analysis, it analyzes the influence of research and teaching interests, time commitments, and orientations of faculty and their perceived environments on the publication productivity of social scientists in BA-, MA-, and Ph.D.-degree granting departments in four fields. Contrary to the mutuality perspective, the findings point to a strain between research and teaching: Those whose publication productivity is high have strong investments in research, but not in teaching. These findings suggest that research and teaching do not represent aspects of a single dimension of academic investments, but are different, conflicting dimensions. The relationships are stronger for faculty in BA-than in Ph.D.-granting departments.

Keywords: Scientists, Profession, Career

Rau, W. and Durand, A. (2000), The academic ethic and college grades: Does hard work help students to “make the grade”? *Sociology of Education*, **73** (1), 19-38.

Full Text: [2000\Soc Edu73, 19.pdf](2000/Soc%20Edu73,%2019.pdf)

Abstract: Most scholars and teachers accept, as part of the natural order of the universe, a strong relationship between study efforts and students’ academic performance. Yet, the only systematic investigation of this relationship a 12-year project at the University of Michigan, repeatedly found little to no correlation between hours studied and grades. The study presented here replicated parts of this project but did so with a different conceptualization of effort. This new perspective views effort as the outcome of an ‘academic ethic,’ a student worldview that emphasizes diligent, daily, and sober study. This article shows how this concept can be operationalized and measured and provides evidence for its existence among some students at Illinois State University. It then shows a significant and meaningful relationship between methodical, disciplined study and academic performance. It closes by considering how the selectivity of colleges and universities would affect the findings and suggests some new directions for research.

Keywords: Control Scale, Locus

# Title: Sociology of Health & Illness

Full Journal Title: [Sociology of Health & Illness](http://www.blackwell-synergy.com/servlet/useragent?func=showIssues&code=shil)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Armstrong, D. (2003), The impact of papers in Sociology of Health and Illness: A bibliographic study. *Sociology of Health & Illness*, **25**, 58-74.

Full Text: [2003\Soc Hea Ill25, 58.pdf](2003/Soc%20Hea%20Ill25,%2058.pdf)

Abstract: This paper examines the citation counts of papers published in the first 25 years of the Sociology of Health and Illness. According to this measure only a small number of papers have made a major impact on the discipline of sociology of health and illness and an analysis of these select papers identifies some common themes. In particular, ‘successful’ papers have provided important theoretical constructs for the field while exploration of aspects of identity has been a recurrent focus.

Keywords: Authorship, Citation Impact, Identity, Methods, Lay Constructions, Mortality, Inequalities, Knowledge, Gender, Place, Care

? Muntaner, C., Borrell, C., Ng, E., Chung, H., Espelt, A., Rodriguez-Sanz, M., Benach, J. and O’Campo, P. (2011), Review article: Politics, welfare regimes, and population health: Controversies and evidence. *Sociology of Health & Illness*, **33** (6), 946-964.

Full Text: [2011\Soc Hea Ill33, 946.pdf](2011/Soc%20Hea%20Ill33,%20946.pdf)

Abstract: In recent years, a research area has emerged within social determinants of health that examines the role of politics, expressed as political traditions/parties and welfare state characteristics, on population health. To better understand and synthesise this growing body of evidence, the present literature review, informed by a political economy of health and welfare regimes framework, located 73 empirical and comparative studies on politics and health, meeting our inclusion criteria in three databases: PubMed (1948-), Sociological Abstracts (1953-), and ISI Web of Science (1900-). We identified two major research programmes, welfare regimes and democracy, and two emerging programmes, political tradition and globalisation. Primary findings include: (1) left and egalitarian political traditions on population health are the most salutary, consistent, and substantial; (2) the health impacts of advanced and liberal democracies are also positive and large; (3) welfare regime studies, primarily conducted among wealthy countries, find that social democratic regimes tend to fare best with absolute health outcomes yet consistently in terms of relative health inequalities; and (4) globalisation defined as dependency indicators such as trade, foreign investment, and national debt is negatively associated with population health. We end by discussing epistemological, theoretical, and methodological issues for consideration for future research.

Keywords: Conceptual Considerations, Databases, Democracy, Determinants, Economic-Performance, European Countries, Globalisation, Government Partisanship, Health Outcomes, Income Inequality, ISI, ISI Web of Science, Literature, Literature Review, Neo-Liberalism, Outcomes, Political Tradition, Politics, Population Health, Primary, Public-Health, Pubmed, Quality-of-Life, Research, Review, Science, Social, Social Cohesion, State Characteristics, Web of Science, Welfare State

# Title: Soft Computing

Full Journal Title: Soft Computing

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Su, P., Shang, C.J. and Shen, Q. (2013), Link-based approach for bibliometric journal ranking. *Soft Computing*, **17** (12), 2399-2410.

Full Text: [2013\Sof Com17, 2399.pdf](2013/Sof%20Com17,%202399.pdf)

Abstract: the ISI impact factor is widely accepted as a possible measurement of academic journal quality. However, much debate has recently surrounded this use, and several complex alternative journal impact indicators have been reported. To avoid the bias which may be caused by using a single quality indicator, ensemble of multiple indicators is a promising method for producing a more robust quality estimation. In this paper, an approach based on links between journals is proposed for the capturing and fusion of impact indicators. In particular, a number of popular indicators are combined and transformed to fused-links between academic journals, and two distance metrics: Euclidean distance and Manhattan distance are utilised to support the development and analysis of the fused-links. The approach is applied to both supervised and unsupervised learning, in an effort to estimate the impact and therefore the ranking of journals. Results of systematic experimental evaluation demonstrate that by exploiting the fused-links, simple algorithms such as K-Nearest Neighbours and K-means can perform as well as advanced techniques like support vector machines, in terms of accuracy and within-1 accuracy, while exhibiting the advantage of being more intuitive and interpretable.

Keywords: Accuracy, Algorithms, Alternative, Analysis, Approach, Article, Bias, Bibliometric, Classification, Classification, Clustering, Computer Science, Development, Ensemble, Evaluation, Experimental, Fusion, Impact, Impact Factor, Indicator, Indicator Fusion, Indicators, ISI, Journal, Journal Impact, Journal Quality, Journal Ranking, Journals, K-Means, Learning, Link-Based Analysis, Measurement, Metrics, New-York, Quality, Ranking, Results, Science, Si, Support, Techniques, USA, Validation

# Title: Software Testing Verification & Reliability

Full Journal Title: Software Testing Verification & Reliability

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Hayes, J.H. and Offutt, J. (2010), Recognizing authors: An examination of the consistent programmer hypothesis. *Software Testing Verification & Reliability*, **20** (4), 329-356.

Abstract: Software developers have individual styles of programming. This paper empirically examines the validity of the consistent programmer hypothesis: that a facet or set of facets exist that can be used to recognize the author of a given program based on programming style. The paper further postulates that the programming style means that different test strategies work better for some programmers (or programming styles) than for others. for example, all-edges adequate tests may detect faults for programs written by Programmer A better than for those written by Programmer B. This has several useful applications: to help detect plagiarism/copyright violation of source code, to help improve the practical application of software testing, and to help pursue specific rogue programmers of malicious code and source code viruses. This paper investigates this concept by experimentally examining whether particular facets of the program can be used to identify programmers and whether testing strategies can be reasonably associated with specific programmers. Copyright (c) 2009 John Wiley & Sons, Ltd.

Keywords: Author Identification, Authors, Metrics, Plagiarism Detection, Software Testing, Source Code, Source Code Metrics, Static Analysis, Testability

# Title: Soil Biology & Biochemistry

Full Journal Title: [Soil Biology & Biochemistry](http://www.sciencedirect.com/science?_ob=JournalURL&_cdi=5163&_auth=y&_acct=C000011279&_version=1&_urlVersion=0&_userid=1134284&md5=59c547cb1dc8472cd8d41994cf74e594)

ISO Abbreviated Title: Soil Biol. Biochem.

JCR Abbreviated Title: Soil Biol Biochem

ISSN: 0038-0717

Issues/Year: 12

Journal Country/Territory: England

Language: Multi-Language

Publisher: Pergamon-Elsevier Science Ltd

Publisher Address: the Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, England

Subject Categories:

Agriculture, Soil Science: Impact Factor 1.747, 1/29 (2000)

Kampichler, C., Bruckner, A. and Kandeler, E. (2001), Use of enclosed model ecosystems in soil ecology: A bias towards laboratory research. *Soil Biology & Biochemistry*, **33** (3), 269-275.

Full Text: [2001\Soi Bio Bio33, 269.pdf](2001/Soi%20Bio%20Bio33,%20269.pdf)

Enclosed model ecosystems, or *microcosms*, have become a major research tool in soil ecology. Due to the speed, statistical power and mechanistic insights attainable with laboratory-based microcosm experiments, these have added considerably to our ecological knowledge. However, soil ecologists agree that, due to problems of scale and artificiality, microcosm research should be carried out in the context of appropriately scaled field model ecosystems (e.g. mesocosms). This paper aims at clarifying the terminology of enclosed model ecosystems as well as determining and discussing the frequency with which laboratory and field model ecosystems are used in current soil-ecological research. Among 92 model ecosystem studies published from 1993 to 1998 in soil biological journals, only 19 were performed in the field. Laboratory microcosms are, on average, significantly smaller and experiment duration is significantly shorter than in field model ecosystem studies. They are easier to maintain and allow for a larger number of experiments in a unit of time. We argue that the bias towards laboratory research is mainly caused by the growing demand for publications with high-impact ratings in an increasingly competitive scientific world and by the fact that an increasing emphasis is being placed on subjects where research can be carried out very quickly.

Keywords: Microcosm, Mesocosm, Enclosure, Scale, Reality, Publication Impact Factors

# Title: Solid State Communications

Full Journal Title: [Solid State Communications](http://www.sciencedirect.com/science?_ob=JournalURL&_cdi=5545&_auth=y&_acct=C000047720&_version=1&_urlVersion=0&_userid=2007471&md5=dbf7d51cb847129460268a1ffa428555)

ISO Abbreviated Title: Solid State Commun.

JCR Abbreviated Title: Solid State Commun

ISSN: 0038-1098

Issues/Year: 48

Journal Country/Territory: United States

Language: Multi-Language

Publisher: Pergamon-Elsevier Science Ltd

Publisher Address: the Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, England

Subject Categories:

Physics, Condensed Matter: Impact Factor 1.671,/(2002)

Notes: JJournal

Marx, W. and Cardona, M. (2003), The impact of *Solid State Communications* in view of the ISI Citation data. *Solid State Communications*, **127** (5), 323-336.

Full Text: [2003\Sol Sta Com127, 323.pdf](2003/Sol%20Sta%20Com127,%20323.pdf)

Abstract: Bibliometric techniques (i.e. citation analysis) are used to evaluate the impact and standing of *Solid State Communications* (SSC) among its competitor journals covering the field of condensed matter. In most cases, the analysis covers all issues dating back to the journal’s inception in 1963. In some cases, however, the analysis only covers articles published after 1973 because of limited access to the previous data under the available search system. A listing of the most cited articles appeared in SSC since its inception is given. Several of them include Nobel laureates among their authors. An analysis of the articles which remained uncited is also presented. Bibliometric data from the Institute for Scientific Information (ISI) such as the Journal Impact Factor (JIF), The Citing Half-Life as well as the Cited Half-Life are compared with those for other journals covering condensed matter and related fields. Furthermore, an analysis of the impact according to the countries of origin of authors is presented. A discussion of the results exhibited in Tables and Figures is given.

Keywords: Bibliometric Analysis, Citations, Journal Impact

# Title: Sotsialnye Aspekty Zdorovya Naseleniya

Full Journal Title: Sotsialnye Aspekty Zdorovya Naseleniya

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Kaĭgorodova, T.V. (2009), Information support for decision making in medicine and health care. *Sotsialnye Aspekty Zdorovya Naseleniya*, **12** (4), 17. Electronic resource (Date Treatment May 7, 2011). URL: <http://vestnik.mednet.ru/content/view/162/30/lang,ru/>

Full Text: [2009\Sot Asp Zdo Nas12, 17.pdf](2009/Sot%20Asp%20Zdo%20Nas12,%2017.pdf)

# Title: Sotsiologicheskie Issledovaniya

Full Journal Title: Sotsiologicheskie Issledovaniya

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Kostenko, V.V. and Yakovlev, G.A. (2014), Composition of “Sociological Studies” journal authors, 1975-1982. *Sotsiologicheskie Issledovaniya*, **9**, 123-130.

Full Text: 2014\Sot Iss9, 123.pdf

Abstract: Research for the paper has been done using network and regression analysis, biographic interviews, multidimensional scaling, scientornetrics etc. Latent Class Analysis (LCA) method is suggested in order to analyze variations of academic positions and other status dimensions of journal authors. Gender, academic title, position in the Academy of Sciences or in the universities and affiliation was studied to check the hypothesis whether sociology becomes a less prestigious but a more professional field that is left by Nomenclatura and casual people. The work aims at filling the gap in the literature on Soviet sociology of this period.

Keywords: Academic Status, Affiliation, Analysis, Authors, Field, Gender, History, Interviews, Journal, Journal Authors, Latent Class Analysis, Lca, Literature, Multidimensional, Multidimensional Scaling, Network, Position, Regression, Regression Analysis, Research, Scaling, Sciences, Scientometrics, Sociology, Soviet Sociology, Universities, Work

# Title: South African Journal of Botany

Full Journal Title: South African Journal of Botany

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0254-6299

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Erftemeijer, P., Semesi, A. and Ochieng, C. (2001), Challenges for marine botanical research in East Africa: Results of a bibliometric survey. *South African Journal of Botany*, **67** (3), 411-419.

Full Text: 2001\Sou Afr J Bot67, 411.pdf

Abstract: A bibliometric review was made of published and grey literature on marine botanical research in the Western Indian Ocean (1950-2000) to evaluate the current status of marine botanical research in the East African region. All literature references indexed in Aquatic Sciences and Fisheries Abstracts, Life Sciences Collection, and other computerised databases, as well as annual reports, bibliographies, web-sites, review articles, cross-references, papers and reports published in grey literature - obtained from various institutions and libraries operating in this region - were systematically analysed to provide a diagnosis of strengths and weaknesses in the marine botanical research in the region to date. The results of the analysis are discussed in order to identify the main challenges to be faced as a solid basis for future research efforts in marine botany in the East African region.

Keywords: Africa, African, Analysis, Annual Reports, Bibliographies, Bibliometric, Bibliometric Survey, Databases, Diagnosis, Indian, Indian Ocean, Institutions, Literature, Papers, References, Research, Review, Status, Survey

? Abdelgadir, H.A. and Van Staden, J. (2013), Ethnobotany, ethnopharmacology and toxicity of *Jatropha curcas* L. (Euphorbiaceae): A review. *South African Journal of Botany*, **88**, 204-218.

Full Text: [2013\Sou Afr J Bot88, 204.pdf](2013/Sou%20Afr%20J%20Bot88,%20204.pdf)

Abstract: Jatropha curcas L (Euphorbiaceae) is a multiple purpose plant with potential for biodiesel production and medicinal uses. It has been used for treatment of a wide spectrum of ailments related to skin, cancer, digestive, respiratory and infectious diseases. This review aims to provide an up-to-date survey of information available on botany, traditional uses, phytochemistry, pharmacology and toxicity of J. curcas. Establishing a scientific basis that explains its ethnopharmacological uses in order to facilitate and guide future research. The review covers literature available from 1960 to 2012 collected from scientific journals, books and electronic searches such as Google scholar, Web of Science and ScienceDirect. Ethnomedicinal uses of J. curcas have been reported from many countries in Africa, Asia, South America and the Middle East for almost 100 different types of ailments. The phytochemical studies have shown the presence of many secondary metabolites including diterpeniods, sesquiterpenoids, alkaloids, flavonoids, phenols, lignans, coumarins and cyclic peptides. Crude extracts and isolated compounds from J. curcas show a wide range of pharmacological activities, such as anti-inflammatory, antioxidant, antimicrobial, antiviral, anticancer, antidiabetic, anticoagulant, hepatoprotective, analgesic and abortifacient effects. J. curcas has been a widely used source of medicine for decades in many cultures. The present review reveals that J. curcas is a valuable source of medicinally important molecules and provides convincing support for its future use in modern medicine. (C) 2013 SAAB. Published by Elsevier B.V. All rights reserved.

Keywords: Africa, Analgesic, Anti-Inflammatory, Anticancer, Anticoagulant, Antimicrobial, Antimicrobial Activity, Antioxidant, Antiviral, Asia, Biodiesel, Biological-Activity, Cancer, Chemical-Composition, Diseases, Effects, Ethnomedicinal Plants, Flavonoids, Genus Jatropha, Google, Google Scholar, Infectious Diseases, Information, Journals, Literature, Medicinal-Plants, Medicine, Metabolites, Pharmacology, Phenols, Phorbol Esters, Phytochemistry, Plant, Potential, Purpose, Research, Review, Rights, Science, Scientific Journals, Skin, Source, South America, Stem Bark Extracts, Support, Survey, Tamil-Nadu, Toxicity, Treatment, Web of Science, Wildlife Sanctuary

# Title: South African Journal of Industrial Engineering

Full Journal Title: South African Journal of Industrial Engineering

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Sooryamoorthy, R. (2010), The visibility of engineering research in South Africa, 1975-2005. *South African Journal of Industrial Engineering*, **21** (2), 1-12.

Full Text: [2010\Sou Afr J Ind Eng21, 1.pdf](2010/Sou%20Afr%20J%20Ind%20Eng21,%201.pdf)

Abstract: Engineering as a branch of science has a crucial role in the growth of the economy. The growth and development of engineering is therefore highly relevant. One way to understand this is to examine the characteristics of the scientific knowledge produced in the field of engineering. Drawing on the publications in engineering from the ISI Web of Science over the last three decades, this paper looks at the visibility and importance of engineering research in South Africa. The visibility of research publications is studied in terms of the number of citations a publication receives. The analysis shows that the visibility of South African engineering research is determined by the number of authors involved in the production of a paper, the presence of international collaboration, the degree of collaboration, and the journals in which the papers are published. Engineering research in South Africa, compared with that of all subjects, is clearly growing. But the visibility of South African engineering publications, in comparison with all other subjects, has been diminishing in recent years.

Keywords: Africa, Analysis, Authors, Characteristics, Citation, Citations, Collaboration, Comparison, Development, Economy, Engineering, Field, Growth, Impact, International, International Collaboration, ISI, ISI Web of Science, Journals, Knowledge, Nations, Nov, Papers, Publication, Publications, Recent, Research, Research Collaboration, Role, Science, Self-Organization, South Africa, Trends, Visibility, Web of Science

# Title: South African Journal of Library and Information Science

Full Journal Title: South African Journal of Library and Information Science

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Ocholla, D. and Onyancha, O. (2005), The marginalized knowledge: An informetric analysis of indigenous knowledge publications (1990-2004). *South African Journal of Library and Information Science*, **71** (3), 247-258.

Full Text: [2005\Sou Afr J Lib Inf Sci71, 247.pdf](2005/Sou%20Afr%20J%20Lib%20Inf%20Sci71,%20247.pdf)

Abstract: the paper analyses and demonstrates the application of informetrics by use of descriptive bibliometrics to determine the status and trend of indigenous knowledge (IK) development from 1990-2002. IK records published during that period have been analyzed by use of eight databases hosted by EBSCOHost and SABINET by document type, by growth of the literature over the period, by source where the document is published, by document affiliation, by subject domain, and by nature of authorship among others. A positive growth of IK is observed with strong representation in AGRICOLA database and recommendations are given for a follow up and further research. It is recognized that the paper could provide useful information for decision support in knowledge management in general and knowledge management in particular.

Keywords: Affiliation, Analyses, Analysis, Application, Authorship, Bibliometrics, Database, Databases, Decision, Decision Support, Development, Follow-Up, General, Growth, Indigenous Knowledge, Information, Informetrics, Knowledge, Knowledge Management, Literature, Management, Publications, Recommendations, Records, Representation, Research, Source, Support, Trend

# Title: South African Journal of Psychiatry

Full Journal Title: [South African Journal of Psychiatry](http://www.sajp.org.za/index.php/sajp/index)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Vogelzang, B.H., Scutaru, C., Mache, S., Vitzthum, K., Kusma, B., Mutawakel, K., Groneberg, D.A. and Quarcoo, D. (2010), Cannabis publication analysis using density-equalising mapping and research output benchmarking. *South African Journal of Psychiatry*, **16** (4), 131-137.

Full Text: 2010\Sou Afr J Psy16, 131.pdf

Abstract: Background. Canrabis has been a topic of political and medical controversy in many countries over the past century. Although many publications on this topic are available, there is currently no comprehensive evaluation of global research activities in the field. Objective. This study was conducted in order to provide a quantitative and qualitative analysis of the worldwide research output on cannabis. Methods. In a quantitative approach, items concerning cannabis published between 1900 and 2008 were retrieved from the ISI Web of Science databases developed by the Thompson Institute of Scientific Information and analysed using scientometric methods. In a second step, research fields of growing interest were identified. Results. We found that publications on this topic increased during the late 1960s, as well as during the period 1990 2008. We noted that South Africa was one of the countries with a high research output, having published numerous articles on cannabis. A comparison of cannabis with other drugs (e.g. alcohol, tobacco, cocaine and heroin) showed that in relation to the proportion of respective drug users, cocaine and heroin are overly represented in terms of research output. When analysing the main subjects of the publications, psychiatry was prominent, especially with regard to research on psychosis. Conclusion. There is increasing interest in research on cannabis. The research only partially reflects the drug’s importance with regard to number of users.

Keywords: Africa, Alcohol, Analysis, Approach, Benchmarking, Cannabis, Cocaine, Comparison, Databases, Drug, Drugs, Evaluation, Field, ISI, ISI Web of Science, Mapping, Medical, Methods, Psychiatry, Psychosis, Publication, Publications, Qualitative, Qualitative Analysis, Research, Science, Scientometric, South Africa, Tobacco, View, Web of Science

? Wang, X., Huang, S. and Qi, H.B. (2014), Comparative efficacy and acceptability of seven augmentation agents for treatment-resistant depression: A multiple-treatments meta-analysis. *South African Journal of Psychiatry*, **20** (3), 71-76.

Full Text: 2014\Sou Afr J Psy20, 71.pdf

Abstract: Background. Treatment-resistant depression (TRD) is a therapeutic challenge for clinicians. Augmentation pharmacotherapy is effective for TRD, but it is still unclear which augmentation agent is most efficacious. Objective. To assess the effects of seven augmentation agents on TRD. Methods. We did a multiple-treatments meta-analysis, accounting for both direct and indirect comparisons. PubMed, the Center for Clinical and Translational Research, Web of Science, Embase, CBM-disc, the Chinese National Knowledge Infrastructure and relevant websites (up to August 2013) were searched for randomised controlled trials (RCTs) about augmentation agents. The following terms were used ‘potentiation’, ‘augmentation’, and ‘adjunct’ paired with ‘depression’ and ‘resistant depression’. No language limitation was imposed. Results. We systematically reviewed 12 RCTs (1 936 participants), which included seven augmentation agents: lithium, tricyclic antidepressants (TCAs), atypical antipsychotics (AAPs), antiepileptic drugs (AEDs), buspirone, cognitive behaviour therapy (CBT) and tri-iodothyronine (T3). The results revealed that T3 was more efficacious than lithium, TCAs, AAPs, AEDs, buspirone and CBT with odds ratios (ORs) of 1.58, 1.56, 1.51, 1.47, 1.77 and 1.25, respectively. ORs favoured CBT compared with lithium, TCAs, AAPs, AEDs and buspirone. Buspirone was the least efficacious of all the other augmentation agents tested. AAPs were significantly more acceptable than lithium, and CBT more than buspirone. T3 was slightly more acceptable than lithium, and CBT more than AAPs. Conclusion. T3 as an augmentation agent should be a clinician’s first consideration instead of lithium in acute treatment for TRD. CBT might be a good augmentation agent in some communities. Buspirone should be a final option as an augmentation agent. Further research is needed, such as a well-designed, large-scale controlled trial, to support and draw definite conclusions.

Keywords: Acceptability, Antidepressant Medication, Antiepileptic Drugs, Antipsychotics, Asterisk-D Report, Atypical Antipsychotics, Augmentation, Behaviour, Cbt, Challenge, Chinese, Cognitive, Cognitive Therapy, Comparative, Controlled Trial, Depression, Double-Blind, Drugs, Effects, Efficacy, First, Knowledge, Language, Limitation, Lithium, Major Depression, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Nonresponders, Partial Responders, Pharmacotherapy, Pubmed, Randomised, Randomised Controlled Trials, Randomized-Trials, Research, Results, Science, Strategies, Support, T3, Therapeutic, Therapy, Treatment, Treatment Resistant Depression, Trial, Tricyclic Antidepressants, Web Of Science, Websites

# Title: South African Journal for Research in Sport Physical Education and Recreation

Full Journal Title: South African Journal for Research in Sport Physical Education and Recreation

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Martin, I., Olmo, J., Chirosa, L.J., Carreras, D. and Sola, J. (2013), Bibliometric study (1922-2009) on rugby articles in research journals. *South African Journal for Research in Sport Physical Education and Recreation*, **35** (1), 105-119.

Abstract: the purpose of this research was to perform a bibliometric analysis of research journals containing scientific articles on the sport of rugby from 1922 to 2009. In this field 2057 articles were selected from major databases. The journals, authors and contents published were selected by taking into account the year of publication, thematic areas and modalities of rugby among other variables. A steady increase in production was found in the period considered, with a maximum of 174 articles published in 2007. The articles were written by an average of 2.5 authors and most of them (80.9%) only participated in one. The data showed a utility loss of 7.5% of the total items each year. The thematic areas and most influential journals on rugby had been identified. Finally, limited support has been found for attempting to adjust the bibliometric data by applying the laws of Lotka and Price with respect to the authors, and Bradford’s law regarding scientific journals.

Keywords: Africa, Analysis, Article, Articles, Authors, Bibliometric, Bibliometric Analysis, Bibliometric Laws of Lotka and Price, Bibliometric Study, Bradford’s Law, Communication, Data, Databases, Documentary Analysis, Field, Journals, Law, Law of Obsolescence in Scientific Literature, Laws, Lotka, Lotka Law, Modalities, Obsolescence, PH, Physical-Activity, Price, Private, Productivity, Psychology, Publication, Purpose, Re, Research, Research Journals, Rugby, Science, Scientific Journals, Scientific Literature, Section, Social Sciences, South, South-Africa, Spain, Sport, Support, Topics, Trends, Utility

# Title: South African Journal of Science

Full Journal Title: [South African Journal of Science](http://www.sajs.co.za/index.php/SAJS/issue/archive); [South African Journal of Science](http://www.scielo.org.za/scielo.php?script=sci_issues&pid=0038-2353&lng=en&nrm=iso)

ISO Abbreviated Title: S. Afr. J. Sci.

JCR Abbreviated Title: S Afr J Sci

ISSN: 0038-2353

Issues/Year: 11

Journal Country/Territory: South Africa

Language: Multi-Language

Publisher: Bureau Scientific Publ

Publisher Address: PO Box 1758, Pretoria 0001, South Africa

Subject Categories:

Multidisciplinary Sciences: Impact Factor 0.670, 22/50 (2007); Impact Factor 0.506, 29/50 (2007); Impact Factor 0.596, 25/57 (2010); Impact Factor 0.779, 20/56 (2011)

Notes: JJournal

? Pouris, A. (1986), The *South African Journal of Science*: A bibliometric evaluation. *South African Journal of Science*, **82** (8), 401-402.

Full Text: [1986\Sou Afr J Sci82, 401.pdf](1986/Sou%20Afr%20J%20Sci82,%20401.pdf)

Keywords: Bibliometric, Evaluation

? Pouris, A. (1989), Strengths and weaknesses of *South African Science*. *South African Journal of Science*, **85** (10), 623-626.

Full Text: [1989\Sou Afr J Sci85, 623.pdf](1989/Sou%20Afr%20J%20Sci85,%20623.pdf)

Abstract: the relative strengths of 108 scientific specialities in South Africa have been identified for the period 1981-1985, on the basis of bibliometric and citation analysis. Five subject areas are found to be among the top ten in the world: ornithology (4th), water resources (5th), general and internal medicine (7th), ecology (8th), and zoology (10th). We argue that the natural environment and mining have influenced the direction of science in South Africa. These findings have implications for science policy in the country.

Notes: CCountry, JJournal

? Pouris, A. (1996), The writing on the wall of *South African Science*: A scientometric assessment. *South African Journal of Science*, **92** (6), 267-271.

Full Text: [1996\Sou Afr J Sci92, 267.pdf](1996/Sou%20Afr%20J%20Sci92,%20267.pdf)

Abstract: This article reports on an investigation of the health of academic science in South Africa in terms of papers published over the period 1981-1994. It is suggested that national scientific performance should be assessed as interim results of ‘marathon races and that mapping in the matrix Publication Ratio -Relative Citation Index can provide useful insights into disciplinary priorities and their trends, particularly for countries with pluralistic scientific systems. We argue that it is an unfortunate irony that South Africa was relatively strong in science at a time when this activity was less crucial than it is today in determining economic performance and international competitiveness. In the 1990s, South African science is losing ground when the winning economies and industries are becoming increasingly science intensive.

The disciplinary mapping of South African science confirms our previous findings that the country’s natural wealth still determines national research priorities. We further suggest that national funding policies have strengthened the traditionally most active disciplines and that the country would need innovative new mechanisms in order to redirect the scientific system.

Keywords: Africa, Assessment, Country, Economic, Funding, Health, International, Investigation, Mapping, Matrix, Mechanisms, Papers, Performance, Policies, Research, Research Priorities, Science, Scientific Performance, Scientometric, South Africa, Systems, Trends, Wealth

Notes: CCountry

? Jeenah, M. and Pouris, A. (2008), South African research in the context of Africa and globally. *South African Journal of Science*, **104** (9-10), 351-354.

Full Text: [2008\Sou Afr J Sci104, 351.pdf](2008/Sou%20Afr%20J%20Sci104,%20351.pdf)

Abstract: the quality and quantity of research publications are used as benchmarks to monitor the performance of South Africa’s national system of innovation. The indicators are pertinent to the policies of the department of education, which distributes funds for research at institutions of higher education by measuring the volume of research outputs. In this article, we present a scientometric assessment of research in South Africa in the context of the rest of Africa and in comparison with Brazil and India-two countries with which South Africa aims to develop strong scientific ties. We find that South Africa has published a significant number of papers in all 22 disciplines represented in the ISI’s Essential Science Indicators. The largest numbers of journal articles in a 10-year period (1996-2005) Were published in the categories clinical medicine, and in plant and animal sciences, with over 7000 papers each. Three groupings, namely, chemistry, geosciences, and environmental, ecology, form the second cluster of disciplines in terms of the highest number of publications (2966, 2488 and 2386, respectively). In all 22 subject categories, India and Brazil are rated higher than South Africa in terms of number of publications, but South Africa is ranked above these countries in relation to citations per paper in all disciplines. Egypt outranked South Africa in three disciplines in the period 1995-2004, namely, chemistry, engineering, and materials science, as did Nigeria in agriculture in 1996-2005. In addition to the three disciplines in the earlier period, Egypt outranked South Africa in 1996-2005 in physics, agricultural sciences, and pharmacology, toxicology. However, South Africa scored higher than both African countries in all disciplines in terms of citations per paper.

Keywords: Africa, African, Agricultural, Agricultural Sciences, Agriculture, Assessment, Chemistry, Citations, Clinical, Cluster, Comparison, Context, Education, Egypt, Engineering, Geosciences, Higher Education, Indicators, Innovation, Institutions, Journal, Journal Articles, Medicine, National, Papers, Performance, Plant, Policies, Publications, Quality, Research, Research Publications, Science, Science Indicators, Sciences, Scientometric, Sector, Volume

? Johnson, S.D. (2009), Darwin’s legacy in South African evolutionary biology. *South African Journal of Science*, **105** (11-12), 403-409.

Full Text: [2009\Sou Afr J Sci105, 403.pdf](2009/Sou%20Afr%20J%20Sci105,%20403.pdf)

Abstract: In the two decades after publication of the Origin of Species, Charles Darwin facilitated the publication of numerous scientific papers by settler naturalists in South Africa. This helped to establish the strong tradition of natural history which has characterised evolutionary research in South African museums, herbaria and universities. Significant developments in the early 20th century included the hominid fossil discoveries of Raymond Dart, Robert Broom, and others, but there was otherwise very little South African involvement in the evolutionary synthesis of the 1930s and 1940s. Evolutionary biology developed into a distinct discipline in South Africa during the 1970s and 1980s when it was dominated by mammalian palaeontology and a vigorous debate around species concepts. In the post-apartheid era, the main focus of evolutionary biology has been the construction of phylogenies for African plants and animals using molecular data, and the use of these phylogenies to answer questions about taxonomic classification and trait evolution. South African biologists have also recently contributed important evidence for some of Darwin’s ideas about plant-animal coevolution, sexual selection, and the role of natural selection In speciation. A bibliographic analysis shows that South African authors produce 2-3% of the world’s publications in the field of evolutionary biology, which Is much higher than the value of about 0.5% for publications in all sciences. With its extraordinary biodiversity and well-developed research infrastructure, South Africa is an ideal laboratory from which to advance evolutionary research.

Keywords: Adaptation, Basal Metabolic-Rate, Bibliometrics, Biodiversity Hotspot, Cape Flora, Classification, Ecology, Fire, Plants, Pollination, Publication, Publications, Radiation, Research, Research Trends, Sexual Selection, South Africa, Speciation, Speciation, Species, Species Concepts, Universities

? Sooryamoorthy, R. (2010), The internationalisation of South African medical research, 1975-2005. *South African Journal of Science*, **106** (7-8), 19-25.

Full Text: [2010\Sou Afr J Sci106, 19.pdf](2010/Sou%20Afr%20J%20Sci106,%2019.pdf)

Abstract: South Africa’s record in the production of scientific knowledge in medicine is remarkable, but attempts have yet to be made to examine its distinctive characteristics. This is critical to the understanding of its nature, trends and the directions which it is taking today. Using the publication records extracted from the Science Citation Index (SCI) of the ISI Web of Science for a 3-decade period from 1975 to 2005, with 5-year windows, I have examined the salient characteristics of medical research in South Africa in terms of, (1) the number of publications, (2) type of publications (sole/co-authored), (3) collaboration (domestic/international), (4) affiliation sector of authors and collaborators, (5) regional origin of collaborators, (6) publication outlets and (7) citations, in comparison with ‘all subjects’ covered in the database concerned. This analysis shows that the contribution of medical publications to the total output of South African scholars is shrinking (25% in 1980 to 8% in 2000). Papers produced in collaboration are growing in number (increased by 17% during 1975-2005). While domestic collaboration declined by 24%, international collaboration grew from 4% of total papers in 1975 to 48% in 2005. South African medical researchers now publish more in foreign-originated journals (from 20% in 1975 to 75% in 2005) than in local journals and work mostly in universities, hospitals and research institutes; they collaborate with overseas partners from as many as 56 countries. Significantly, collaboration with Western European partners has increased 45-fold from 1975-2005. This study showed that a marked degree of internationalisation (measured in terms of international collaboration, publications in foreign journals and the number of citations) of South African medical research is taking place and that this trend is likely to continue in the future.

Keywords: Citation, Citations, Collaboration, Contribution, Domestic Collaboration, Impact, Indicators, International Collaboration, Internationalisation, ISI, Journals, Medical Research, Medicine, Nations, Production, Publication, Publications, Research, Researchers, SCI, Science, Science Citation Index, Trend

Notes: CCountry

? Kahn, M. (2011), A bibliometric analysis of South Africa’s scientific outputs - some trends and implications. *South African Journal of Science*, **107** (1-2), 27-32.

Full Text: [2011\Sou Afr J Sci107, 27.pdf](2011/Sou%20Afr%20J%20Sci107,%2027.pdf)

Abstract: the paper examines the change in volume of South African publications as indexed to the Web of Science over the periods 1990-1994 and 2004-2008. It was noted that publication volumes have increased sharply even while the stock of researchers has remained static. A number of factors may account for the rise including the increase in the Department of Education publication subsidy, the increase in the number of South African journals indexed to the Web of Science and a shift in focus to fields with higher publication propensity. for example, it was noted that a new growth area has emerged in the field of infectious diseases. The publication count by author institution showed that collaboration with foreign authors has increased considerably across the two periods and it is suggested that it is this factor that best accounts for the rise in volume. The concentration by subject area permitted some judgement to be made regarding the prospects for the five grand challenges of the Ten Year Innovation Plan. Lastly, it was noted that if it is collaboration that is driving the volume increase, the system is vulnerable to offshore changes.

Keywords: Analysis, Authors, Bibliometric, Bibliometric Analysis, Changes, Collaboration, Concentration, Diseases, Driving, Field, Growth, Infectious Diseases, Journals, Publication, Publications, Science, Trends, Volume, Web of Science

? Chuang, K.Y., Chuang, Y.C., Ho, M. and Ho, Y.S. (2011), Bibliometric analysis of public health research in Africa: the overall trend and regional comparisons. *South African Journal of Science*, **107** (5/6), 54-59.

Full Text: [2011\Sou Afr J Sci107, 1.pdf](2011/Sou%20Afr%20J%20Sci107,%201.pdf); [2011\Sou Afr J Sci-Chuang.pdf](2011/Sou%20Afr%20J%20Sci-Chuang.pdf)

Abstract: Background: Many diseases in Africa can be prevented with appropriate public health interventions. Methods: This study aimed to assess the bibliometric characteristics of public health related research articles published by researchers in African institutions from 1991 to 2005. Data used in this research were obtained from the online version of the ISI Web of Science: SCI-Expanded (Science Citation Index Expanded). Articles published between 1991 and 2005, that had the phrase ‘public health’ in the title, author keywords, or abstract, and have at least one author whose contact address was from an African country were selected for analysis. Results: the annual number of public health related articles published by African researchers significantly increased over the studied period. It increased from 28 articles in 1991 to 135 articles in 2005, a 382% increase. International collaboration also increased from 45% during 1991-1995, to 52% during1996-2000, and to 67% during 2001-2005. Collaborations were mostly with European and North American countries. Keywords, subject categories, and collaboration patterns of articles varied across regions, reflecting differences in needs and collaboration networks. Conclusions: Public health related research output, as well as international collaborations, have been increasing in Africa. Regional variation observed in this study may assist policy makers to facilitate the advancement of public health research in different regions of Africa, and could be useful for international organizations in identifying needs and to allocate research funding. Future bibliometric analyses of articles published by African researchers, can consider conducting regional comparisons using standardized methods, as well as describing the overall patterns, in order to provide a more-comprehensive view of their bibliometric characteristics.

Keywords: African, Public Health, SCI, Scientometrics, Research Trend

? Pouris, A. (2012), Science in South Africa: the dawn of a renaissance? *South African Journal of Science*, **108** (7-8), 66-71.

Full Text: [2012\Sou Afr J Sci108, 66.pdf](2012/Sou%20Afr%20J%20Sci108,%2066.pdf)

Abstract: This article reports the findings of a scientometric analysis of South Africa’s research performance during the period 2000-2010. A multitude of government incentives were introduced during the period and their effects have appeared in the country’s research outputs. In contrast to earlier investigations, it was found that South Africa’s world share of publications is on the verge of reaching the highest contribution ever. South Africa improved its international ranking by two positions during 2000-2010 and was ranked 33rd in the world during 2010. It is argued that, provided the plan of the Minister of Science and Technology to increase the research and development expenditure in the country materialises, South Africa may be on the verge of a scientific renaissance.

Keywords: Africa, Analysis, Bibliometric Analysis, Country, Development, Effects, Impact, Incentives, International, Investigations, Performance, Publications, Ranking, Research, Research and Development, Research Outputs, Research Performance, Science, Scientific Outputs, Scientometric, Scientometric Analysis, South Africa, World

? Aleixandre-Benavent, R., Aleixandre-Tudo, J.L., Alcaide, G.G., Ferrer-Sapena, A., Aleixandre, J.L. and du Toit, W. (2012), Bibliometric analysis of publications by South African viticulture and oenology research centres. *South African Journal of Science*, **108** (5-6), 74-84.

Full Text: [2012\Sou Afr J Sci108, 74.pdf](2012/Sou%20Afr%20J%20Sci108,%2074.pdf)

Abstract: We analysed the production, impact factor of, and scientific collaboration involved in viticulture and oenology articles associated with South African research centres published in international journals during the period 1990-2009. The articles under scrutiny were obtained from the Science Citation Index database, accessed via the Web of Knowledge platform. The search strategy employed specific viticulture and oenology terms and was restricted to the field ‘topic’. The results showed that 406 articles were published during the review period, with the most number of publications being in the South African Journal of Enology and Viticulture (n = 34), American Journal of Enology and Viticulture (n = 16) and Journal of Agricultural and Food Chemistry (a = 16). The articles were published by 851 authors from 236 institutions. The collaboration rate was 3.7 authors per article, having grown over the two decades examined. The most productive institutions (i.e. those receiving a greater number of citations) were Stellenbosch University (219 published articles and 2592 citations) and the Agricultural Research Council (49 published articles and 454 citations), both from South Africa. Graphical representation of co-authorship networks identified 18 groups of authors and a single network of institutions whose core is Stellenbosch University. In conclusion, we have identified a significant growth in South African viticulture and oenology research in recent years, with a high degree of internationalisation and a constant level of domestic collaboration.

Keywords: Africa, Analysis, Article, Articles, Authors, Bibliometric, Bibliometric Analysis, Chemistry, Citation, Citations, Co-Authorship, Co-Authorship Networks, Coauthorship, Coauthorship Networks, Collaboration, Communities, Database, Distillery Waste-Water, Domestic Collaboration, Field, Food, Groups, Growth, Impact, Impact Factor, Institutional Collaboration, Institutions, International, Internationalisation, Journal, Journals, Knowledge, Network, Networks, Patterns, Publications, Published Articles, Recent, Representation, Research, Research Centres, Research Collaboration, Review, Science, Science Citation Index, Scientific Collaboration, Search Strategy, South Africa, Strategy, Topic, University, Web Of Knowledge, Wine

? Sooryamoorthy, R. (2013), Scientific research in the natural sciences in South Africa: A scientometric study. *South African Journal of Science*, **109** (7-8), Article Number: UNSP 0001.

Full Text: [2013\Sou Afr J Sci109, UNSP 0001.pdf](2013/Sou%20Afr%20J%20Sci109,%20UNSP%200001.pdf)

Abstract: As a leading producer of scientific publications on the African continent, South Africa has made remarkable progress. However, attempts are yet to be made to comprehend the empirical reality of scientific production in South Africa. One way to do this is to analyse specific science disciplines (such as the natural sciences), publication outputs and their features. A bibliometric study was undertaken of the publication trends and patterns of South African researchers in the natural sciences from 1975 to 2005 (choosing selected sample years), using the Thomson Reuters’ Web of Knowledge database of selected indexed natural science journals. Characteristics of natural science publications, such as the trends over the years, were revealed as well as the collaborative dimensions involved in the production of scientific papers in these disciplines in South Africa. The connection between collaboration and publication, as well as between collaboration and sectors of authors was evident. The key findings of this study were that authors were based mostly in universities and were collaborative in their research endeavours. In addition, the participation of international collaborators has increased.

Keywords: Academic Science, Africa, Authors, Bibliometric, Bibliometric Study, Bibliometry, Collaboration, Collaboration, Continent, Database, Disciplines, Growth, International, Journals, Knowledge, Natural, Natural Sciences, Papers, Participation, Patterns, Progress, Publication, Publication Trends, Publications, Research, Science, Science Journals, Sciences, Scientific Production, Scientific Publications, Scientific Research, Scientometric, South Africa, Thomson Reuters, Thomson-Reuters, Trends, Universities, Web of Knowledge

? Pillay, T.S. (2013), Subject and discipline-specific publication trends in South African medical research, 1996-2011. *South African Journal of Science*, **109** (9-10), Article Number: 2012-0054.

Full Text: [2013\Sou Afr J Sci109, 2012-0054.pdf](2013/Sou%20Afr%20J%20Sci109,%202012-0054.pdf)

Abstract: Medical and health sciences institutions and organisations are faced with challenges in resource allocation for research and publishing. The aim of this study was to retrospectively analyse South African publication trends in medicine to provide guidance for future strategic planning in academic medicine. We used the Scimago database spanning the years 1996-2011 to analyse South African publication outputs in a number of categories in medicine, as defined in the Scopus database. The data reveal a number of significant growth areas but also reveal areas that should potentially be growing but remain static. In some areas, growth has aligned with the expectations of health and disease trends, but other areas, in which growth would have been expected, have remained static. Interesting features are also revealed when the data are compared with those of other developed and developing countries. For 1996-2011, South African medical publication output ranked 33 in the world based on the number of publications, but 28 based on the h-index. Interestingly, whilst South Africa produced less than 25% of the output of India, the h-index for South Africa is 153 compared with 145 for India. South Africa’s medical publication output has steadily increased over the 14-year period but the number of citations per document has declined. This analysis provides a useful strategic overview for medical institutions and government funding organisations to guide the allocation of research budgets and resources in a discipline- or category-specific manner to influence research outputs.

Keywords: Africa of Allocation of Analysis of Citations of Data of Database of Developing of Developing Countries of Disease of Expectations of Funding of Government Funding of Growth of Guidance of h Index of h-Index of Health of Health Sciences of India of Influence of Institutions of Medical of Medical Research of Medicine of Planning of Publication of Publication Trends of Publications of Publishing of Research of Research Outputs of Resource Allocation of Resources of Sciences of Scopus of Scopus Database of South Africa of Strategic of Strategic Planning of Trends of World

? Siebrits, R., Winter, K. and Jacobs, I. (2014), Water research paradigm shifts in South Africa. *South African Journal of Science*, **110** (5-6), Article Number: 2013-0296.

Full Text: [2014\Sou Afr J Sci110, 2013-0296.pdf](2014/Sou%20Afr%20J%20Sci110,%202013-0296.pdf)

Abstract: We performed a scientometric analysis of water research publications extracted from four decades of South African related papers to identify paradigms and paradigm shifts within water research in South Africa. Between 1977 and 1991, research publications are dominated by research into technical and engineering solutions, as well as designs and plans to secure water supply. From 1992 to 2001, publications on water pollution, water quality, water resource management and planning are prominent. The second major paradigm is observed from 2001 to 2011 in which the emphasis is on planning, modelling, catchment-scale studies and a multidisciplinary approach to research. Another transition period, towards the end of 2011, is characterised by uncertainty, although it also shows the prominence of key concepts such as participation, governance and politics in water management. The second aim of this study was to identify and prioritise current and future water research questions through the participation of a wide range of researchers from across the country, and to relate these questions to research paradigms, issues and concerns in water in South Africa. Over 1600 questions were collected, reduced in number and then prioritised by specialists in the water sector. The majority (78%) of questions offered by respondents in the South African case study dealt with relatively short-to medium-term research requirements with 47% of questions focused on medium-term issues such as supplying water, service delivery and technical solutions.

Keywords: Africa, Analysis, Approach, Case Study, Catchment Scale, Country, Delivery, Engineering, Governance, Horizon Scanning, Informetrics, Issues, Management, Modelling, Multidisciplinary, Papers, Paradigm, Paradigms, Participation, Planning, Policy, Politics, Pollution, Publications, Quality, Research, Resource Management, Science, Scientometric, Scientometric Analysis, Scientometrics, Scientometrics, Sector, Service, Solutions, South Africa, Uncertainty, Water, Water Management, Water Pollution, Water Quality, Water Resource, Water Sector, Water Supply, Water-Quality

? Hilton, M. (2014), Durham versus Durban: Quantifying productivity in astrophysics research. *South African Journal of Science*, **110** (11-12), Article Number: 2014-0192.

Full Text: [2014\Sou Afr J Sci110, 2014-0192.pdf](2014/Sou%20Afr%20J%20Sci110,%202014-0192.pdf)

Abstract: Quantifying and rewarding research productivity is a contentious issue. In South Africa, there are at least two systems in wide use: peer assessment (as used by the National Research Foundation in providing researchers with individual ratings) and a simple publication count (used by the Department of Higher Education and Training to incentivise research output). At the University of KwaZulu-Natal (UKZN), the latter is used to grade the research performance of staff; however, this metric penalises those academics who work in large teams, as is increasingly common in astronomy. To test for correspondence between this metric and perceived research quality, I conducted a case study of the Extragalactic and Cosmology Group at Durham University in the UK, which is one of the leading astrophysics research groups in the world. I found that 44-74% of the permanent academic staff within this research group would not meet the research productivity target applied at UKZN in 2014. Given the disparity between this result and the esteem in which the research of the Durham group is held, I suggest that alternative methods of recognising and rewarding research output by funding agencies and universities should be explored, with an emphasis on quality rather than quantity.

Keywords: Academics, Africa, Alternative, Assessment, Bibliometrics, Case Study, Citation Counts, Disparity, Education, Funding, Groups, Methods, Performance, Permanent, Productivity, Publication, Publication Counts, Quality, Research, Research Funding, Research Output, Research Performance, Research Productivity, Research Quality, Researchers, South Africa, Systems, Training, UK, Universities, University, University Of Kwazulu-Natal, Work, World

# Title: Southeast Asian Journal of Tropical Medicine and Public Health

(Southeast Asian J. Trop. Med. Public Health)

Full Journal Title: [Southeast Asian Journal of Tropical Medicine and Public Health](http://www.tm.mahidol.ac.th/seameo/Journal_PreviousJournals.html)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Nomura, Y., Poudel, K.C. and Jimba, M. (2007), Hard-to-reach populations in Japan. *Southeast Asian Journal of Tropical Medicine and Public Health*, **38** (2), 325-327.

Full Text: [2007\Sou Asi J Tro Med Pub Hea38, 325.pdf](2007/Sou%20Asi%20J%20Tro%20Med%20Pub%20Hea38,%20325.pdf)

Abstract: the objective of this study was to assess the trends of sampling locations and methods of studying hard-to-reach populations conducted in Japan. We accessed a Japanese medical database on 30 September 2005 to review 5 study types of hard-to-reach populations conducted in Japan: men who have sex with men, homeless, sex workers, undocumented migrants, and injecting drug users. We then categorized their sampling locations and methods. We found 298 articles on hard-to-reach populations published from 1983 to September 2005. of the 285 studies sampled, approximately 92% were facility-based studies and the rest were community-based. This tendency was consistent in each subgroup; the majority of the studies were conducted among patients in medical facilities. Our study shows the majority of studies on hard-to-reach populations in Japan adopted a convenience sampling method and were facility-based. We suggest the utilization of comparatively valid techniques, such as time-location or respondent driven sampling to more clearly understand these populations.

Keywords: Community Based, Database, Drug, Facilities, Japan, Medical, Men, Methods, Migrants, Patients, Populations, Review, Sampling, Sex, Sex Workers, Techniques, Trends, Utilization

# Title: Southern Economic Journal

Full Journal Title: [Southern Economic Journal](http://www.jstor.org/action/showPublication?journalCode=souteconj)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0038-4038

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Hamermesh, D.S., Johnson, G.E. and Weisbrod, B.A. (1982), Scholarship, citations and salaries: Economic rewards in economics. *Southern Economic Journal*, **49** (2), 472-481.

Full Text: [1982\Sou Eco J49, 472.pdf](1982/Sou%20Eco%20J49,%20472.pdf)

? Joseph, K., Laband, D.N. and Patil, V. (2005), Author order and research quality. *Southern Economic Journal*, **71** (3), 545-555.

Full Text: [2005\Sou Eco J71, 545.pdf](2005/Sou%20Eco%20J71,%20545.pdf)

Abstract: We observe a great deal of heterogeneity in the manner in which author orderings are assigned both across and within academic markets. To better understand this phenomenon, we develop and analyze a stochastic model of author orderings. In our model, authors work equally hard to obtain priority in listings but final contributions are stochastic. Further, research outlets differ in their quality hurdles. In this setting, our simulation results are consistent with two empirical regularities. First, we find that the rate of alphabetization increases with the stringency with which papers are accepted for publication. Second, conditional on clearing the publication hurdle, quality increases with alphabetization. These findings arise because increases in the publication hurdle make it more likely that authors will exceed this threshold only when both contribute a high amount. This, in turn, leads to roughly equal contributions (alphabetization) and also generates a positive correlation between alphabetization and quality.

Keywords: Author, Publication, Research

# Title: Southern Medical Journal

Full Journal Title: [Southern Medical Journal](http://weblinks2.epnet.com/authHjafDetail.asp?tb=1&_ua=bo+B%5F+db+aphjnh+bt+TD++%22SOU%22+88A3&_ug=sid+CC4B6280%2D815A%2D4D1A%2DA53E%2DED3336FE8289%40sessionmgr2+dbs+aph+AEA6&_us=sm+ES+E6C7&_uso=st%5B0+%2DTD++%22SOU%22+tg%5B0+%2D+db%5B0+%2Daph+op%5B0+%2D+h), [Southern Medical Journal](http://gateway.ut.ovid.com/gw1/ovidweb.cgi?QS2=434f4e1a73d37e8c8a96d3ba1aa0ba0d5b53d5e5632d1549f031c17cf6daf6e5e6fd643fcc2c191931dc05788dd555e0d0bf2e1013c9845c449a49ac36f33a0fe68bc326344a2f8fec66bf94b2303492df8a9c87e0a11a4c5068ff87d36252512d8d0048415dda578)

ISO Abbreviated Title: South.Med.J.

JCR Abbreviated Title: Southern Med J

ISSN: 0038-4348

Issues/Year: 12

Journal Country United States

Language: English

Publisher: Southern Medical Assn

Publisher Address: 35 Lakeshore Dr PO Box 190088, Birmingham, AL 35219

Subject Categories:

Medicine, General & Internal: Impact Factor

? Berman, J.J., Borkowski, A., Rachocka, H. and Moore, G.W. (1995), Impact of unfunded research in medicine, pathology, and surgery. *Southern Medical Journal*, **88** (3), 295-299.

Full Text: 1995\Sou Med J88, 295.pdf

Abstract: the impact of unfunded medical research (ie, research conducted with no visible means of support) has received scant attention. In this study, we counted research contributions from the 10 most-cited journals in the fields of internal medicine, pathology, and surgery. Ten consecutive articles, excluding case reports and review articles, for the years 1987, 1989, and 1991 were sampled from each of 10 journals for the three areas of medicine. Unfunded articles accounted for the majority of contributions (60% of pathology articles, 62% of internal medicine articles, and 74% of surgery articles). In 1987, funded research articles published received somewhat more citations (2,961) than unfunded research articles (2,368). Among articles supported by an NIH grant, the first author of the article was seldom the grant’s principal investigator (38.6%, 26.9%, and 16.7% of funded articles by pathologists, internists, and surgeons, respectively). These results indicate that unfunded research plays a major role in medical research.

Keywords: Citation

? Levsky, M.E., Rosin, A., Coon, T.P., Enslow, W.L. and Miller, M.A. (2007), A descriptive analysis of authorship within medical journals, 1995-2005. *Southern Medical Journal*, **100** (4), 371-375.

Full Text: [2007\Sou Med J100, 371.pdf](2007/Sou%20Med%20J100,%20371.pdf)

Abstract: Introduction: the emphasis on publications for promotion in academic medicine would lead one to the theory that authorship numbers would increase proportionally with this emphasis. To investigate authorship trends across a number of periodicals, we performed a descriptive study comparing two full years of published articles spaced ten years apart from five medical journals. Methods: Physician reviewers each reviewed all articles of one medical journal for the 1995 and 2005 publication years. Reviewed journals included Academic Emergency Medicine (AEM), Annals of Emergency Medicine (AnnEM), Annals of Internal Medicine (AIM), Journal of Trauma (JT), and New England Journal of Medicine (NEJM). Data collected for each article were number of authors, ordinal number of the corresponding author, type of study described, whether the described study was a multicenter trial, whether authorship listed included a “study group,” and whether any author was also an editor of the journal. Results: A total of 2927 articles were published in the five journals in 1995, and of these, 1401 (47.9%) were analyzed after the exclusion criteria had been applied; for 2005 a total of 3630 articles were published and of these, 1351 (37.2%) were included in the analysis. Across all five journals the mean number of authors per article increased from 4.66 to 5.73 between 1995 and 2005 (P < 0.0001), and four of the five journals individually had statistically significant increases in the number of authors per article. More articles had a journal editor as an author in 2005 (increased from 7.8% to 11.0%, P = 0.004), though no single journal had a statistically significant increase. Conclusion: We describe a trend of increasing mean authors, editorial authorship, study groups, and multicenter trials over time with fewer solo authors now publishing original research or case reports. The academic medical community must pursue an authorship requirement consensus to assure that a standard of contribution for all authors on a given paper is met.

Keywords: Analysis, Authorship, Case Reports, Community, Consensus, Criteria, England, Journal, Journals, Lead, Medical, Medical Journals, Medicine, P, Periodicals, Promotion, Publication, Publications, Publishing, Requirement, Research, Standard, Theory, Trend, Trends, Trial

? Fijalkowski, N., Zheng, L.L., Henderson, M.T., Moshfeghi, A.A., Maltenfort, M. and Moshfeghi, D.M. (2013), Academic productivity and its relationship to physician salaries in the university of california healthcare system. *Southern Medical Journal*, **106** (7), 415-421.

Full Text: 2013\Sou Med J106, 415.pdf

Abstract: Objectives: To evaluate whether physicians with higher academic productivity, as measured by the number of publications in Scopus and the Scopus Hirsch index (h-index), earn higher salaries. Methods: This was a cross-sectional study. Participants were ophthalmologists, otolaryngologists, neurosurgeons, and neurologists classified as “top earners” (>$100,000 annually) within the University of California (UC) healthcare system in 2008. Bibliometric searches on Scopus were conducted to retrieve the total number of publications and Hirsch indices (h-index), a measure of academic productivity. The association between the number of publications and h-index on physicians’ total compensation was determined with multivariate regression models after controlling for the four specialties (ophthalmology, otolaryngology, neurosurgery, and neurology), The five institutions (UC San Francisco, UC Los Angeles, UC San Diego, UC Irvine, and UC Davis), and academic rank (assistant professor, associate professor, and professor). Results: the UC healthcare system departments reported 433 faculty physicians among the four specialties, with 71.6% (n = 310) earningmore than $100,000 in 2008 and classifying as top earners. After controlling for the specialty, institution, and ranking, there was a significant association between the number of publications on salary (P < 0.000001). Scopus number of publications and h-index were correlated (P < 0.001). Scopus h-index was of borderline significance in predicting physician salary (P = 0.12). Physicians with higher Scopus publications had higher total salaries across all four specialties. Every 10 publications were associated with a 2.40% increase in total salary after controlling for specialty, institution, rank, and chair. Conclusions: Ophthalmologists, otolaryngologists, neurosurgeons, and neurologists in the UC healthcare system who are more academically productive receive greater remuneration.

Keywords: Academic, Academic Productivity, Association, Bibliometric, Borderline, California, Compensation, Faculty, h Index, h-Index, h-Index, Hirsch, Hirsch Index, Hirsch-Index, Index, Indices, Institutions, Measure, Methods, Models, Multivariate, Neurology, Numbers, Ophthalmology, Otolaryngology, P, Physician, Physician Salaries, Physicians, Productivity, Professor, Publications, Rank, Ranking, Regression, Relative-Value Scale, Results, Salary, Scopus, Significance, Specialty, University

# Title: Soviet Geography Review and Translation

Full Journal Title: Soviet Geography Review and Translation

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Harris, C.D. (1980), Most-cited geographical serials on Soviet-Union. *Soviet Geography Review and Translation*, **21** (9), 615-616.

Keywords: Serials

# Title: Sozial-und Präventivmedizin/Social and Preventive Medicine

Full Journal Title: [Sozial-und Praventivmedizin](http://springerlink.metapress.com/(b2dzlfnhcdmr3nmut5fg3tib)/app/home/journal.asp?referrer=parent&backto=linkingpublicationresults,1:109374,1)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0303-8408

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Decker, O., Beutel, M.E. and Brähler, E. (2004), Deep impact: Evaluation in the sciences. *Sozial-und Präventivmedizin*, **49** (1), 10-14.

Full Text: [2004\Soz Pra49, 10.pdf](2004/Soz%20Pra49,%2010.pdf)

Abstract: the purpose of the paper is to evaluate the psychometric properties of the impact factor as an assessment procedure. Detailed criteria regarding theoretical underpinnings, test administration, scoring and interpretation are applied. The impact factor appears to be of limited use for deciding which journals to subscribe. It is not suitable for evaluating achievements of individual scientists and research groups. The impact factor contains serious sources of errors and flaws resulting in strong biases against culture- and language-bound medical subspecialties and non-Anglo-American countries. Possible alternatives are discussed.

Prof. Dr. Elmar Brähler is the director of the Department of Medical Psychology and Medical Sociology, University Medial School in Leipzig. Dr. Manfred Beutel is a professor of the Department of Psychosomatic and Psychotherapy, University Medical School in Gießen. Dr. Oliver Decker is an assistant at the Department of Medical Psychology and Medical Sociology, University Medical School in Leipzig

Porta, M., Fernandez, E., Murillo, J., Alguacil, J. and Copete, J.L. (2004), Commentary I - the bibliographic ‘impact factor’, the total number of citations and related bibliometric indicators: the need to focus on journals of public health and preventive medicine. *Sozial-und Präventivmedizin*, **49** (1), 15-18.

Full Text: [2004\Soz Pra49, 15.pdf](2004/Soz%20Pra49,%2015.pdf)

Keywords: Frequency, Institute, Quality, Science

? Zwahlen, M., Junker, C. and Egger, M. (2004), Commentary II - the journal impact factor in the evaluation of research quality: Villain, scapegoat or innocent bystander? *Sozial-und Präventivmedizin*, **49** (1), 19-22.

Full Text: [2004\Soz Pra49, 19.pdf](2004/Soz%20Pra49,%2019.pdf)

Keywords: Indicators, Science

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Full Text: [2004\Soz Pra49, 23.pdf](2004/Soz%20Pra49,%2023.pdf)

Keywords: Journals

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Full Text: [2004\Soz Pra49, 25.pdf](2004/Soz%20Pra49,%2025.pdf)

# Title: Spanish Journal of Agricultural Research

Full Journal Title: Spanish Journal of Agricultural Research

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Arcas, N., Alcon, F., Gomez-Limon, J.A. and de Miguel, M.D. (2010), Review. The evolution of research regarding the economics of irrigation water. *Spanish Journal of Agricultural Research*, **8** (S2), S172-S186.

Full Text: [2010\Spa J Agr Res8, S172.pdf](2010/Spa%20J%20Agr%20Res8,%20S172.pdf)

Abstract: This work analyses the main research trends (subjects, methodology used, countries of the authors and data) in the economics of irrigation water during the last 10 years (2000-2009). for this purpose, a quantitative methodology has been used which is new to this sphere, based on the review of a representative sample of 332 papers published in the 15 most important journals focused on this field of science indexed in the databases of the Institute for Scientific Information (ISI), The Science Citation Index (SCI) and the Social Science Citation Index (SCCI). The results obtained confirm: a) the notable growth in the number of papers published, especially in the last three years, b) the high degree of collaboration between authors, including those of different origin, for their performance c) the prominence of the USA, Australia, India and Spain as the countries of the first authors and origin of the data, d) the greater attention given to subjects related with “investment project analysis”, “production planning” and, especially, “production function and productivity of water”, and e) the predominance of empirical studies that use basic analysis approaches (cost analysis, investment evaluation, etc.).

Keywords: Analysis, Australia, Citation, Climate, Cost, Databases, Evaluation, Evolution, Field, Growth, India, ISI, Journals, Literature Review, Quantitative Approach, Research, Research Methods, Research Trends, SCI, Science, Science Citation Index, Spain, Subject Areas, Trends, USA, Water

# Title: Spanish Journal of Psychology

Full Journal Title: [Spanish Journal of Psychology](http://www.ucm.es/info/Psi/docs/journal/)

ISO Abbreviated Title:

JCR Abbreviated Title: Span J Psychol

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Igoa, J.M. (2001), The decade 1989-1998 in Spanish psychology: An analysis of research in basic psychological processes, history of psychology, and other related topics. *Spanish Journal of Psychology*, **4** (2), 123-150.

Full Text: [2001\Spa J Psy4, 123.pdf](2001/Spa%20J%20Psy4,%20123.pdf)

Abstract: This article presents a review of research published by Spanish Faculty from the area of basic psychology in the decade 1989-1998. It provides information about research on basic psychological processes commonly studied under the labels of experimental and cognitive psychology, plus a number of topics from other research areas, including some applied psychology issues. The review analyzes the work of 241 faculty members from 27 different Spanish universities, as reflected in 1,882 published papers, book chapters, and books. The analyses carried out in this report include a description of the main research trends found in each area, with some representative references of the published materials, and statistics showing the distribution of this research work in various relevant publications (both Spanish and foreign), with figures that reveal the impact of this work both at a national and international scale.

Keywords: Analyses, Analysis, Distribution, Experimental, Faculty, History, History of Psychology, Impact, Information, International, Papers, Psychology, Publications, Research, Research Work, Review, Scale, Statistics, Trends, Universities, Work

? Sanz, J. (2001), The decade 1989-1998 in Spanish psychology: An analysis of research in personality, assessment, and psychological treatment (clinical and health psychology). *Spanish Journal of Psychology*, **4** (2), 151-181.

Full Text: [2001\Spa J Psy4, 151.pdf](2001/Spa%20J%20Psy4,%20151.pdf)

Abstract: the aim of this study is to analyze Spanish research published between 1989 and 1998 in clinical psychology and its most directly related psychological disciplines: personality psychology, psychopathology, differential psychology, health psychology, and psychological assessment. A search was performed in the various databases of the works published in that decade by Spanish university professors who investigate in these areas. Their localization was verified by direct correspondence with the professors, to whom was also sent a questionnaire to evaluate their research field and preferred theoretical approach. The 2,079 works located allowed me to identify 85 different research trends. These research trends are characterized by the predominance of applied studies over basic studies, of empirical research over theoretical research, and of the cognitive-behavioral approach over the rest of the theoretical orientations. In addition, various bibliometrical indicators of production, dissemination, and impact were calculated. They revealed that productivity and dissemination of Spanish research in these areas grew considerably during this 1989-98 period.

Keywords: Analysis, Approach, Assessment, Clinical, Clinical Psychology, Databases, Field, Health, Impact, Indicators, Personality, Personality Psychology, Productivity, Psychological Assessment, Psychological Treatment, Psychology, Questionnaire, Research, Treatment, Trends, University

? Sánchez-Miguel, E. and García-Sánchez, J.N. (2001), The decade 1989-1998 in Spanish psychology: An analysis of research in development and educational psychology. *Spanish Journal of Psychology*, **4** (2), 182-202.

Full Text: [2001\Spa J Psy4, 182.pdf](2001/Spa%20J%20Psy4,%20182.pdf)

Abstract: In this study, we identified 67 research trends that meet the criteria of this special issue. In the following pages, all the research trends will be reviewed, grouped into five categories: personal and social development, cognitive and linguistic development, developmental and educational contexts, cognition and instruction, and development and learning disabilities. A general overview of the area is obtained by dividing each category into subcategories, thus arranging the identified research trends in a four-level hierarchical structure. Taking into account this analysis, in our Conclusions section, we note the regularities with regard to the issues that have been studied the most, the predominant type of works, and, more important, the most noteworthy imbalances. We reached six conclusions: (1) Research on educational changes predominates over the study of developmental changes; (2) the study of formal education is predominant over informal education; (3) cognitive-linguistic aspects predominate over personal and social aspects; (4) application of knowledge predominates over the generation of new knowledge; (5) new educational-practice proposals predominate over the study of these educational practices; and (6) the study of change is not related to the proposals that promote change.

Keywords: Analysis, Application, Changes, Cognition, Criteria, Development, Education, Educational Psychology, General, Generation, Hierarchical Structure, Instruction, Knowledge, Learning, Practices, Psychology, Research, Social, Structure, Trends

? Blanco, A. and de la Corte, L. (2001), The decade 1989-1998 in Spanish psychology: an analysis of research in social psychology. *Spanish Journal of Psychology*, **4** (2), 203-218.

Full Text: [2001\Spa J Psy4, 203.pdf](2001/Spa%20J%20Psy4,%20203.pdf)

Abstract: In this study, a detailed exploration is carried out of the production of research and theory in social psychology in the Spanish context. The main research areas are: Work and organizational psychology, social health psychology, community and social services psychology, environmental research, judicial and political psychology, psychosocial theory and meta-theory, social psychology of language, research on emotion, group processes and social identity. The growing importance of social psychology within the framework of Spanish psychology is emphasized, and the relation with specific social problems from the national context, and the paradoxically scarce originality of the theoretical perspectives and the leading research, strongly influenced by Anglo Saxon social psychology, is commented upon.

Keywords: Analysis, Community, Context, Environmental, Environmental Research, Framework, Health, Organizational, Psychology, Psychosocial, Research, Services, Social, Theory

? Herreros de Tejada, P. and Munoz Tedo, C. (2001), The decade 1989-1998 in Spanish psychology: An analysis of research in psychobiology. *Spanish Journal of Psychology*, **4** (2), 219-236.

Full Text: [2001\Spa J Psy4, 219.pdf](2001/Spa%20J%20Psy4,%20219.pdf)

Abstract: In this paper, we present an analysis of the research published during the 1989-1998 decade by tenured Spanish faculty members from the area of psychobiology. Database search and direct correspondence with the 110 faculty members rendered a list of 904 psychobiological papers. Classification and analysis of these papers led to the definition of at least 70 different research trends. Topics are grouped into several specific research areas: Learning and Memory; Development and Neural Plasticity; Emotion and Stress; Ethology; Neuropsychology; Sensory Processing; and Psychopharmacology. The international dissemination of this research, published in journals of high impact index, and the increasing number of papers are two noteworthy features.

Keywords: Analysis, Faculty, Impact, Impact Index, Index, International, Journals, Papers, Psychology, Research, Trends

? Íñiguez-Rueda, L., Martínez-Martínez, L.M., Muñoz-Justicia, J.M., Peñaranda-Cólera, M.C., Sahagún-Padilla, M.A. and Alvarado, J.G. (2008), The mapping of Spanish social psychology through its conferences: A bibliornetric perspective. *Spanish Journal of Psychology*, **11** (1), 137-158.

Full Text: [2008\Spa J Psy11, 137.pdf](2008/Spa%20J%20Psy11,%20137.pdf)

Abstract: This study of papers gathered from the proceedings presented at Spanish social psychology conferences explores the use of bibliometrics for studying scientific disciplines. A reference database of all the papers included in the conference proceedings of events held from 1983 to 2000 was generated and classified by thematic area, paper type and author institutional affiliation. The references were laid out on contingency tables and mapped with correspondence analysis. The results show that there is a growing number of co-authored papers and a predominance of empirical over theoretical paper types. Some institutions have a higher concentration of theoretical papers while others work mostly in the areas of organizational and health psychology. In terms of empirical papers, there is a tendency towards generating more qualitative-based studies over the span of time captured by this work. There are also a number of papers written about such areas as cultural psychology that points to the emergence of an interest in critical social psychology. Concluding remarks underline the role of conferences and scientific meetings as an important indicator of the dynamic development of a scientific discipline.

Keywords: Affiliation, Analysis, Bibliometrics, Bibliometrics, Conference Proceedings, Conferences, Correspondence Analysis, Database, Development, Emergence, Health, Health Psychology, Mapping, Papers, Reference, Spanish, Spanish Social Psychology, Subject Areas, Types of Studies

? García-Pérez, M.A. (2009), The Hirsch h Index in a non-mainstream area: Methodology of the behavioral sciences in Spain. *Spanish Journal of Psychology*, **12** (2), 833-849.

Full Text: [2009\Spa J Psy12, 833.pdf](2009/Spa%20J%20Psy12,%20833.pdf)

Abstract: the h Index has advantages over journal impact factors for assessing the research performance of individuals, and it is becoming a reference tool for career assessment that is starting to be considered by some agencies as an aid in decisions for promotion, allocation, and funding. The h Index has been reported to have adequate properties as a measure of the research accomplishments of individuals in areas where h values are usually high (i.e., at or above 40), but some concerns have been raised that its validity in other non-mainstream research areas is suspect. This paper presents data from an exhaustive computation and analysis of h indices for 204 faculty members in the area of Methodology of the Behavioral Sciences in Spain, an area where h indices tend to be low worldwide. The results indicate that the h Index is substantially increased by self-citations and that the average h of full professors is not meaningfully larger than the average h of associate professors. Other interesting relations between h indices and demographic and academic variables are described, including the gender and age bias of h. In this field, but perhaps also in other fields where the average h is low, little justification is found for the use of the h Index as a fair measure of research performance that can aid in funding or promotion decisions.

Keywords: Bibliometric Indicators, Chi-Square, Citation Analysis, h Index, Hirsch Index, Impact-Factors, Indicators, Journals, Psychology, Scientists, Self-Citations, Tests

? Portillo-Salido, E.F. (2010), A bibliometric analysis of research in psychopharmacology by psychology departments (1987-2007). *Spanish Journal of Psychology*, **13** (1), 503-515.

Full Text: [2010\Spa J Psy13, 503.pdf](2010/Spa%20J%20Psy13,%20503.pdf)

Abstract: From the very outset of scientific Psychology, psychologists have shown interest for drugs and their effects on behavior. This has given rise to numerous contributions, mostly in the form of Psychopharmacology publications. The aim of this study was to quantitatively evaluate these contributions and compare them with other academic disciplines related to Psychopharmacology. Using the PubMed database, we retrieved information about articles from 15 journals included in the Pharmacology and Pharmacy category of the Journal Citation Reports database for a 21-year period (1987 to 2007). There were 37540 articles which about 52% were represented by 3 journals. About 70% of psychology publications were represented by 2 of these journals. Psychology departments accounted for the 11% of the published papers, which places Psychology third behind Psychiatry and Pharmacology, which contributed to 22.69 and 13% respectively. Psychology contributed to the greatest number of studies in 3 journals, second in 3 and third in 8. This report represents the first effort to explore the contribution of academic Psychology to the multidisciplinary science of psychopharmacology. Although leaders of production of psychopharmacology research were from Psychiatry and Pharmacology, Psychology departments are an important source of studies and thus of knowledge in the field of Psychopharmacology.

Keywords: Anesthetic Drug, Articles, Behavioral Pharmacology, Bibliometric, Bibliometric Analysis, Bibliometric Study, Chlorpromazine, Citation, Contribution, Database, Efficiency, European-Union, Induced Seizures, Journal Citation Reports, Journals, Knowledge, Maze-Trained Rats, Multidisciplinary, Normal Males, Pharmacology, Phenothiazine Compounds, Psychiatry, Psychology, Psychopharmacology, Publications, Research, Science, Scientific Journals, White-Rats

# Title: Spanish Economic Review

Full Journal Title: [Spanish Economic Review](http://www.springerlink.com/app/home/journal.asp?wasp=828064de671b4578961aa0c6b1df9e83&referrer=parent&backto=linkingpublicationresults,1:103083,1)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 1435-5469 (Paper) 1435-5477 (Online)

Issues/Year:

Journal Country/Territory:

Language:

Publisher: [Springer-Verlag Heidelberg](http://www.springerlink.com/app/home/main.asp?wasp=cmw7ypruqk7vneg2dr2p)

Publisher Address:

Subject Categories:

: Impact Factor

Dolado, J.J., García-Romero, A. and Zamarro, G. (2003), Publishing performance in economics: Spanish rankings (1990-1999). *Spanish Economic Review*, **5** (2), 85-100.

Full Text: [2003\Spa Eco Rev5, 85.pdf](2003/Spa%20Eco%20Rev5,%2085.pdf)

Abstract: This paper contributes to the growing literature that analyses the Spanish publishing performance in Economics throughout the 1990s. Several bibliometric indicators are used in order to provide Spanish rankings (of both institutions and individual authors) based on Econlit journals. Further, lists of the ten most influential authors and articles over that period, in terms of citations, are reported.

Notes: CCountry

? Rodriguez, D. (2006), Publishing performance of Spanish academics: 1970-2004. *Spanish Economic Review*, **8** (4), 255-270.

Full Text: [2006\Spa Eco Rev8, 255.pdf](2006/Spa%20Eco%20Rev8,%20255.pdf)

Abstract: This work complements some of the results appearing in the article ‘Publishing Performance in Economics: Spanish Rankings’ by Dolado et al. (Span Econ Rev 5:80-103, 2003) Specifically we focus on the robustness of the results regardless of the time span considered, the effect of the choice of a particular database on the final results, and the effects on changes in the unit of institutional measure (departments vs. institutions as a whole). Differences are significant when we expand the time period considered. There are also significant but small differences if we combine datasets to derive the rankings. Finally, department rankings offer a more precise picture of the situation of the Spanish academics, although results do not differ substantially from those obtained when overall institutions are considered.

Keywords: Bibliometric Indicators, DEC, Economics, Effects, Institutions, Performance, Rankings, Robustness, Spanish Academics

# Title: Special Libraries

Full Journal Title: [Special Libraries](http://infotrac.galegroup.com/itw/infomark/1/1/1/purl=rc18_GBIM_0__jn+%22Special+Libraries%22?sw_aep=jrycal5)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0038-6723

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Piskur, M.M. (1956), Scientific serials - Characteristics and lists of most cited publications in mathematics, physics, chemistry, geology, physiology, botany, zoology, and entomology - Brown, CH. *Special Libraries*, **47** (10), 470.

Full Text: [-1959\Spe Lib47, 470.pdf](-1959/Spe%20Lib47,%20470.pdf); [-1959\Spe Lib47.pdf](-1959/Spe%20Lib47.pdf)

Keywords: Characteristics, Chemistry, Mathematics, Physics, Publications, Serials

? Bloomfield, M. (1966), Simulated machine indexing. Part 2. Use of words from title and abstract for matching thesauri headings. *Special Libraries*, **57** (4), 232-235.

Full Text: [1960-80\Spe Lib57, 232.pdf](1960-80/Spe%20Lib57,%20232.pdf); [1960-80\Spe Lib57.pdf](1960-80/Spe%20Lib57.pdf)

? Donati, R. (1977), Selective survey of online access to social science data bases. *Special Libraries*, **68** (11), 396-406.

Full Text: [1960-80\Spe Lib68, 396.pdf](1960-80/Spe%20Lib68,%20396.pdf); [1960-80\Spe Lib68.pdf](1960-80/Spe%20Lib68.pdf)

? White, E.C. (1985), Bibliometrics: From curiosity to convention. *Special Libraries*, **76** (1), 35-42.

Full Text: [1985\Spe Lib76, 35.pdf](1985/Spe%20Lib76,%2035.pdf); [1985\Spe Lib76.pdf](1985/Spe%20Lib76.pdf)

Keywords: Bibliometrics

? Noguchi, S. (1988), Japanese-style management: A bibliometric study. *Special Libraries*, **79** (4), 314-321.

Full Text: [1988\Spe Lib79, 314.pdf](1988/Spe%20Lib79,%20314.pdf); [1988\Spe Lib79.pdf](1988/Spe%20Lib79.pdf)

# Title: Spectrochimica Acta Part B-Atomic Spectroscopy

Full Journal Title: [Spectrochimica Acta Part B-Atomic Spectroscopy](http://www.sciencedirect.com/science?_ob=JournalURL&_cdi=5287&_auth=y&_acct=C000047720&_version=1&_urlVersion=0&_userid=2007471&md5=9a473f176ccbd2753fbe9f7ef183c230)

ISO Abbreviated Title: Spectroc. Acta Pt. B-Atom. Spectr.

JCR Abbreviated Title: Spectrochim Acta B

ISSN: 0584-8547

Issues/Year: 14

Journal Country England

Language: Multi-Language

Publisher: Pergamon-Elsevier Science Ltd

Publisher Address: the Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, England

Subject Categories:

Spectroscopy: Impact Factor

? Farnsworth, P.B. and Walters, J.P. (1980), Introduction to the translation of the classic paper by Kaiser, H. and Wallraff, A. on spark discharge. *Spectrochimica Acta Part B-Atomic Spectroscopy*, **35** (6), 315-317.

Full Text: [1960-80\Spe Act Par B-Ato Spe35, 315.pdf](1960-80/Spe%20Act%20Par%20B-Ato%20Spe35,%20315.pdf)

# Title: Spectroscopy Letters

Full Journal Title: Spectroscopy Letters

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Notes: TTopics

? Armenta, S., Garrigues, S. and de la Guardia, M. (2005), Quantitative vibrational spectrometry in the 21st century: A scientometric evaluation. *Spectroscopy Letters*, **38** (6), 665-675.

Full Text: [2005\Spe Let38, 665.pdf](2005/Spe%20Let38,%20665.pdf)

Abstract: the state of the art of research on vibrational spectrometry-based quantitative methodologies was evaluated from the literature compiled in Analytical Abstracts from 1980. Medium and near infrared, Raman spectrometry, and photoacoustic methods of analysis were considered. The evolution of the number of published papers, the distribution of the literature as a function of the different application fields in which the vibrational methods were employed, and a study of the impact on this area of chemometric and automation studies clearly shows that, from the 1990s until now, the importance of vibrational spectrometry in application analysis has grown to reach maturity. This field provides alternative methods for industrial, environmental, and food analysis and in clinical studies. The most active research groups on these subjects have been identified from their scientific production in the first years of this century and from the journals in which this research is commonly published.

Keywords: Chemistry, Evaluation, Ftir, Infrared Spectrometry, NIR, Photoacoustic, Prediction, Quantitative Analysis, Raman, Research, Scientific Production, Scientometric, Spectroscopy, Vibrational Spectrometry

? Ródenas-Torralba, E., Morales-Rubio, Á. and de la Guardia, M. (2006), Scientometric picture of the evolution of the literature of automation in spectroscopy and its current state. *Spectroscopy Letters*, **39** (6), 513-532.

Full Text: [2006\Spe Let39, 513.pdf](2006/Spe%20Let39,%20513.pdf)

Abstract: the current study focuses on the status of automation and mechanization in spectroscopy for analytical chemistry publications compiled during the period 1980 2006, in Analytical Abstracts. Flow injection analysis (FIA), sequential injection analysis (SIA), multicommutation, and monosegmented and segmented flow strategies were considered. for assessing the evolution of scientific productivity, the total number of publications concerned with the different methodologies was evaluated. In order to provide a picture of the state of the art of this field, the most important journals, the most active authors, and the most productive countries in the field of automation were evaluated in the period of the first years of this century.

Keywords: Analysis, Analytical Chemistry, Authors, Automation, Chemistry, Continuous-Flow Analysis, Countries, Evolution, FIA, Field, Injection, Iron, Journals, Literature, Mechanization, Methodologies, Multicommutation, Multicommutation, Number of Publications, Productivity, Publications, Science, Scientific Productivity, Scientometric, SIA, Spectrophotometric Determination, Spectroscopy, System

? Armenta, S., Garrigues, S., de la Guardia, M. and Tahiri, S. (2007), Research on spectroscopy in Morocco from 1984 to 2006. *Spectroscopy Letters*, **40** (5), 681-693.

Full Text: [2007\Spe Let40, 681.pdf](2007/Spe%20Let40,%20681.pdf)

Abstract: the evolution of spectroscopy-based research activity in Morocco was evaluated on the basis of publications that have appeared in the Science Citation Index, Expanded (SCI), during the cumulative period 1984-2006 (September). The most active research groups, and their universities or centers, were identified in this subject from their scientific production in the first years of this century. The preference to publish in specific journals, the main areas of interest to Moroccan authors, and the spectroscopy techniques most commonly employed for their studies were also appraised. This scientometric study was undertaken to introduce a group of papers in a special issue of Spectroscopy Letters on Moroccan research in spectroscopy.

Keywords: Analytical-Chemistry, Authors, Citation, Citation Index, Evolution, Journals, Morocco, Papers, Publications, Research, Research Activity, SCI, Science, Science Citation Index, Scientific Production, Scientometrics, Spectroscopy, Universities

? Armenta, S. and de la Guardia, M. (2009), Green spectroscopy: A scientometric picture. *Spectroscopy Letters*, **42** (6-7), 277-283.

Full Text: [2009\Spe Let42, 277.pdf](2009/Spe%20Let42,%20277.pdf)

Abstract: the state of the art of green spectroscopy, as a sustainable and friendly alternative to the classical spectrometric methods of analysis, has been established from the evaluation of the scientific literature published about this topic in the frame of the so-called Green Chemistry paradigm. Special attention has been paid to the fact that keywords like Green Analytical Chemistry, environmentally friendly, or clean analytical method or sustainable analytical chemistry are far from being commonly used in analytical studies. In spite of this fact there are numerous studies that provide direct analytical methodologies, or a reduction of reagents consumption or waste generation, the recycling of used solvents, or the replacement of toxic compounds by non-toxic or, at least, less toxic ones. So, additional efforts must be made to engage the scientific community in the practice of making the work safer and more sustainable in the analytical laboratories.

Keywords: Analytical-Chemistry, Clean Analytical Chemistry, Environmentally Friendly Methods, Evaluation, Green Analytical Chemistry, Spectroscopy

# Title: Spinal Cord

Full Journal Title: [Spinal Cord](http://www.nature.com/sc/index.html)

ISO Abbreviated Title: Spinal Cord

JCR Abbreviated Title: Spinal Cord

ISSN: 1362-4393

Issues/Year: 12

Journal Country/Territory: England

Language: English

Publisher: Stockton Press

Publisher Address: Houndmills, Basingstoke RG21 6XS, Hampshire, England

Subject Categories:

Clinical Neurology Orthopedics: Impact Factor 0.953, 86/138 (2002)

Dijkers, M.P.J.M. (2003), Searching the literature for information on traumatic spinal cord injury: the usefulness of abstracts. *Spinal Cord*, **41** (2), 76-84.

Full Text: [2003\Spi Cor41, 76.pdf](2003/Spi%20Cor41,%2076.pdf)

Abstract: Study design: Systematic review of abstracts of published papers presumed to contain information on chronic pain in persons with spinal cord injury (SCI).

Objectives: To determine to what degree papers on SCI are abstracted in such a way that they can be retrieved, and evaluated as to the paper’s applicability to a reader’s questions.

Setting: US-academic department of rehabilitation medicine.

Methods: 868 abstracts published in MEDLINE were independently examined by two out of 13 screeners, who answered four questions on the subjects and nature of the paper with ‘Yes’, ‘No’ or ‘insufficient information’. Frequency of ratings ‘insufficient information’, and screener agreement were evaluated as affected by screener and abstract/paper characteristics.

Results: Screeners could not determine whether the paper dealt with persons with traumatic SCI for 37% of abstracts; whether chronic pain was a topic could not be determined in 18%. Physicians were less willing than other disciplines to assign ‘insufficient information’. Screener agreement was better than chance, but not at the level suggested for quality measurement. Screener discipline and task experience did not make a difference, nor did abstract length, structure, or decade of publication of the paper.

Conclusion: Authors need to improve the quality of abstracts to make retrieval and screening of relevant papers more effective and efficient.

Sponsorship: National Institute on Disability and Rehabilitation Research.

Keywords: Abstracting and Indexing, Publications, Bibliometrics, Spinal Cord Injury, Pain, Original Research Articles, Structured Abstracts, Clinical-Trials, High Agreement, Low Kappa, Quality, Journals, Accuracy, Paradoxes, MEDLINE

? Berney, S., Bragge, P., Granger, C., Opdam, H. and Denehy, L. (2011), The acute respiratory management of cervical spinal cord injury in the first 6 weeks after injury: A systematic review. *Spinal Cord*, **49** (1), 17-29.

Full Text: [2011\Spi Cor49, 17.pdf](2011/Spi%20Cor49,%2017.pdf)

Abstract: Study design: Systematic review. Objectives: Identify, evaluate, and synthesize evidence regarding the effectiveness of various treatment strategies for the respiratory management of acute tetraplegia. Setting: Melbourne, Australia. Methods: A search of multiple electronic databases (MEDLINE, Cinahl, EMBASE, Cochrane Library, Web of Science, http://www.guideline.gov and http://www.icord.org/scire) was undertaken accompanied by the reference lists of all relevant articles identified. Methodological quality was assessed using the Newcastle-Ottawa Scale and the PEDro Scale. Descriptive analysis was performed. Results: Twenty-one studies including 1263 patients were identified. The majority of the studies were case series (n = 13). A variety of interventions were used for the management of respiratory complications. Mortality (ARR = 0.4, 95% confidence interval (CI) 0.18, 0.61), The incidence of respiratory complications (ARR = 0.36, 95% CI (0.08, 0.58)), and requirement for a tracheostomy (ARR = 0.18, 95% CI (-0.05, 0.4)) were significantly reduced by using a respiratory protocol. A clinical pathway reduced duration of mechanical ventilation by 6 days 95% CI (-0.56, 12.56), intensive care unit length of stay by 6.8 days 95% CI (0.17-13.77) and costs. Intubation, mechanical ventilation, and tracheostomy are the mainstay of respiratory management for complete injuries above the level of C5. Conclusion: This review showed a clinical pathway with a structured respiratory protocol that includes a combination of treatment techniques provided regularly is effective in reducing respiratory complications and cost. The overall study quality was moderate and further studies using specific interventions that target respiratory complications are associated with specific regions of the cervical spine using more methodologically rigorous designs are required. Spinal Cord (2011) 49, 17-29; doi: 10.1038/sc.2010.39; published online 20 April 2010.

Keywords: Acute, Analysis, Care, Case Series, Cochrane, Complications, Costs, Databases, Design, Effectiveness, Embase, Incidence, Injury, Intensive Care, Intensive Care Unit, Interventions, Length of Stay, Management, Mechanical Ventilation, Methods, Mortality, Patients, Protocol, Pulmonary Complications, Respiratory, Respiratory Management, Review, Scale, Science, Spinal Cord Injury, Spine, Systematic, Systematic Review, Tetraplegia, Tracheostomy, Traumatic Quadriplegia, Treatment, Trials, Web of Science

? Peter, C., Müller, R., Cieza, A. and Geyh, S. (2012), Psychological resources in spinal cord injury: A systematic literature review. *Spinal Cord*, **50** (3), 188-201.

Full Text: [2012\Spi Cor50, 188.pdf](2012/Spi%20Cor50,%20188.pdf)

Abstract: Study design: Systematic literature review. Objectives: the purpose of this study was to gain a systematic overview of the role of psychological resources in the adjustment to spinal cord injury (SCI). Methods: A systematic literature review was performed. The literature search was conducted in the databases Pubmed, PsycINFO, the Social Sciences Citation Index, the Education Resources Information Center, Embase and the Citation Index of Nursing and Allied Health Literature. The assessed variables, measurement instruments, results and the methodological quality of the studies were extracted, summarized and evaluated. Results: A total of 83 mainly cross-sectional studies were identified. Psychological resources were categorized into seven groups: self-efficacy (SE), self-esteem, sense of coherence (SOC), spirituality, optimism, intellect and other personality characteristics. SE and self-esteem were consistently associated with positive adjustment indicators such as high well-being and better mental health. Interrelations between psychological resources and key rehabilitation outcome variables such as participation were rarely studied. Only a few interventions, which were aimed at strengthening psychological resources were identified. Longitudinal studies suggested that SE, SOC, spirituality and purpose in life were potential determinants of adjustment outcomes in the long term. Conclusion: Research on psychological resources in SCI is broad, but fragmented. Associations of psychological resources with mental health and well-being were frequently shown, while associations with participation were rarely studied. Further development of resource-based interventions to strengthen persons with SCI is indicated. This review can serve as guide for clinical practice and can add to the design of future SCI research. Spinal Cord (2012) 50, 188-201; doi:10.1038/sc.2011.125; published online 29 November.

Keywords: 5-Year Follow-Up, Adjustment, Characteristics, Chronic Pain, Citation, Clinical, Clinical Practice, Coping Strategies, Cross-Sectional Studies, Databases, Design, Development, Education, Health, Indicators, Injury, Interventions, Life, Literature, Literature Review, Long Term, Long-Term, Mar, Measurement, Mental Health, Optimism, Outcome, Outcomes, Participation, Personality, Planned Behavior, Potential, Practice, Psychological Resource, Psychometric Properties, Psycinfo, Purpose, Quality, Quality Of, Quality of Life, Quality-of-Life, Randomized Controlled-Trial, Rehabilitation, Research, Resilience, Resources, Review, Role, SCI, SE, Self-Efficacy, Self-Efficacy Scale, Self-Esteem, Social Sciences, Social Sciences Citation Index, Social Support, Spinal, Spinal Cord, Spinal Cord Injuries, Spinal Cord Injury, Term, Time Physical-Activity, Well-Being

? Velde, S.V., Biervliet, S.V., Bruyne, R.D. and Winckel, M.V. (2013), A systematic review on bowel management and the success rate of the various treatment modalities in *spina bifida* patients. *Spinal Cord*, **51** (12), 873-881.

Full Text: [2013\Spi Cor51, 873.pdf](2013/Spi%20Cor51,%20873.pdf)

Abstract: Study design: Systematic review. Objectives: To determine the different treatment modalities aimed at achieving fecal continence in spina bifida (SB) patients and their effectiveness. Setting: International literature. Method: Electronic databases were searched (‘Pubmed’, ‘Web of science’, ‘CINAHL’ and ‘Cochrane’) identifying studies published since the mid-eighties and screened for relevance according to the Centre for Reviews and Dissemination procedure guidelines. A total of 37 studies were selected for inclusion. Results: Studies on toilet sitting, biofeedback, anal plug, retrograde colon enemas (RCE) and antegrade colon enemas were found. Fecal continence was achieved in 67% of SB patients using conservative methods (n = 509). In patients using RCE (n = 190) an 80% continence rate was reached. Patients following surgical treatment (n = 469) reached an 81% continence rate, however, 23% needed redo surgery because of complications. Better fecal continence was associated with an improved quality of life, which was negatively influenced by the amount of time spent on bowel management. Conclusion: Evidence favors an individually tailored stepwise approach with surgery as a final step in case of failure of conservative measures. Continued specialized support throughout life remains important to maintain continence. Cross-over and comparative trials are needed in order to optimize treatment.

Keywords: Anal, Approach, Biofeedback, Bowel, Complications, Conservative, Conservative Methods, Continence, Databases, Design, Dissemination, Effectiveness, Evidence, Failure, Guidelines, Life, Literature, Management, Measures, Methods, Modalities, Patients, Procedure, Quality, Quality Of, Quality of Life, Relevance, Results, Review, Science, Spina Bifida, Success Rate, Support, Surgery, Surgical Treatment, Systematic Review, Treatment, Web of Science

? Tamplin, J. and Berlowitz, D.J. (2014), A systematic review and meta-analysis of the effects of respiratory muscle training on pulmonary function in tetraplegia. *Spinal Cord*, **52** (3), 175-180.

Full Text: [2014\Spi Cor52, 175.pdf](2014/Spi%20Cor52,%20175.pdf)

Abstract: Study design: Systematic review Objectives: To determine the effect of respiratory muscle training (RMT) on pulmonary function in tetraplegia. Methods: A comprehensive search of the research literature included MEDLINE, EMBASE, CINAHL, ISI Web of Science, PubMed, the relevant Cochrane and clinical trials registers and hand-searching the reference lists of appropriate papers. There was no language restriction. All randomised controlled trials that involved RMT vs control were considered for inclusion. Two reviewers independently selected articles for inclusion, evaluated the methodological quality and extracted data. Additional information was sought from the authors when necessary. Results: Eleven studies (212 participants) were included. A significant benefit of RMT was revealed for five outcomes: vital capacity (mean difference (95% confidence interval)) - 0.41(0.17-0.64) l, maximal inspiratory pressure - 10.66(3.59, 17.72) cmH(2)O, maximal expiratory pressure = 10.31(2.80-17.82) cmH(2)O, maximum voluntary ventilation = 17.51(5.20, 29.81) l min(-1) and inspiratory capacity = 0.35(0.05, 0.65) l. No effect was found for total lung capacity, peak expiratory flow rate, functional residual capacity, residual volume, expiratory reserve volume or forced expiratory volume in 1 second. Conclusion: RMT increases respiratory strength, function and endurance during the period of training. Further research is needed to determine optimum dosages and duration of effect. This article is based in part on a Cochrane review published in the Cochrane Database of Systematic Reviews (CDSR) 2013, DOI: 10.1002/14651858.CD008507.pub2. Cochrane reviews are regularly updated as new evidence emerges and in response to feedback, and the CDSR should be consulted for the most recent version of the review.

Keywords: Authors, Capacity, Clinical, Clinical Trials, Confidence, Control, Data, Database, Design, Duration, Effects, Embase, Evidence, Flow, Flow Rate, Function, Functional Residual Capacity, Individuals, Information, Inpatient Rehabilitation, Interval, Isi, Isi Web of Science, Language, Literature, Lung, Management, Mar, Mechanism, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Muscle, Outcomes, Papers, Pressure, Pubmed, Pulmonary Function, Quadriplegia, Quality, Randomised, Randomised Controlled Trials, Randomized Controlled-Trial, Recent, Reference, Reference Lists, Research, Residual Volume, Respiratory Function, Respiratory Muscle Training, Response, Results, Review, Reviews, Science, Spinal Cord Injury, Spinal-Cord-Injury, Strength, Systematic Review, Systematic Reviews, Tetraplegia, Training, Ventilation, Version, Volume, Web of Science

# Title: Spine

Full Journal Title: Spine

ISO Abbreviated Title: Spine

JCR Abbreviated Title: Spine

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Walsh, E.F. and Weinstein, J.N. (1998), Spine: Scientific citation index and its impact factor. *Spine*, **23** (10), 1087-1090.

Full Text: 1998\Spine23, 1087.pdf

Keywords: Citation, Impact, Impact Factor, Index

? Roach, J.W., Skaggs, D.L., Sponseller, P.D. and MacLeod, L.M. (2008), Is research presented at the Scoliosis Research Society annual meeting influenced by industry funding? *Spine*, **33** (20), 2208-2212.

Full Text: [2008\Spine33, 2208.pdf](2008/Spine33,%202208.pdf)

Abstract: Study Design. All abstracts submitted to the 2006 SRS annual meeting were reviewed. Objective. To determine the rate of funding in abstracts submitted for presentation at the 2006 Annual Scoliosis Research Society (SRS) meeting and whether funding produced bias toward a positive outcome. Summary of Background Data. Financial conflicts of interest have been attributed to bias in research. Methods. Three members the SRS Program Committee reviewed 610 abstracts submitted for presentation at the 2006 annual meeting. The committee’s average grade was correlated with type of funding (industry, professional society, university); abstract conclusions (favorable, unfavorable, or only descriptive); and subject category [adolescent idiopathic scoliosis (AIS), motion preservation, etc.]. Results. of the 610 submitted articles, 72% (n = 440) were unfunded. of the 170 funded articles, 140 were supported by industry, 7 by government agency, 8 by professional societies, 4 by universities, and 11 by private foundations. There was no statistically significant difference between the reviewers’ grades of funded versus unfunded articles (P = 0.39). Comparing AIS articles to all the other categories, the number of funded articles were significantly greater only in motion preservation (P < 0.001) and genetics (P = 0.039). When a consultant/employee relationship was present, there was a significant difference in the proportion of funded articles and favorable findings (P = 0.048). Conclusion. The higher percentage of funded articles in motion preservation and genetics compared to AIS articles could reflect a bias in those 2 areas. However, although there were more funded articles in those 2 areas there were not more funded, favorable articles (motion preservation P = 0.059, and genetics P = 0.3). Thus, certain categories attracted more funding than others but there was not a bias toward favorable findings within the funded articles unless the funding was due to a consultant/employee relationship.

Keywords: Association, Author, Bias, Clinical Investigators, Conflict of Interest, Conflict-of-Interest, Funding, Industry, Interest, Issues, Methods, Orthopedic Research, Professional, Research, Research Support, Spine, Subject Category, University

? Street, J., Berven, S., Fisher, C. and Ryken, T. (2009), Health related quality of life assessment in metastatic disease of the spine a systematic review. *Spine*, **34**, S128-S134.

Full Text: [2009\Spine34, S128.pdf](2009/Spine34,%20S128.pdf)

Abstract: Study Design. Systematic literature review. Objectives. To examine the available literature on health related quality of life (HRQOL) assessment in metastatic disease of the spine and identify the optimal functional outcome scales to be used in developing a disease-specific tool. Summary of Background Data. There is a lack of consensus in the use of HRQOL measures in patients with metastatic spine disease. Methods. A systematic review was conducted using MEDLINE, EMBASE, the Science Citation Index (ISI), The Cumulative Index to Nursing and Allied Health Literature, the PsycINFO, the Allied and Complementary Medicine (AMED), Cochrane Reviews and Global Health databases for clinical studies addressing metastatic spine disease from 1966 through 2008. The validity of outcome tools was established by linkage analysis with the International Classification of Functioning Disability and Health (ICF). Results. One hundred forty-one clinical studies met inclusion criteria including 10,347 patients. Only 5 moderate grade and 1 high grade study were identified. Thirty-four studies used a patient self-assessment instrument to assess health status. None of the instruments were validated for metastatic spine patients. The most commonly used Pi-by-no tools were SF-36, SIP 5, and the ADL. None of the studies defined health related quality of life (HRQOL) or justified the choice of instrument. The most commonly used cancer-specific tools were ECOG, EORTC QCQ-C30, and EUROQOL 5D. Based on frequency of citation and on correlation with the International Classification of Functioning Disability and Health, the ECOG and SF36 were judged as most valid and reliable. Conclusion. A systematic review of the available evidence suggests that valid and reliable health related quality of life measures exist for the assessment of oncology patients; however, a disease-specific tool for metastatic spine disease awaits development. Until such time as a disease-specific tool is available, we recommend that the ECOG and SF-36 be considered for use in studies addressing the outcome assessment of patients with metastatic spine disease.

Keywords: Assessment, Balloon Kyphoplasty, Citation, Classification, Clinical-Experience, Cord Compression, Correlation, Criteria, Databases, Design, Development, Disability, EN-BLOC Spondylectomy, EORTC QLQ-C30, Health, Health Related Quality of Life, Health Status, Instruments, International, ISI, Literature, Literature Review, Lumbar Spine, Lung-Cancer, MEDLINE, Metastatic Disease, Oncology, Review, Science, Science Citation Index, Self-Assessment, Surgical-Management, Systematic Literature Review, Systematic Review, Tools, Tumors, Validation, Validity

? Gray, C.F. (2013), *Spine* is the most cited orthopedic journal. *Spine*, **38** (1), 3.

Full Text: [2013\Spine38, 3.pdf](2013/Spine38,%203.pdf)

Keywords: Journal

? Wertli, M.M., Burgstaller, J.M., Weiser, S., Steurer, J., Kofmehl, R. and Held, U. (2014), Influence of catastrophizing on treatment outcome in patients with nonspecific low back pain. *Spine*, **39** (3), 263-273.

Full Text: [2014\Spine39, 263.pdf](2014/Spine39,%20263.pdf)

Abstract: Study Design. Systematic review. Objective. The aim of this study was to assess the effect of catastrophizing on treatment efficacy and outcome in patients treated for low back pain. Summary of Background Data. Psychological factors including catastrophizing thoughts are thought to increase the risk for chronic low back pain. The influence of catastrophizing is debated. Methods. In September 2012, the following databases were searched: BIOSIS, CINAHL, Cochrane Library, EMBASE, OTseeker, PeDRO, PsycINFO, MEDLINE, Scopus, and Web of Science. For 50 of 706 references, full text was assessed. Results based on 11 studies were included in this analysis. Results. In the 11 studies, a total of 2269 patients were included. Seven studies were of good and 4 of moderate methodological quality. Heterogeneity in study settings, treatments, outcomes, and patient populations impeded meta-analysis. Catastrophizing at baseline was predictive for disability at follow-up in 4 studies and for pain in 2 studies. Three studies found no predictive effect of catastrophizing. A mediating effect was found in all studies (n = 5) assessing the impact of a decrease in catastrophizing during treatment. A greater decrease was associated with better outcome. Most studies that investigated the moderating effects on treatment efficacy found no effect (n = 5). However, most studies did not look for a direct interaction between the treatment and catastrophizing thoughts. No study investigated the influence of catastrophizing on work-related outcomes including return to work. Conclusion. Catastrophizing predicted degree of pain and disability and mediated treatment efficacy in most studies. The presence of catastrophizing should be considered in patients with persisting back pain. Limited evidence was found for the moderating effects on treatment efficacy. Future research should aim to clarify the role of catastrophizing as a moderator of outcome and investigate its importance for work-related outcomes.

Keywords: Analysis, Assessing, Back Pain, Catastrophizing, Chronic, Clinical-Trial, Coping Strategies Questionnaire, Data, Databases, Design, Disability, Effects, Efficacy, Embase, European Guidelines, Evidence, Fear Avoidance, Fear Avoidance Beliefs, Fear Avoidance Model, Fear-Avoidance Model, Follow-Up, Impact, Influence, Interaction, Low Back, Low Back Pain, Management, Mediator, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Moderator, Multidisciplinary, Outcome, Outcomes, Pain, Patients, Populations, Predictive, Predictor, Primary-Care, Prognosis, Psychological, Psychological-Factors, Psycinfo, Quality, Randomized Controlled-Trial, References, Research, Results, Review, Risk, Role, Scale, Science, Scopus, Systematic Review, Treatment, Treatment Outcome, Web Of Science, Work

# Title: Spine Journal

Full Journal Title: Spine Journal

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Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Shaffer, W.O., Baisden, J.L., Fernand, R. and Matz, P.G. (2013), An evidence-based clinical guideline for antibiotic prophylaxis in spine surgery. *Spine Journal*, **13** (10), 1387-1392.

Full Text: [2013\Spi J13, 1387.pdf](2013/Spi%20J13,%201387.pdf)

Abstract: Background context: the north american spine society’s (Nass) Evidence-based clinical guideline on antibiotic prophylaxis in spine surgery provides evidence-based recommendations to address key clinical questions regarding the efficacy and the appropriate antibiotic prophylaxis protocol to prevent surgical site infections in patients undergoing spine surgery. The guideline is intended to address these questions based on the highest quality clinical literature available on this subject as of june 2011. Purpose: Provide an evidence-based educational tool to assist spine surgeons in preventing surgical site infections. Study design: Systematic review and evidence-based clinical guideline. Methods: This guideline is a product of the antibiotic prophylaxis in spine surgery work group of nass evidence-based guideline development committee. The work group consisted of neurosurgeons and orthopedic surgeons who specialize in spine surgery and are trained in the principles of evidence-based analysis. A literature search addressing each question and using a specific search protocol was performed on english language references found in MEDLINE (Pubmed), Acp journal club, cochrane database of systematic reviews database of abstracts of reviews of effectiveness, cochrane central register of controlled trials, embase (Drugs and pharmacology), and Web of Science to identify articles published since the search performed for the original guideline. The relevant literature was then independently rated using the nass-adopted standardized levels of evidence. An evidentiary table was created for each of the questions. Final recommendations to answer each clinical question were developed via work group discussion, and grades were assigned to the recommendations using standardized grades of recommendation. In the absence of levels i to iv evidence, work group consensus statements have been developed using a modified nominal group technique, and these statements are clearly identified as such in the guideline. Results: Sixteen clinical questions were formulated and addressed, and the answers are summarized in this article. The respective recommendations were graded by the strength of the supporting literature, which was stratified by levels of evidence. Conclusions: the clinical guideline for antibiotic prophylaxis in spine surgery has been created using the techniques of evidence-based medicine and best available evidence to aid practitioners in the care of patients undergoing spine surgery. The entire guideline document, including the evidentiary tables, suggestions for future research, and all the references, is available electronically on the nass web site at http://Www.Spine.Org/pages/practicepolicy/clinicalcare/clinicalguidlines/default.Aspx and will remain updated on a timely schedule. (C) 2013 Elsevier inc. All rights reserved.

Keywords: Analysis, Antibiotic Prophylaxis, Antimicrobial Prophylaxis, Care, Clinical, Consensus, Context, Database, Design, Development, Double-Blind, Drugs, Effectiveness, Efficacy, Evidence, Evidence Based, Evidence Based Medicine, Evidence-Based, Evidence-Based Medicine, Guideline, Infections, Journal, Laminectomy, Language, Literature, Literature Search, Medicine, MEDLINE, Methods, Modified, Patients, Pharmacology, Prevent, Principles, Prophylaxis, Protocol, Quality, Recommendations, References, Research, Results, Review, Reviews, Rights, Risk-Factors, Science, Single, Site, Spine, Spine Surgery, Spondylodiscitis, Strength, Surgery, Surgical Site Infection, Surgical Site Infection, Systematic Review, Systematic Reviews, Techniques, Vancomycin, Web, Web of Science, Work, Wound-Infection

? Chiang, H.Y., Herwaldt, L.A., Blevins, A.E., Cho, E. and Schweizer, M.L. (2014), Effectiveness of local vancomycin powder to decrease surgical site infections: A meta-analysis. *Spine Journal*, **14** (3), 397-407.

Full Text: [2014\Spi J14, 397.pdf](2014/Spi%20J14,%20397.pdf)

Abstract: BACKGROUND CONTEXT: Some surgeons use systemic vancomycin to prevent surgical site infections (SSIs), but patients who do not carry methicillin-resistant Staphylococcus aureus have an increased risk of SSIs when given vancomycin alone for intravenous prophylaxis. Applying vancomycin powder to the wound before closure could increase the local tissue vancomycin level without significant systemic levels. However, the effectiveness of local vancomycin powder application for preventing SSIs has not been established. PURPOSE: Our objective was to systematically review and evaluate studies on the effectiveness of local vancomycin powder for decreasing SSIs. STUDY DESIGN: Meta-analysis. SAMPLE: We included observational studies, quasi-experimental studies, and randomized controlled trials of patients undergoing surgical procedures that involved vancomycin powder application to surgical wounds, reported SSI rates, and had a comparison group that did not use local vancomycin powder. OUTCOME MEASURES: the primary outcome was postoperative SSIs. The secondary outcomes included deep incisional SSIs and S. aureus SSIs. METHODS: We performed systematic literature searches in PubMed, the Cochrane Database of Systematic Reviews, the Database of Abstracts of Reviews of Effects, the Cochrane Central Register of Controlled Trials via Wiley, Scopus (including EMBASE abstracts), Web of Science, ClinicalTrials.gov, BMC Proceedings, ProQuest Dissertation, and Thesis in Health and Medicine, and conference abstracts from IDWeek, the Interscience Conference on Antimicrobial Agents and Chemotherapy, the Society for Healthcare Epidemiology of America, and the American Academy of Orthopedic Surgeons annual meetings, and also the Scoliosis Research Society Annual Meeting and Course. We ran the searches from inception on May 9, 2013 with no limits on date or language. After reviewing 373 titles or abstracts and 22 articles in detail, we included 10 independent studies and used a random-effects model when pooling risk estimates to assess the effectiveness of local vancomycin powder application for preventing SSIs, the outcome of interest. We used the I-2-index, Q-statistic, and corresponding p value to assess the heterogeneity of the risk estimates, and funnel plots to assess publication bias. RESULTS: We included seven quasi-experimental studies, two cohort studies, and one randomized controlled trial, encompassing 5,888 surgical patients. The pooled effects showed that applying local vancomycin powder was significantly protective against SSIs (pooled odds ratio [pOR] 0.19; 95% confidence interval [CI] 0.09-0.38), deep incisional SSIs (pOR 0.23; 95% CI 0.09-0.57), and SSIs caused by S. aureus (pOR 0.22; 95% CI 0.08-0.58). However, significant heterogeneity was present for studies evaluating all SSIs or deep incisional SSIs. When we pooled the risk estimates from the eight studies that assessed patients undergoing spinal operations, vancomycin powder remained significantly protective against SSIs (pOR 0.16; 95% CI 0.09-0.30), deep incisional SSIs (pOR 0.18; 95% CI 0.09-0.36), and SSIs caused by S. aureus (pOR 0.11; 95% CI 0.03-0.36). The pooled ORs from studies of spinal operations were lower than those for all studies and the estimates from spinal operation studies were homogeneous. However, there was evidence of publication bias. CONCLUSIONS: Local administration of vancomycin powder appears to protect against SSIs, deep incisional SSIs, and S. aureus SSIs after spinal operations. Large, high-quality studies should be performed to evaluate this intervention before it is used routinely. (C) 2014 Elsevier Inc. All rights reserved.

Keywords: Administration, Antimicrobial, Application, Background, Bias, Care-Associated Infections, Chemotherapy, Closure, Cohort, Comparison, Conclusions, Conference, Confidence, Context, Controlled Trial, Database, Design, Dissertation, Effectiveness, Effects, Embase, Epidemiology, Estimates, Evidence, Health, Heterogeneity, Hospitals, Infections, Interval, Intervention, Intravenous, Language, Literature, Local, Mar, Medicine, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Model, Observational, Observational Studies, Odds Ratio, Operation, Outcome, Outcome Measures, Outcomes, Patients, Posterior Cervical Fusion, Postoperative, Prevent, Primary, Procedures, Prophylaxis, Prophylaxis, Publication, Publication Bias, Pubmed, Purpose, Random Effects Model, Randomized, Randomized Controlled Trial, Randomized Controlled Trials, Rates, Research, Resistant Staphylococcus-Aureus, Review, Rights, Risk, Safety Network, Sample, Science, Scopus, Si, Site, Spinal, Spinal Operation, Staphylococcus Aureus, Surgical Procedures, Surgical Site Infections, Systematic Reviews, Topical Vancomycin, Trial, Value, Vancomycin, Vancomycin Powder, Web of Science, Wound

? Wertli, M.M., Rasmussen-Barr, E., Weiser, S., Bachmann, L.M. and Brunner, F. (2014), The role of fear avoidance beliefs as a prognostic factor for outcome in patients with nonspecific low back pain: A systematic review. *Spine Journal*, **14** (5), 816-836.

Full Text: [2014\Spi J14, 816.pdf](2014/Spi%20J14,%20816.pdf)

Abstract: BACKGROUND CONTEXT: Psychological factors including fear avoidance beliefs are believed to influence the development of chronic low back pain (LBP). PURPOSE: The purpose of this study was to determine the prognostic importance of fear avoidance beliefs as assessed by the Fear Avoidance Beliefs Questionnaire (FABQ) and the Tampa Scale of Kinesiophobia for clinically relevant outcomes in patients with nonspecific LBP. DESIGN/SETTING: The design of this study was a systematic review. METHODS: In October 2011, the following databases were searched: BIOSIS, CINAHL, Cochrane Library, Embase, OTSeeker, PeDRO, PsycInfo, PubMed/Medline, Scopus, and Web of Science. To ensure the completeness of the search, a hand search and a search of bibliographies was conducted and all relevant references included. A total of 2,031 references were retrieved, leaving 566 references after the removal of duplicates. For 53 references, the full-text was assessed and, finally, 21 studies were included in the analysis. RESULTS: The most convincing evidence was found supporting fear avoidance beliefs to be a prognostic factor for work-related outcomes in patients with subacute LBP (ie, 4 weeks-3 months of LBP). Four cohort studies, conducted by disability insurance companies in the United States, Canada, and Belgium, included 258 to 1,068 patients mostly with nonspecific LBP. These researchers found an increased risk for work-related outcomes (not returning to work, sick days) with elevated FABQ scores. The odds ratio (OR) ranged from 1.05 (95% confidence interval [CI] 1.02-1.09) to 4.64 (95% CI, 1.57-13.71). The highest OR was found when applying a high cutoff for FABQ Work subscale scores. This may indicate that the use of cutoff values increases the likelihood of positive findings. This issue requires further study. Fear avoidance beliefs in very acute LBP (<2 weeks) and chronic LBP (>3 months) was mostly not predictive. CONCLUSIONS: Evidence suggests that fear avoidance beliefs are prognostic for poor outcome in subacute LBP, and thus early treatment, including interventions to reduce fear avoidance beliefs, may avoid delayed recovery and chronicity. (C) 2014 Elsevier Inc. All rights reserved.

Keywords: Analysis, Back Pain, Background, Belgium, Bibliographies, Canada, Chronic, Clinical-Prediction Rule, Cohort, Conclusions, Confidence, Context, Databases, Design, Development, Disability, European Guidelines, Evidence, Fear, Fear Avoidance, Fear Avoidance Beliefs, Fear Avoidance Model, Influence, Insurance, Interval, Interventions, Low Back, Low Back Pain, Methods, Movement (Re)Injury, Musculoskeletal-Pain, Nonspecific Low Back Pain, Odds Ratio, Outcome, Outcomes, Pain, Patients, Predictive, Primary-Care, Prognosis, Prognostic, Prognostic Factor, Prognostic Factors, Psychological, Psychological-Factors, Purpose, Questionnaire, Randomized Controlled-Trial, Recovery, References, Removal, Review, Rights, Risk, Role, Scale, Science, Scopus, Self-Efficacy, Sick Leave, Systematic, Systematic Review, Treatment, United States, Web Of Science, Work, Work Disability

? Wertli, M.M., Eugster, R., Held, U., Steurer, J., Kofmehl, R. and Weiser, S. (2014), Catastrophizing-A prognostic factor for outcome in patients with low back pain: A systematic review. *Spine Journal*, **14** (11), 2639-2657.

Full Text: [2014\Spi J14, 2639.pdf](2014/Spi%20J14,%202639.pdf)

Abstract: BACKGROUND CONTEXT: Psychological factors including catastrophizing thoughts are believed to influence the development of chronic low back pain (LBP). PURPOSE: To assess the prognostic importance of catastrophizing as a coping strategy in patients with LBP. STUDY DESIGN: This is a systematic review. PATIENT SAMPLE: This study included patients with LBP. OUTCOME MEASURES: Work-related outcomes and perceived measures including return to work, pain, and disability. METHODS: In September 2012, the following databases were searched: BIOSIS, CINAHL, Cochrane Library, Embase, OTSeeker, PeDRO, PsycInfo, Medline, Scopus, and Web of Science. To ensure completeness of the search, a hand search and a search of bibliographies were conducted and all relevant references included. All observational studies investigating the prognostic value of catastrophizing in patients with LBP were eligible. Included were studies with 100 and more patients and follow-up of at least 3 months. Excluded were studies with poor methodological quality, short follow-up duration, and small sample size. RESULTS: A total of 1,473 references were retrieved, and 706 references remained after the removal of duplicates. For 77 references, the full text was assessed and 19 publications based on 16 studies were included. Of four studies that investigated work-related outcomes, two found catastrophizing to be associated with work status. Most studies that investigated self-reported outcome measures (n=8, 66%) found catastrophizing to be associated with pain and disability at follow-up in acute, subacute, and chronic LBP patients. In most studies that applied cutoff values, patients identified as high catastrophizers experienced a worse outcome compared with low catastrophizers (n=5, 83%). CONCLUSIONS: There is some evidence that catastrophizing as a coping strategy might lead to delayed recovery. The influence of catastrophizing in patients with LBP is not fully established and should be further investigated. Of particular importance is the establishment of cutoff levels for identifying patients at risk. (C) 2014 Elsevier Inc. All rights reserved.

Keywords: Back Pain, Background, Bibliographies, Catastrophizing, Chronic, Conclusions, Context, Coping, Coping Strategies Questionnaire, Databases, Design, Development, Disability, Duration, European Guidelines, Evidence, Fear Avoidance, Fear-Avoidance Beliefs, Fear-Avoidance Beliefs, Follow-Up, General-Practice, Influence, Lead, Low Back, Low Back Pain, Measures, Medline, Methods, Musculoskeletal Disorders, Nov, Observational, Observational Studies, Outcome, Outcome Measures, Outcomes, Pain, Patient, Patients, Predictors, Primary-Care, Prognosis, Prognostic, Prognostic Factor, Prognostic Factors, Psychological, Psychological-Factors, Publications, Purpose, Quality, Randomized Clinical-Trial, Recovery, References, Removal, Review, Rights, Risk, Sample, Sample Size, Science, Scopus, Size, Small, Strategy, Systematic, Systematic Review, Value, Web, Web Of Science, Work, Work Disability

? Wertli, M.M., Rasmussen-Barr, E., Held, U., Weiser, S., Bachmann, L.M. and Brunner, F. (2014), Fear-avoidance beliefs-a moderator of treatment efficacy in patients with low back pain: A systematic review. *Spine Journal*, **14** (11), 2658-2678.

Full Text: [2014\Spi J14, 2658.pdf](2014/Spi%20J14,%202658.pdf)

Abstract: BACKGROUND CONTEXT: Psychological factors are believed to influence the development of chronic low back pain. To date, it is not known how fear-avoidance beliefs (FABs) influence the treatment efficacy in low back pain. PURPOSE: To summarize the evidence examining the influence of FABs measured with the Fear-Avoidance Belief Questionnaire or the Tampa Scale of Kinesiophobia on treatment outcomes in patients with low back pain. STUDY DESIGN/SETTING: This is a systematic review. PATIENT SAMPLE: Patients with low back pain. OUTCOME MEASURES: Work-related outcomes and perceived measures including return to work, pain, and disability. METHODS: In January 2013, the following databases were searched: BIOSIS, CINAHL, Cochrane Library, Embase, OTSeeker, PeDRO, PsycInfo, PubMed/Medline, Scopus, and Web of Science. A hand search of the six most often retrieved journals and a bibliography search completed the search. Study eligibility criteria, participants, and interventions: research studies that included patients with low back pain who participated in randomized controlled trials (RCTs) investigating nonoperative treatment efficacy. Out of 646 records, 78 articles were assessed in full text and 17 RCTs were included. Study quality was high in five studies and moderate in 12 studies. RESULTS: In patients with low back pain of up to 6 months duration, high FABs were associated with more pain and/or disability (4 RCTs) and less return to work (3 RCTs) (GRADE high-quality evidence, 831 patients vs. 322 in nonpredictive studies). A decrease in FAB values during treatment was associated with less pain and disability at follow-up (GRADE moderate evidence, 2 RCTs with moderate quality, 242 patients). Interventions that addressed FABs were more effective than control groups based on biomedical concepts (GRADE moderate evidence, 1,051 vs. 227 patients in studies without moderating effects). In chronic patients with LBP, the findings were less consistent. Two studies found baseline FABs to be associated with more pain and disability and less return to work (339 patients), whereas 3 others (832 patients) found none (GRADE low evidence). Heterogeneity of the studies impeded a pooling of the results. CONCLUSIONS: Evidence suggests that FABs are associated with poor treatment outcome in patients with LBP of less than 6 months, and thus early treatment, including interventions to reduce FABs, may avoid delayed recovery and chronicity. Patients with high FABs are more likely to improve when FABs are addressed in treatments than when these beliefs are ignored, and treatment strategies should be modified if FABs are present. (C) 2014 Elsevier Inc. All rights reserved.

Keywords: Articles, Back Pain, Background, Bibliography, Biomedical, Chronic, Chronic Musculoskeletal Pain, Clinical-Practice, Conclusions, Context, Control, Control Groups, Criteria, Databases, Development, Disability, Duration, Effects, Efficacy, European Guidelines, Evidence, Exposure In-Vivo, Fear Avoidance, Fear Avoidance Beliefs, Fear-Avoidance Beliefs, Follow-Up, Grade, Groups, Influence, Interventions, Journals, Low Back, Low Back Pain, Measures, Methods, Moderator, Modified, Movement (Re)Injury, Nov, Outcome, Outcome Measures, Outcomes, Pain, Patient, Patients, Primary-Care, Prognosis, Psychological, Psychometric Properties, Purpose, Quality, Questionnaire, Randomized, Randomized Controlled Trials, Randomized Controlled-Trial, Records, Recovery, Research, Review, Rights, Sample, Scale, Science, Scopus, Study Quality, Systematic, Systematic Review, Tampa Scale, Therapy Interventions, Treatment, Treatment Outcome, Web, Web Of Science, Work

# Title: Sports Medicine

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ISO Abbreviated Title:

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Subject Categories:

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? Gissane, C., Jennings, D., Kerr, K. and White, J.A. (2002), A pooled data analysis of injury incidence in rugby league football. *Sports Medicine*, **32** (3), 211-216.

Full Text: [2002\Spo Med32, 211.pdf](2002/Spo%20Med32,%20211.pdf)

Abstract: Objective: the aim of this study was to summarise the injury rates in professional rugby league football. Methods: Previously published studies were identified from database searches of the literature from MEDLINE, Sports Discus and Web of Science. A total of 18 articles. which reported the prospective injury data collection for at least one playing season in professional rugby league worldwide, were included. The definition of injury adopted required an injured player to miss the subsequent game through injury. Ten studies satisfied the injury definition criteria for inclusion. A review of articles and extraction of relevant data were carried out independently by two authors. Results: A total of 517 injuries were reported during 12 819 hours of exposure (753 games), which resulted in an overall injury rate of 40.3 injuries per 1000 hours [95% confidence interval (CI) 36.9 to 43.8]. Most injuries were to the lower half of the body (20.7 per 1000 hours, 95% CI 17.7 to 24), with the trunk receiving the least (6.7 per 1000 hours, 95% CI 5 to 8.6). Conclusions: Injury rates in professional rugby league are higher than in some other contact sports, probably because of the large number of physical collisions that take place. This pooled data analysis provides more accurate estimates of injury incidence in the game of professional rugby league football.

Keywords: Analysis, Authors, Club, Data Collection, Exposure, Games, Incidence, Injury, Literature, Methods, Professional, Review, Science, Sports, Web of Science

? Martyn-St James, M. and Carroll, S. (2006), Progressive high-intensity resistance training and bone mineral density changes among premenopaUSAl women - Evidence of discordant site-specific skeletal effects. *Sports Medicine*, **36** (8), 683-704.

Full Text: [2006\Spo Med36, 683.pdf](2006/Spo%20Med36,%20683.pdf)

Abstract: Regular weight-bearing physical activity has been widely recommended for adult women and may be beneficial in preserving bone mineral density (BMD). However, there is conflicting evidence regarding the effects of resistance training on BMD in premenopaUSAl women. Novel systematic review and meta-analysis evidence is presented on the effects of progressive high-intensity resistance training on BMD in premenopaUSAl women. Structured computer searches of MEDLINE, EMBASE, PUBMED, Web of Science, SportDiscus and Evidence Based Medicine Reviews Multifile were undertaken along With hand-searching of key journals and reference lists to locate relevant studies published up to September 2004. Criteria for included studies were published controlled studies and randomised controlled trials (RCTs) evaluating the effects of progressive, high-intensity resistance training studies on BMD in premenopaUSAl women. Two authors reached consensus on all included and excluded studies. Study outcomes for analysis were radiographic BMD assessment from first follow-up at lumbar spine and femoral neck. Primary outcomes for analysis were absolute changes in BMD g/cm(2) at lumbar spine and femoral neck. Relative changes (percentage change) in BMD at lumbar spine were also assessed. Data were extracted from studies including study design, participant characteristics and treatment mode, intensity and duration, using electronic data extraction forms. Where necessary, relevant information was obtained by contacting study authors. Methodological quality of studies was assessed using a well recognised three-question instrument designed to assess bias. Informal assessment for small sample study effects and potential bias was undertaken through visual inspection of funnel plots. The weighted mean difference method (inverse of the variances) was used for combining study group estimates. Quantification of the effect of heterogeneity among study outcomes was assessed using the 12 statistic. Random effects and fixed-effect models were applied according to observed study heterogeneity. Comparisons resulting in I-2 > 50.0% were considered heterogeneous. Where heterogeneity was observed, a random effects model was applied. Pooled estimates of effect were calculated using the Cochrane Collaboration’s Review Manager (RevMan) 4.2.1 software. High-intensity progressive resistance training was shown to be efficacious in increasing absolute BMD at the lumbar spine (p < 0.00001) but not the femoral neck (p = 0.78) in premenopaUSAl women. The weighted mean difference (WMD) using a fixed-effect model for six controlled trials investigating the lumbar spine BMD change was 0.014 g/cm(2) (95% CI 0.009, 0.019; p < 0.00001). The relative BMD change for this site was 0.98% (WMD [random effects], 95% CI 0.49, 3.91%; p = 0.04). In contrast, studies evaluating femoral neck BMD changes showed no significant BMD change (WMD [fixed effect], 0.001 g/cm(2) 95% CI -0.006, 0.008; p = 0.78). Funnel plot inspection of lumbar spine effects indicated that smaller studies demonstrated larger treatment effects. An asymmetry towards studies with positive BMD outcomes was also noted. The methodological quality score of all included studies was low and no study presented a valid intention-to-treat accounting for participant drop-out (attrition). As such, the modest overall treatment effects for resistance training on BMD among premenopaUSAl women observed in this review may be biased and should be interpreted with caution. It is concluded that further RCTs of resistance training of sufficiently long duration and providing optimum type, intensity and volume of loading, with intention-to-treat analysis are now required.

Keywords: Adult, Analysis, Assessment, Authors, Bias, Body Bone, Bone, Bone Mineral Density, Clinical-Trials, Cochrane, Computer, Consort Statement, Controlled Studies, Design, Discordant, Embase, Follow-up, Hip Fracture, Information, Journals, MEDLINE, Meta-Analysis, Model, Outcomes, Physical Activity, Physical-Activity, PostmenopaUSAl Women, Primary, Pubmed, Randomized Controlled-Trials, Resistance, Resistance Training, Review, Science, Software, Spine, Systematic, Systematic Review, Systematic Reviews, Training, Treatment, Web of Science, Women, X-Ray Absorptiometry, Young-Women

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Full Text: [2007\Spo Med37, 703.pdf](2007/Spo%20Med37,%20703.pdf)

Abstract: Anterior cruciate ligament (ACL) rupture is a common sporting injury, often managed surgically with patella-tendon or hamstrings-gracilis autograft. Some people who sustain the injury, request information about their prognosis if they choose to forgo surgery and opt for conservative management. Numerous studies provide data on the prognosis of conservatively managed ACL injuries. These studies have not been systematically reviewed. Thus, the aims of this systematic review are to describe the natural history and clinical course of function and proprioception in the conservatively managed ACL-deficient knee, and to identify prognostic factors. We searched MEDLINE, CINAHL, EMBASE, SportDiscus, PEDro and the Cochrane Central Register of Clinical Trials without language restrictions from the earliest record available up to July 2006. We also searched the Science Citation Index, and iteratively searched bibliographies for prospective studies of outcomes (> 6 months follow-up) of conservatively managed complete ACL tears. Six criteria were used to assess the methodological quality of included studies. The main outcome measures were self-reported measures of knee function, activity level, performance in functional tasks and knee proprioception. Fifteen studies of variable methodological quality were included in the review. On average, patients with mixed or isolated ACL-deficient knees reported good knee function (87/100 Lysholm knee scale) at follow-up duration of 12-66 months. On average, functional performance assessed with the hop-for-distance test, was in the normal range. From pre-injury to follow-up there was a reduction in Tegner activity level of 21.3%. According to the methods used in the assessed studies, conservatively managed ACL-deficient knees have a good short- to mid-term prognosis in terms of self-reported knee function and functional performance. However, subjects reduced their activity levels on average by 21% following injury.

Keywords: Acute Rupture, Bibliographies, Citation, Clinical-Trials, Criteria, Cruciate Ligament, Deficient Knees, Functional Disability, History, Knee Scoring Questionnaires, Language, Management, MEDLINE, Methods, Natural-History, Nonoperative Treatment, Outcomes, Prognosis, Quality Scores, Reduction, Review, Scale, Science, Science Citation Index, Surgery, Systematic Review, Term Follow-up, Treated Tears

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Full Text: [2009\Spo Med39, 765.pdf](2009/Spo%20Med39,%20765.pdf)

Abstract: Strength training has become one of the most popular physical activities for increasing characteristics such as absolute muscular strength, endurance, hypertrophy and muscular power. for efficient, safe and effective training, it is of utmost importance to understand the interaction among training variables, which might include the intensity, number of sets, rest interval between sets, exercise modality and velocity of muscle action. Research has indicated that the rest interval between sets is an important variable that affects both acute responses and chronic adaptations to resistance exercise programmes. The purpose of this review is to analyse and discuss the rest interval between sets for targeting specific training outcomes (e.g. absolute muscular strength, endurance, hypertrophy and muscular power). The Scielo, Science Citation Index, National Library of Medicine, MEDLINE, Scopus, Sport Discus and CINAHL databases were used to locate previous original scientific investigations. The 35 studies reviewed examined both acute responses and chronic adaptations, with rest interval length as the experimental variable. In terms of acute responses, a key finding was that when training with loads between 50% and 90% of one repetition maximum, 3-5 minutes’ rest between sets allowed for greater repetitions over multiple sets. Furthermore, in terms of chronic adaptations, resting 3-5 minutes between sets produced greater increases in absolute strength, due to higher intensities and volumes of training. Similarly, higher levels of muscular power were demonstrated over multiple sets with 3 or 5 minutes versus 1 minute of rest between sets. Conversely, some experiments have demonstrated that when testing maximal strength, 1-minute rest intervals might be sufficient between repeated attempts; however, from a psychological and physiological standpoint, the inclusion of 3- to 5-minute rest intervals might be safer and more reliable. When the training goal is muscular hypertrophy, the combination of moderate-intensity sets with short rest intervals of 30-60 seconds might be most effective due to greater acute levels of growth hormone during such workouts. Finally, the research on rest interval length in relation to chronic muscular endurance adaptations is less clear. Training with short rest intervals (e.g. 20 seconds to 1 minute) resulted in higher repetition velocities during repeated submaximal muscle actions and also greater total torque during a high-intensity cycle test. Both of these findings indirectly demonstrated the benefits of utilizing short rest intervals for gains in muscular endurance. In summary, the rest interval between sets is an important variable that should receive more attention in resistance exercise prescription. When prescribed appropriately with other important prescriptive variables (i.e. volume and intensity), The amount of rest between sets can influence the efficiency, safety and ultimate effectiveness of a strength training programme.

Keywords: Bench Press Performance, Citation, Databases, Endurance, Exercise, Heavy-Resistance Exercise, High-Intensity, Hormonal Responses, Length, MEDLINE, Muscle, Muscular Adaptations, Outcomes, Protocols, Recovery, Research, Review, Science, Science Citation Index, Scopus

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Full Text: [2012\Spo Med42, 31.pdf](2012/Spo%20Med42,%2031.pdf)

Abstract: Anterior knee pain is a chronic condition that presents frequently to sports medicine clinics, and can have a long-term impact on participation in physical activity. Conceivably, effective early management may prevent chronicity and facilitate physical activity. Although a variety of nonsurgical interventions have been advocated, previous systematic reviews have consistently been unable to reach conclusions to support their use. Considering a decade has lapsed since publication of the most recent data in these reviews, it is timely to provide an updated synthesis of the literature to assist sports medicine practitioners in making informed, evidence-based decisions. A systematic review and meta-analysis was conducted to evaluate the evidence for nonsurgical interventions for anterior knee pain. A comprehensive search strategy was used to search MEDLINE, EMBASE, CINAHL (R) and Pre-CINAHL (R), PEDro, PubMed, SportDiscus (R), Web of Science (R), BIOSIS Previews (R), and the full Cochrane Library, while reference lists of included papers and previous systematic reviews were hand searched. Studies were eligible for inclusion if they were randomized clinical trials that used a measure of pain to evaluate at least one nonsurgical intervention over at least 2 weeks in participants with anterior knee pain. A modified version of the PEDro scale was used to rate methodological quality and risk of bias. Effect size calculation and meta-analyses were based on random effects models. of 48 suitable studies, 27 studies with low-to-moderate risk of bias were included. There was minimal opportunity for meta-analysis because of heterogeneity of interventions, comparators and follow-up times. Meta-analysis of high-quality clinical trials supports the use of a 6-week multimodal physiotherapy programme (standardized mean difference [SMD] 1.08, 95% CI -0.73, 1.43), but does not support the addition of electromyography biofeedback to an exercise programme in the short-term (4 weeks: SMD -0.21, 95% CI -0.64, 0.21; 8-12 weeks: SMD -0.22, 95% CI 0.65, 0.20). Individual study data showed beneficial effects for foot orthoses with and without multimodal physiotherapy (vs flat inserts), exercise (vs control), closed chain exercises (vs open chain exercises), patella taping in conjunction with exercise (vs exercise alone) and acupuncture (vs control). Findings suggest that, in implementing evidence-based practice for the nonsurgical management of anterior knee pain, sports medicine practitioners should prescribe local, proximal and distal components of multimodal physiotherapy in the first instance for suitable patients, and then consider foot orthoses or acupuncture as required.

Keywords: Bias, Chondromalacia Patellae, Chronic Condition, Clinical Trials, Clinical-Trials, Cochrane, Control, Efficacy, Electric Muscle Stimulation, Embase, Evidence-Based Practice, Exercise, Exercises, Follow-Up, Foot Orthoses, Hand, Impact, Injuries, Intervention, Interventions, Kinetic Chain Exercises, Knee, Literature, Management, Medicine, MEDLINE, Meta Analysis, Meta-Analysis, Modified, Orthoses, Pain, Papers, Participation, Patellofemoral Pain, Patients, Physical Activity, Physical Interventions, Practice, Publication, Pubmed, Quality, Randomized Clinical Trials, Review, Risk, Science, Sports, Strategy, Synthesis, Systematic, Systematic Review, Systematic Reviews, Therapy, Web of Science, Web-of-Science

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Full Text: [2012\Spo Med42, 251.pdf](2012/Spo%20Med42,%20251.pdf)

Abstract: Resistance training (RT) is now an integral component of a well rounded exercise programme. for a correct training prescription, it is of the utmost importance to understand the interaction among training variables, such as the load, volume, rest interval between sets and exercises, frequency of sessions, exercise modality, repetition velocity and, finally, exercise order. Sports medicine research has indicated that exercise order is an important variable that affects both acute responses and chronic adaptations to RT programmes. Therefore, the purpose of this review was to analyse and discuss exercise order with relevance to acute responses (e.g. repetition performance) and also the expression of chronic adaptable characteristics (e.g. maximal strength and hypertrophy). To accomplish this purpose, the Scielo, Science Citation Index, National Library of Medicine, MEDLINE, Scopus, SPORTDiscus (TM) and CINAHL (R) databases were accessed to locate previously conducted original scientific investigations. The studies reviewed examined both acute responses and chronic adaptations with exercise order as the experimental variable. Generally, with relevance to acute responses, a key finding was that exercise order affects repetition performance over multiple sets, indicating that the total repetitions, and thus the volume, is greater when an exercise is placed at the beginning of an RT session, regardless of the relative amount of muscle mass involved. The pre-exhaustion method might not be an effective technique to increase the extent of neuromuscular recruitment for larger muscle groups (e.g. pectoralis major for the bench press) when preceded by a single-joint movement (e.g. pec-deck fly). With relevance to localized muscular endurance performance, oxygen consumption and ratings of perceived exertion, the limited amount of research conducted thus far indicates that exercise order does not appear to impact the acute expression of these variables. In terms of chronic adaptations, greater strength increases were evident by untrained subjects for the first exercise of a given sequence, while strength increases were inhibited for the last exercise of a given sequence. Additionally, based on strength and hypertrophy (i.e. muscle thickness and volume) effect-size data, the research suggests that exercises be ordered based on priority of importance as dictated by the training goal of a programme, irrespective of whether the exercise involves a relatively large or small muscle group. In summary, exercise order is an important variable that should receive greater attention in RT prescription. When prescribed appropriately with other key prescriptive variables (i.e. load, volume, rest interval between sets and exercises), The exercise order can influence the efficiency, safety and ultimate effectiveness of an RT programme.

Keywords: Bench Press Exercise, Blood Lactate, Characteristics, Chronic, Citation, Consumption, Data, Databases, Effect Size, Effectiveness, Efficiency, Exercise, Exercises, Experimental, Expression, First, Impact, Interaction, Interval, Investigations, Load, Medicine, MEDLINE, Movement, Muscle, Muscle Activation, Oxygen, Perceived Exertion, Performance, Prescription, Programmes, Purpose, Ratings, Recruitment, Relevance, Research, Rest Interval, Review, Safety, Science, Science Citation Index, Scopus, Session, Small, Strength, Training, Volume, Young-Women

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Full Text: [2012\Spo Med42, 891.pdf](2012/Spo%20Med42,%20891.pdf)

Abstract: Background: Musculoskeletal injuries occur frequently in runners and despite many studies about running injuries conducted over the past decades it is not clear in the literature what are the main running-related musculoskeletal injuries (RRMIs). Objective: the aim of this study is to systematically review studies on the incidence and prevalence of the main specific RRMIs. Methods: An electronic database search was conducted using EMBASE (1947 to October 2011), MEDLINE (1966 to October 2011), SPORTDiscus (TM) (1975 to October 2011), The Latin American and Caribbean Center on Health Sciences Information (LILACS) [1982 to October 2011] and the Scientific Electronic Library Online (SciELO) [1998 to October 2011] with no limits of date or language of publication. Articles that described the incidence or prevalence rates of RRMIs were considered eligible. Studies that reported only the type of injury, anatomical region or incomplete data that precluded interpretation of the incidence or prevalence rates of RRMIs were excluded. We extracted data regarding bibliometric characteristics, study design, description of the population of runners, RRMI definition, how the data of RRMIs were collected and the name of each RRMI with their rates of incidence or prevalence. Separate analysis for ultra-marathoners was performed. Among 2924 potentially eligible titles, eight studies (pooled n=3500 runners) were considered eligible for the review. In general, the articles had moderate risk of bias and only one fulfilled less than half of the quality criteria established. Results: A total of 28 RRMIs were found and the main general RRMIs were medial tibial stress syndrome (incidence ranging from 13.6% to 20.0%; prevalence of 9.5%), Achilles tendinopathy (incidence ranging from 9.1% to 10.9%; prevalence ranging from 6.2% to 9.5%) and plantar fasciitis (incidence ranging from 4.5% to 10.0%; prevalence ranging from 5.2% to 17.5%). The main ultra-marathon RRMIs were Achilles tendinopathy (prevalence ranging from 2.0% to 18.5%) and patellofemoral syndrome (prevalence ranging from 7.4% to 15.6%). Conclusion: This systematic review provides evidence that medial tibia stress syndrome, Achilles tendinopathy and plantar fasciitis were the main general RRMIs, while Achilles tendinopathy and patellofemoral syndrome were the most common RRMIs for runners who participated in ultra-marathon races.

Keywords: Analysis, Articles, Bias, Bibliometric, Characteristics, Criteria, Data, Data-Collection, Database, Design, Evidence, General, Health-Problems, Incidence, Injury, Language, Literature, Lower-Extremity Injuries, Male Marathon Runners, MEDLINE, Patellar-Tendinopathy, Plantar Fasciitis, Population, Prevalence, Publication, Quality, Rates, Region, Review, Risk, Risk-Factors, Scielo, Shin Splints, Sports Injuries, Stress, Study Design, Syndrome, Systematic Review, Tibial Stress Syndrome

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Full Text: [2013\Spo Med43, 1191.pdf](2013/Spo%20Med43,%201191.pdf)

Abstract: Controversy exists among trials assessing whether exercise can improve arterial function in type 2 diabetes mellitus (T2DM) subjects. Therefore the aim of this study was to systematically review and quantify the effects of exercise on arterial function in T2DM subjects. MEDLINE, Cochrane, Scopus and Web of Science were searched up until January 2013 for randomized controlled trials evaluating the effects of exercise interventions lasting 4 weeks or more on arterial function in T2DM subjects. Flow-mediated dilation (FMD) and nitrate-mediated dilation (NMD) of the brachial conduit artery were considered for assessment of arterial endothelial function and smooth muscle function, respectively. Five randomized trials comparing exercise and control groups (overall n = 217) met the inclusion criteria. The mean exercise characteristics were as follows: 3.6 sessions per week, 67.5 min per session, intensity at 74.4 % of the maximum heart rate (HRmax), for 14 weeks. The post-intervention mean difference in FMD favoured the exercise groups over the control groups (2.23 %; P < 0.0001). No significant post-intervention mean difference in NMD (1.22 %; P = 0.29) was found between the groups. Neither heterogeneity nor publication bias was detected among the trials. Exercise training alone improved FMD, showing its capacity to restore arterial endothelial function in T2DM subjects. However, further research is needed to determine whether longer and/or more intense exercise interventions could enhance arterial smooth muscle function in this population.

Keywords: Artery, Assessing, Assessment, Bias, Capacity, Characteristics, Control, Control Groups, Criteria, Diabetes, Diabetes Mellitus, Effects, Endothelial Function, Exercise, Function, Groups, Heart, Heart Rate, Heterogeneity, Interventions, MEDLINE, Muscle, Nov, P, Population, Publication, Publication Bias, Randomized, Randomized Controlled Trials, Research, Review, Science, Scopus, Smooth Muscle, Training, Type 2 Diabetes, Web of Science

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Full Text: [2014\Spo Med44, 81.pdf](2014/Spo%20Med44,%2081.pdf)

Abstract: Psychological stress and physical activity (PA) are believed to be reciprocally related; however, most research examining the relationship between these constructs is devoted to the study of exercise and/or PA as an instrument to mitigate distress. The aim of this paper was to review the literature investigating the influence of stress on indicators of PA and exercise. A systematic search of Web of Science, PubMed, and SPORTDiscus was employed to find all relevant studies focusing on human participants. Search terms included “stress”, “exercise”, and “physical activity”. A rating scale (0-9) modified for this study was utilized to assess the quality of all studies with multiple time points. The literature search found 168 studies that examined the influence of stress on PA. Studies varied widely in their theoretical orientation and included perceived stress, distress, life events, job strain, role strain, and work-family conflict but not lifetime cumulative adversity. To more clearly address the question, prospective studies (n = 55) were considered for further review, the majority of which indicated that psychological stress predicts less PA (behavioral inhibition) and/or exercise or more sedentary behavior (76.4 %). Both objective (i.e., life events) and subjective (i.e., distress) measures of stress related to reduced PA. Prospective studies investigating the effects of objective markers of stress nearly all agreed (six of seven studies) that stress has a negative effect on PA. This was true for research examining (a) PA at periods of objectively varying levels of stress (i.e., final examinations vs. a control time point) and (b) chronically stressed populations (e.g., caregivers, parents of children with a cancer diagnosis) that were less likely to be active than controls over time. Studies examining older adults (> 50 years), cohorts with both men and women, and larger sample sizes (n > 100) were more likely to show an inverse association. 85.7 % of higher-quality prospective research (a parts per thousand yen7 on a 9-point scale) showed the same trend. Interestingly, some prospective studies (18.2 %) report evidence that PA was positively impacted by stress (behavioral activation). This should not be surprising as some individuals utilize exercise to cope with stress. Several other factors may moderate stress and PA relationships, such as stages of change for exercise. Habitually active individuals exercise more in the face of stress, and those in beginning stages exercise less. Consequently, stress may have a differential impact on exercise adoption, maintenance, and relapse. Preliminary evidence suggests that combining stress management programming with exercise interventions may allay stress-related reductions in PA, though rigorous testing of these techniques has yet to be produced. Overall, the majority of the literature finds that the experience of stress impairs efforts to be physically active. Future work should center on the development of a theory explaining the mechanisms underlying the multifarious influences of stress on PA behaviors.

Keywords: Activation, Activity, Adoption, African-American Women, Association, Behavior, Body-Mass Index, Cancer, Cardiovascular Risk-Factors, Caregivers, Children, Combining, Control, Coronary-Heart-Disease, Cumulative, Development, Diagnosis, Distress, Effects, Events, Evidence, Exercise, Experience, Health-Promoting Behaviors, Human, Impact, Indicators, Influence, Inhibition, Instrument, Interventions, Leisure-Time Exercise, Life, Literature, Literature Search, Management, Measures, Mechanisms, Men, Modified, Parents, Physical, Physical Activity, Populations, Programming, Prospective, Prospective Studies, Psychological, Psychological Stress, Psychosocial Working-Conditions, Pubmed, Quality, Quality Of, Quality-Of-Life, Randomized Controlled-Trial, Relapse, Research, Review, Role, Scale, Science, Search, Self-Reported Health, Stress, Techniques, Testing, Theoretical, Theory, Trend, Web of Science, Women, Work

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Full Text: [2014\Spo Med44, 369.pdf](2014/Spo%20Med44,%20369.pdf)

Abstract: S100B level in the blood has been used as a marker for brain damage and blood-brain barrier (BBB) disruption. Elevations of S100B levels after exercise have been observed, suggesting that the BBB may be compromised during exercise. However, an increase in S100B levels may be confounded by other variables. The primary objective of this review was to compile findings on the relationship between S100B and exercise in order to determine if this protein is a valid marker for BBB disruptions during exercise. The secondary objective was to consolidate known factors causing S100B increases that may give rise to inaccurate interpretations of S100B levels. PubMed, Web of Science and ScienceDirect were searched for relevant studies up to January 2013, in which S100B measurements were taken after a bout of exercise. Animal studies were excluded. Variables of interest such as the type of activity, exercise intensities, duration, detection methods, presence and extent of head trauma were examined and compiled. This review included 23 studies; 15 (65 %) reported S100B increases after exercise, and among these, ten reported S100B increases regardless of intervention, while five reported increases in only some trials but not others. Eight (35 %) studies reported no increases in S100B levels across all trials. Most baseline S100B levels fall below 0.16 mu g/L, with an increase in S100B levels of less than 0.07 mu g/L following exercise. Factors that are likely to affect S100B levels include exercise intensity, and duration, presence and extent of head trauma. Several other probable factors influencing S100B elevations are muscle breakdown, level of training and oxidative stress, but current findings are still weak and inconclusive. Elevated S100B levels have been recorded following exercise and are mostly attributed to either an increase in BBB permeability or trauma to the head. However, even in the absence of head trauma, it appears that the BBB may be compromised following exercise, with the severity dependent on exercise intensity.

Keywords: Activity, Alzheimers-Disease, Barrier, Biochemical Markers, Blood, Brain, Calcium-Modulated Proteins, Cardiac-Surgery, Central-Nervous-System, Cerebrospinal-Fluid, Damage, Duration, Exercise, Factors, Head Trauma, Intensity, Intervention, Mar, Methods, Muscle, Neuron-Specific Enolase, Neurotrophic Activity, Oxidative Stress, Peripheral Markers, Permeability, Primary, Protein, Pubmed, Review, S100b, Science, Serum S-100b Protein, Stress, Training, Trauma, Web of Science

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Full Text: [2014\Spo Med44, 473.pdf](2014/Spo%20Med44,%20473.pdf)

Abstract: the effects of methods to prevent injuries have been studied in several systematic reviews. However, no meta-analysis taking into account all randomised controlled intervention trials aiming at the prevention of sports injuries has been published. To summarise the effects of sports injury prevention interventions. Systematic review and meta-analysis of randomised controlled trials. PubMed, MEDLINE, SPORTDiscus, the Cochrane Central Register of Controlled Trials, CINAHL, PEDro, and Web of Science, searched in September 2013. The reference lists of retrieved articles and reviews were hand searched. To be selected articles had to examine the effects of any preventive intervention on sports injuries, be randomised, quasi-randomised and controlled trials, published in a peer-reviewed journal. The outcome of the trial had to be injury rate or the number of injured individuals. of the 5580 articles retrieved after a search of databases and the relevant bibliography, 68 randomised controlled trials were included in the systematic review and 60 trials were included in the meta-analysis. Insoles (OR 0.51, 95 % CI 0.32-0.81), external joint supports (OR 0.40, 95 % CI 0.30-0.53), and specific training programmes (OR 0.55, 95 % CI 0.46-0.66) appeared to be effective in reducing the risk of sports injuries. Stretching (OR 0.92, 95 % CI 0.80-1.06), modified shoes (OR 1.23, 95 % CI 0.81-1.87), and preventive videos (OR 0.86, 95 % CI 0.44-1.68) seemed not to be effective. This meta-analysis showed that certain interventions can reduce the risk of sports injuries. There were limitations regarding the quality of the trials, generalisability of the results, and heterogeneity of the study designs. In future, the mechanisms behind effective methods and the most beneficial elements of preventive training programmes need to be clarified.

Keywords: Ankle Sprains, Balance-Training-Program, Bibliography, Databases, Effects, Heterogeneity, High-School Basketball, Injury, Injury Prevention, Intervention, Interventions, Journal, Lower-Limb Injuries, Male Soccer Players, Mechanisms, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Modified, Neuromuscular Warm-Up, Of-The-Literature, Outcome, Overuse Injuries, Peer-Reviewed, Prevent, Prevention, Programmes, Pubmed, Quality, Quality Of, Randomised, Randomised Controlled Trials, Reference, Reference Lists, Review, Reviews, Risk, Science, Shock Absorbing Insoles, Systematic Review, Systematic Reviews, Training, Training Programmes, Trial, Web of Science, Young Female Players

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Full Text: [2014\Spo Med44, 833.pdf](2014/Spo%20Med44,%20833.pdf)

Abstract: Background and Objective Controversy exists as to whether aerobic exercise training decreases arterial stiffness in obese subjects. The aim of this study was to systematically review and quantify the effect of aerobic exercise training on arterial stiffness in obese populations. Methods MEDLINE, Cochrane, Scopus, and Web of Science were searched up until May 2013 for trials assessing the effect of aerobic training interventions lasting 8 weeks or more on arterial stiffness in obese populations (body mass index >= 30 kg/m(2)). Standardized mean difference (SMD) in arterial stiffness parameters (augmentation index, beta-stiffness, distensibility, pulse wave velocity, arterial waveforms) was calculated using a random-effects model. Subgroup and meta-regression analyses were used to study potential moderating factors. Results Eight trials, comprising a total of 235 subjects with an age range of 49-70 years, met the inclusion criteria. Arterial stiffness was not significantly reduced by aerobic training (SMD - 0.17; 95 % confidence interval (CI) - 0.39, 0.06, P = 0.14). Similarly, post-intervention arterial stiffness was similar between the aerobic-trained and control obese groups (SMD 0.02; 95 % CI - 0.28, 0.32, P = 0.88). Neither heterogeneity nor publication bias were detected in these analyses. In subgroup analyses, arterial stiffness was significantly reduced in aerobic-trained subgroups having below median values in post- minus pre-intervention systolic blood pressure (SBP) (P < 0.01), exercise intensity rating score (P < 0.01), and methodological quality score (P < 0.01). Equivalent results were obtained in meta-regression analyses. Conclusion Based on current published trials, arterial stiffness is generally not reduced in middle-aged and older obese populations in response to aerobic training. However, in studies using low-intensity aerobic training and yielding a decrease in SBP, arterial stiffness may decrease. Long-term studies are needed to assess the prognostic value of these findings.

Keywords: Aerobic Exercise, Age, American-Heart-Association, Analyses, Arterial Stiffness, Assessing, Augmentation, Bias, Blood, Blood Pressure, Body Mass Index, Cardiovascular-Disease Risk, Confidence, Control, Criteria, Effect, Endothelial Function, Exercise, Exercise Training, Factors, Groups, Heterogeneity, Index, Intensity, Interval, Interventions, Isolated Systolic Hypertension, Low-Intensity, Medline, Meta-Regression, Methods, Model, Obese, Of-Sports-Medicine, Older, P, Physical-Activity, Populations, Potential, Pressure, Prognostic, Publication, Publication Bias, Quality, Random Effects Model, Response, Results, Review, Science, Scopus, Spontaneously Hypertensive-Rats, Stiffness, Training, Value, Very-Low-Carbohydrate, Web, Web Of Science, Weight-Loss

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Full Text: [2014\Spo Med44, 845.pdf](2014/Spo%20Med44,%20845.pdf)

Abstract: Background Economy, velocity/power at maximal oxygen uptake (v(V) over dot O-2max/w(V) over dotO(2max)) and endurance-specific muscle power tests (i.e. maximal anaerobic running velocity; vMART), are now thought to be the best performance predictors in elite endurance athletes. In addition to cardiovascular function, these key performance indicators are believed to be partly dictated by the neuromuscular system. One technique to improve neuromuscular efficiency in athletes is through strength training. Objective The aim of this systematic review was to search the body of scientific literature for original research investigating the effect of strength training on performance indicators in well-trained endurance athletes-specifically economy, v(V) over dot O-2max/w(V) over dotO(2max) and muscle power (vMART). Methods A search was performed using the MEDLINE, PubMed, ScienceDirect, SPORTDiscus and Web of Science search engines. Twenty-six studies met the inclusion criteria (athletes had to be trained endurance athletes with >= 6 months endurance training, training >= 6 h per week OR (V) over dot O-2max >= 50 mL/min/kg, the strength interventions had to be >= 5 weeks in duration, and control groups used). All studies were reviewed using the PEDro scale. Results The results showed that strength training improved time-trial performance, economy, v(V) over dot O-2max/w(V) over dot O-2max, and vMART in competitive endurance athletes. Conclusion The present research available supports the addition of strength training in an endurance athlete’s programme for improved economy, v(V) over dot O-2max/w(V) over dotO(2max), muscle power and performance. However, it is evident that further research is needed. Future investigations should include valid strength assessments (i.e. squats, jump squats, drop jumps) through a range of velocities (maximal-strength <-> strength-speed <-> speed-strength <-> reactive-strength), and administer appropriate strength programmes (exercise, load and velocity prescription) over a long-term intervention period (>6 months) for optimal transfer to performance.

Keywords: Assessments, Athletes, Cardiovascular, Cardiovascular Function, Competitive, Concurrent Endurance, Control, Control Groups, Country Skiers, Criteria, Cross-Sectional Area, Cyclists, Determinants, Distance Runners, Duration, Economy, Effect, Efficiency, Exercise, Function, Groups, Indicators, Intervention, Interventions, Investigations, Key Performance Indicators, Literature, Load, Long Term, Long-Term, Medline, Methods, Muscle, Muscle Power, Oxygen, Oxygen-Uptake, Performance, Performance Indicators, Power, Predictors, Prescription, Programmes, Pubmed, Research, Results, Review, Running Economy, Scale, Science, Sciencedirect, Scientific Literature, Strength, Strength Training, Systematic, Systematic Review, Training, Uptake, Web, Web Of Science

? Amlani, N.M. and Munir, F. (2014), Does physical activity have an impact on sickness absence? A review. *Sports Medicine*, **44** (7), 887-907.

Full Text: [2014\Spo Med44, 887.pdf](2014/Spo%20Med44,%20887.pdf)

Abstract: Increasing levels of physical activity are proven to have a positive impact on physical health and mental well-being. Physical activity is also known to influence work-related outcomes such as reducing sickness absence. Sickness absence is a major public health problem with wide economic impact on society and there may be much to gain from physical activity interventions aimed at preventing long-term sickness absence. Examining the relationship between physical activity and sickness absence is therefore important as it may provide benefits to organisations globally. This article provides a review of the evidence on the relationship between physical activity and sickness absence among employees. A search of databases (Web of Science, ScienceDirect, MEDLINE and Google Scholar) and references of published studies (from inception to 14 November 2012) were conducted to identify intervention studies and observational studies involving employees. A total of 37 studies published between 1981 and 2012 met the inclusion criteria. Evidence from the review suggests that physical activity is effective in reducing sickness absence. However, the studies highlighted a number of methodological concerns, including lack of description of the physical activity programme in intervention studies and use of self-report physical activity in observational studies. We conclude that, overall, the available evidence provides limited support that physical activity is effective in reducing sickness absence, due to the low quality of many of these studies. Future research should provide more detailed descriptions of the physical activity programme and use more reliable objective measures of physical activity such as accelerometers and fitness tests.

Keywords: Absenteeism, Activity, Article, Benefits, Criteria, Databases, Economic, Employee Fitness Program, Evidence, Exercise, Fitness, From, Google, Google Scholar, Health, Health Problem, Impact, Influence, Intervention, Intervention Studies, Interventions, Job-Satisfaction, Leave, Life-Style, Long Term, Long-Term, Measures, Medline, Observational, Observational Studies, Outcomes, Physical, Physical Activity, Productivity, Public, Public Health, Public Health Problem, Quality, Quality Of, Randomized Controlled-Trial, References, Research, Review, Science, Sciencedirect, Sickness, Sickness Absence, Society, Support, Web, Web Of Science, Well-Being, Work

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Full Text: [2014\Spo Med44, 943.pdf](2014/Spo%20Med44,%20943.pdf)

Abstract: Background Injection therapies are widely used for muscle injuries. As there is only limited evidence of their efficacy, physicians should be aware of the potential harmful effects of these injected preparations. Objectives The purpose of this review was to systematically review the literature on the myotoxic effects of intramuscular injection preparations commonly used for acute muscle injuries. Data Sources The databases of PubMed, Embase, Web of Science, Cochrane Library, CINAHL and SportDiscus were searched in March 2013. Study Eligibility Criteria Studies reporting histological evaluation or creatine kinase activity after intramuscular injection with local anaesthetics, corticosteroids, non-steroidal anti-inflammatory drugs (NSAIDs), platelet-rich plasma (PRP), Traumeel(R) and Actovegin(R), or combination preparations were eligible for inclusion. Data Analysis Two authors independently screened the search results and assessed the risk of bias. A best-evidence synthesis was used to identify the level of evidence. Results Forty-nine studies were included in this systematic review. There is strong to moderate evidence that intramuscularly injected local anaesthetics and NSAIDs are myotoxic, and there is conflicting evidence of the myotoxicity of PRP. There is limited evidence that single corticosteroid injections are not myotoxic but have a synergistic myotoxic effect when used together with local anaesthetics. There is no information to assess whether Actovegin(R) and Traumeel(R) are myotoxic. Conclusion Local anaesthetics and NSAID injections are not recommended for the treatment of muscle injuries in athletes, as they are myotoxic. The possible myotoxic effects of corticosteroids, PRP, Traumeel(R) and Actovegin(R) should be assessed in future research.

Keywords: Activity, Anaesthetics, Analysis, Athletes, Authors, Autologous Conditioned Serum, Best-Evidence Synthesis, Bias, Bupivacaine-Induced Regeneration, Corticosteroids, Creatine, Creatine-Kinase Activity, Data, Databases, Drugs, Effects, Efficacy, Evaluation, Evidence, Hamstring Injuries, Information, Injections, Intramuscular Injection, Literature, Local, Local Anaesthetics, Local Tissue-Damage, Muscle, National-Football-League, Nsaid, Nsaids, Pain-On-Injection, Physicians, Plasma, Platelet-Rich Plasma, Potential, Pubmed, Purpose, Rat Skeletal-Muscle, Reporting, Research, Results, Review, Risk, Science, Synthesis, Systematic, Systematic Review, Treatment, Web, Web Of Science

? Gabbett, T.J., Whyte, D.G., Hartwig, T.B., Wescombe, H. and Naughton, G.A. (2014), The relationship between workloads, physical performance, injury and illness in adolescent male football players. *Sports Medicine*, **44** (7), 989-1003.

Full Text: [2014\Spo Med44, 989.pdf](2014/Spo%20Med44,%20989.pdf)

Abstract: Background The expectation that training enhances performance is well explored in professional sport. However, the additional challenges of physical and cognitive maturation may require careful consideration when determining workloads to enhance performance in adolescents. Objective The objective of this study was to determine the state of knowledge on the relationship between workloads, physical performance, injury and/or illness in adolescent male football players. Methods A systematic review of workloads, physical performance, injury and illness in male adolescent football players was conducted. Studies for this review were identified through a systematic search of six electronic databases (Academic Search Complete, CINAHL, PsycINFO, PubMed, SPORTDiscus, and Web of Science). For the purpose of this review, load was defined as the cumulative amount of stress placed on an individual from multiple training sessions and games over a period of time, expressed in terms of either the external workloads performed (e.g., resistance lifted, kilometres run) or the internal response (e.g., heart rate, rating of perceived exertion) to that workload. Results A total of 2,081 studies were initially retrieved from the six databases, of which 892 were duplicates. After screening the titles, abstracts and full texts, we identified 23 articles meeting our criteria around adolescent football players, workloads, physical performance, injury and/or illness. Seventeen articles addressed the relationship between load and physical performance, four articles addressed the relationship between load and injury and two articles addressed both. A wide range of training modalities were employed to improve the physical performance of adolescent football players, with strength training, high-intensity interval training, dribbling and small-sided games training, and a combination of these modalities in addition to normal football training, resulting in improved performances on a wide range of physiological and skill assessments. Furthermore, there was some (limited) evidence that higher workloads may be associated with the development of better physical qualities, with one study demonstrating enhanced submaximal interval shuttle run performance with each additional hour of training or game play. Of the few studies examining negative consequences associated with workloads, increases in training load led to increases in injury rates, while longer training duration was associated with a greater incidence of illness. Conclusion The combined capacity for adolescent males to grow, train and improve physical performance highlights and underscores an exciting responsiveness to training in the football environment. However, the capacity to train has some established barriers for adolescents experiencing high workloads, which could also result in negative consequences. Additional research on stage-appropriate training for adolescent male footballers is required in order to address the knowledge gaps and enhance safe and efficient training practices.

Keywords: Academic, Adolescent, Adolescents, Aerobic Capacity, Articles, Assessments, Barriers, Capacity, Cognitive, Competitive Season, Criteria, Cumulative, Databases, Development, Duration, Elite Soccer Players, Environment, Evidence, From, Heart, Heart Rate, Incidence, Injury, Interval, Knowledge, Load, Male, Maturation, Methods, Modalities, Muscular Strength, Negative, Normal, Overtraining Syndrome, Performance, Physical, Practices, Professional Sport, Psycinfo, Pubmed, Purpose, Rates, Research, Resistance, Response, Responsiveness, Results, Review, Risk-Factors, Rugby League Players, Running Performance, Science, Screening, Search, Short-Passing Ability, Sport, State, Strength, Strength Training, Stress, Systematic, Systematic Review, Training, Union Players, Web, Web Of Science, Workload

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Full Text: [2014\Spo Med44, 1005.pdf](2014/Spo%20Med44,%201005.pdf)

Abstract: Background Low-volume high-intensity interval training (HIT) appears to be an efficient and practical way to develop physical fitness. Objective Our objective was to estimate meta-analysed mean effects of HIT on aerobic power (maximum oxygen consumption [VO2max] in an incremental test) and sprint fitness (peak and mean power in a 30-s Wingate test). Data Sources Five databases (PubMed, MEDLINE, Scopus, BIOSIS and Web of Science) were searched for original research articles published up to January 2014. Search terms included ‘high intensity’, ‘HIT’, ‘sprint’, ‘fitness’ and ‘VO2max’. Study Selection Inclusion criteria were fitness assessed pre- and post-training; training period >= 2 weeks; repetition duration 30-60 s; work/rest ratio < 1.0; exercise intensity described as maximal or near maximal; adult subjects aged > 18 years. Data Extraction The final data set consisted of 55 estimates from 32 trials for VO2max, 23 estimates from 16 trials for peak sprint power, and 19 estimates from 12 trials for mean sprint power. Effects on fitness were analysed as percentages via log transformation. Standard errors calculated from exact p values (where reported) or imputed from errors of measurement provided appropriate weightings. Fixed effects in the meta-regression model included type of study (controlled, uncontrolled), subject characteristics (sex, training status, baseline fitness) and training parameters (number of training sessions, repetition duration, work/rest ratio). Probabilistic magnitude-based inferences for meta-analysed effects were based on standardized thresholds for small, moderate and large changes (0.2, 0.6 and 1.2, respectively) derived from between-subject standard deviations (SDs) for baseline fitness. Results A mean low-volume HIT protocol (13 training sessions, 0.16 work/rest ratio) in a controlled trial produced a likely moderate improvement in the VO2max of active non-athletic males (6.2%; 90% confidence limits +/- 3.1%), when compared with control. There were possibly moderate improvements in the VO2max of sedentary males (10.0%; +/- 5.1%) and active non-athletic females (3.6%; +/- 4.3%) and a likely small increase for sedentary females (7.3%; +/- 4.8%). The effect on the VO2max of athletic males was unclear (2.7%; +/- 4.6%). A possibly moderate additional increase was likely for subjects with a 10 mL.kg(-1).min(-1) lower baseline VO2max (3.8%; +/- 2.5%), whereas the modifying effects of sex and difference in exercise dose were unclear. The comparison of HIT with traditional endurance training was unclear (-1.6%; +/- 4.3%). Unexplained variation between studies was 2.0% (SD). Meta-analysed effects of HIT on Wingate peak and mean power were unclear. Conclusions Low-volume HIT produces moderate improvements in the aerobic power of active non-athletic and sedentary subjects. More studies are needed to resolve the unclear modifying effects of sex and HIT dose on aerobic power and the unclear effects on sprint fitness.

Keywords: Active, Adult, Adults, Aged, Articles, Capacity, Changes, Characteristics, Comparison, Confidence, Consumption, Control, Controlled Trial, Criteria, Data, Data Set, Databases, Duration, Effects, Errors, Estimates, Exercise, Exercise Performance, Extraction, Fitness, From, Human Skeletal-Muscle, Humans, Improvement, Increases Insulin Sensitivity, Intensity, Interval, Lactate Threshold, Measurement, Medline, Meta-Analysis, Meta-Regression, Metabolic Adaptations, Model, Older-Adults, Oxygen, Physical, Physical Fitness, Power, Programming Puzzle, Protocol, Pubmed, Research, Results, Science, Scopus, Search, Sedentary, Sex, Small, Standard, Term Sprint Interval, Thresholds, Training, Transformation, Trial, Web, Web Of Science

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Full Text: [2014\Spo Med44, 1139.pdf](2014/Spo%20Med44,%201139.pdf)

Abstract: Background The increasing prevalence of obesity in the pediatric age range has become a major concern. Studies have investigated the role of physical activity (PA) to prevent obesity in this population. However, previous reviews did not focus on the effects of PA in overweight/obese adolescents on physical fitness and risk factors for cardiovascular disease altogether. Objective The present systematic review analyzed trials investigating the effect of PA on aerobic capacity, muscle strength, body composition, hemodynamic variables, biochemical markers, and endothelial function in obese/ overweight adolescents. Methods PubMed, LILACS, Web of Science, Scopus (including Embase), and SPORTDiscus databases were searched for relevant reports without time limits. Inclusion criteria included studies published in English, with overweight and obese adolescents aged 12-17 years. The review was registered (Number CRD42013004632) on PROSPERO, the International Prospective Register of Systematic Reviews. Results The results indicated that PA is associated with significant and beneficial changes in fat percentage, waist circumference, systolic blood pressure, insulin, low-density lipoprotein cholesterol, and total cholesterol, as well as with small non-significant changes in diastolic blood pressure, glucose, and high-density lipoprotein cholesterol. Conclusion Although limited, results from controlled trials suggest that PA intervention may improve physical fitness and risk factors for cardiovascular disease in adolescents who are overweight or obese.

Keywords: Activity, Adolescents, Age, Aged, Blood, Blood Pressure, Body Composition, Body-Mass Index, C-Reactive Protein, Capacity, Cardiovascular, Cardiovascular Disease, Changes, Childhood Obesity, Cholesterol, Chronic Disease Risk, Composition, Criteria, Databases, Disease, Effects, Endothelial Function, English, Factors, Fat, Fitness, From, Function, Glucose, Insulin, Insulin Sensitivity, International, Intervention, Life-Style Intervention, Low-Grade Inflammation, Methods, Mexican-American Children, Muscle, Obese, Obesity, Overweight, Pediatric, Pediatric Obesity, Physical, Physical Activity, Physical Fitness, Population, Pressure, Prevalence, Prevent, Prospective, Pubmed, Results, Review, Reviews, Risk, Risk Factors, Role, School-Based Interventions, Science, Scopus, Small, Strength, Systematic, Systematic Review, Systematic Reviews, Waist Circumference, Web, Web Of Science

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Full Text: [2014\Spo Med44, 1261.pdf](2014/Spo%20Med44,%201261.pdf)

Abstract: Background The impact of active workstations has been studied in several settings, and several outcomes have been investigated. However, the effects on health, work performance, quality of life, etc., have never been systematically reviewed. Objective To evaluate the existing literature about active workstations and their possible positive health and work performance effects. Data Sources We searched the electronic databases Pub-Med and Web of Science (up until 28 February 2014). The search terms we used were ‘active workstation’, ‘standing workstation’, ‘standing desk’, ‘stand up workstation’, ‘stand up desk’, ‘walking desk’, ‘walking workstation’, ‘treadmill workstation’, ‘treadmill desk’, ‘cycling workstation’, ‘cycling desk’ and ‘bike desk’, in combination with ‘health’, ‘quality of life’, ‘cognition’, ‘computer task performance’, ‘absenteeism’, ‘productivity’, ‘academic achievement’, ‘cognitive decline’, and ‘independent living’. In addition, we searched the reference lists of relevant published articles. Study Selection Randomized controlled trials, non-randomized controlled trials and non-randomized non-controlled trials investigating the introduction of active workstations in humans were included in this systematic review. Only original studies were included, and we did not accept studies combining the introduction of active workstations with other interventions. Outcomes concerning health, energy expenditure, cognition, quality of life and work performance were included. Results We included 32 studies, of which five were longitudinal studies in school-aged children, 10 were longitudinal studies in adults and 17 were non-longitudinal studies in adults. Sixteen studies investigated standing desks, 15 investigated walking desks, and one investigated a cycling workstation. The general findings were decreased sitting time, increased energy expenditure, a positive effect on several health markers, no detrimental effect on work performance, no acute effect on cognitive function and no straightforward findings concerning computer task performance. Conclusion The implementation of active workstations might contribute to improving people’s health and physical activity levels. The effect of the use of these active workstations on cognition and applied work tasks, such as computer task performance, needs further investigation before conclusions can be drawn. Another aspect that needs further investigation is the implementation of the different active workstations in all age groups.

Keywords: Academic Achievement, Achievement, Active, Activity, Age, Articles, Behaviour, Children, Cognition, Cognitive, Cognitive Function, Combining, Data, Databases, Effects, Energy, Energy Expenditure, Energy-Expenditure, Exercise, Expenditure, Function, General, Groups, Health, Humans, Impact, Implementation, Interventions, Investigation, Life, Literature, Living, Longitudinal, Longitudinal Studies, Musculoskeletal, Needs, Office Workers, Outcomes, Performance, Physical, Physical Activity, Physical-Activity, Productivity, Pub Med, Published Articles, Pubmed, Quality, Quality Of, Quality Of Life, Randomized, Randomized Controlled Trials, Reference, Reference Lists, Results, Review, Science, Sit-Stand Desks, Sitting Time, Systematic, Systematic Review, Walking, Web, Web Of Science, Work, Workplace

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Full Text: [2014\Spo Med44, 1275.pdf](2014/Spo%20Med44,%201275.pdf)

Abstract: Background and Objective Hypoxic training techniques are increasingly used by athletes in an attempt to improve performance in normoxic environments. The ‘live lowtrain high (LLTH)’ model of hypoxic training may be of particular interest to athletes because LLTH protocols generally involve shorter hypoxic exposures (approximately two to five sessions per week of <3 h) than other traditional hypoxic training techniques (e.g. live high-train high or live high-train low). However, the methods employed in LLTH studies to date vary greatly with respect to exposure times, training intensities, training modalities, degrees of hypoxia and performance outcomes assessed. Whilst recent reviews provide some insight into how LLTH may be applied to enhance performance, little attention has been given to how training intensity/modality may specifically influence subsequent performance in normoxia. Therefore, this systematic review aims to evaluate the normoxic performance outcomes of the available LLTH literature, with a particular focus on training intensity and modality. Data Sources and Study Selection A systematic search was conducted to capture all LLTH studies with a matched normoxic (control) training group and the assessment of performance under normoxic conditions. Studies were excluded if no training was completed during the hypoxic exposures, or if these exposures exceeded 3 h per day. Four electronic databases were searched (PubMed, SPORTDiscus (TM), EMBASE and Web of Science) during August 2013, and these searches were supplemented by additional manual searches until December 2013. Results After the electronic and manual searches, 40 papers were deemed to meet the inclusion criteria, representing 31 separate studies. Within these 31 studies, four types of LLTH were identified: (1) continuous low-intensity training in hypoxia (CHT, n = 16), (2) interval hypoxic training (IHT, n = 4), (3) repeated sprint training in hypoxia (RSH, n = 3) and (4) resistance training in hypoxia (RTH, n = 4). Four studies also used a combination of CHT and IHT. The majority of studies reported no difference in normoxic performance between the hypoxic and normoxic training groups (n = 19), while nine reported greater improvements in the hypoxic group and three reported poorer outcomes compared with the control group. Selection of training intensity (including matching relative or absolute intensity between normoxic and hypoxic groups) was identified as a key factor in mediating the subsequent normoxic performance outcomes. Five studies included some form of normoxic training for the hypoxic group and 14 studies assessed performance outcomes not specific to the training intensity/modality completed during the training intervention. Conclusion Four modes of LLTH are identified in the current literature (CHT, IHT, RSH and RTH), with training mode and intensity appearing to be key factors in mediating subsequent performance responses in normoxia. Improvements in normoxic performance appear most likely following high-intensity, short-term and intermittent training (e.g. IHT, RSH). LLTH programmes should carefully apply the principles of training and testing specificity and include some high-intensity training in normoxia. For RTH, it is unclear whether the associated adaptations are greater than those of traditional (maximal) resistance training programmes.

Keywords: Aerobic Performance, Anaerobic Performance, Application, Assessment, Athletes, Attention, Control, Criteria, Cycling Performance, Data, Databases, Embase, Endurance Performance, Exercise, Exposure, Exposures, Factors, Groups, Human Skeletal-Muscle, Hypoxia, Influence, Intensity, Interval, Intervention, Literature, Live, Matching, Methods, Modalities, Mode, Model, Normobaric Hypoxia, Outcomes, Papers, Performance, Principles, Programmes, Protocols, Pubmed, Recent, Resistance, Resistance Exercise, Resistance Training, Results, Review, Reviews, Science, Sea-Level Performance, Simulated Altitude, Specificity, Sport, Systematic, Systematic Review, Techniques, Testing, Training, Training Programmes, Vascular Occlusion, Web, Web Of Science

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Full Text: [2014\Spo Med44, 1459.pdf](2014/Spo%20Med44,%201459.pdf)

Abstract: Background Research into the nature of overuse Achilles tendon injuries is extensive, yet uncertainty remains around how to identify athletes susceptible to Achilles tendon injury. Objective To identify the strength of evidence for biomechanical risk factors associated with Achilles tendon injuries. Research Methods SPORTDiscus, CINAHL, Web of Science and PubMed were searched for Achilles tendon injury risk factors and biomechanical measures which are altered in runners with Achilles tendon injuries, excluding ruptures. Fifteen articles were included in the analysis. Results Two variables, high vertical forces and high arch, showed strong evidence for reduced injury risk. High propulsive forces and running on stiffer surfaces may also be protective. Only one biomechanical variable, high braking force, showed clear evidence for increasing Achilles injury risk. Discussion Gait retraining to direct the centre of mass further forward to reduce high braking force could be useful in decreasing the risk of Achilles injury. The majority of biomechanical risk factors examined showed unclear results, which is likely due to the multifactorial nature of Achilles overuse injuries. Many risk factors are related to how the athlete’s body interacts with the environment during gait, including ground reaction forces, muscle activity both prior to landing and immediately post ground contact, and joint motion throughout stance. Conclusion Multiple risk factors have been associated with the development of Achilles tendon injuries in running athletes but most effects remain unclear. Advice for athletes recovering from Achilles tendon injuries could include avoiding soft surfaces and reducing the pace of recovery runs. Orthotic intervention could assist athletes with low arches but modification of pronation should be viewed with caution. Strength training and gait retraining could be beneficial for reducing injury risk.

Keywords: Activity, Analysis, Articles, Athletes, Development, Effects, Environment, Evidence, Factors, Force, From, Gait, In-Vivo, Injury, Intervention, Leg Stiffness, Lower-Limb, Measures, Mechanical-Properties, Methods, Modification, Muscle, Orthotic, Overuse Injuries, Pubmed, Randomized Controlled-Trials, Recovery, Research, Results, Risk, Risk Factors, Runners, Science, Strength, Surfaces, Tendinopathy, Training, Triceps Surae, Uncertainty, Vertical, Web, Web Of Science

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Full Text: [2014\Spo Med44, 1545.pdf](2014/Spo%20Med44,%201545.pdf)

Abstract: Background Chronic ankle instability (CAI) is a term used to identify certain insufficiencies of the ankle joint complex following an acute ankle injury. Acute ankle injuries are often associated with sporting mishaps; however, this review was the first to identify the aspects of CAI (perceived instability, mechanical instability and recurrent sprain), and persisting symptoms following an ankle sprain, that have been reported within sporting cohorts. Objective To determine the presence of common aspects of CAI within individual sports. Methods A systematic search of the MEDLINE, Web of Science, CINAHL, SPORTDiscus and AMED databases up until 1 October, 2013 produced 88 studies appropriate for review. A calculated weighted percentage of the outcome data allowed the comparison of figures across a range of sports. Results Soccer, basketball and volleyball were the most represented sports and recurrent ankle injury/sprain was the most reported aspect of CAI. Soccer had the highest percentage of participants with recurrent sprain (61 %) and mechanical instability (38 %), whilst track and field had the highest percentage of participants with perceived instability (41 %). Gymnasts had the highest percentage of ankles with persisting symptoms following an initial ankle sprain. Conclusion This review was the first to assess aspects of CAI within sporting cohorts and has identified limitations to the research reporting these data. The problem of CAI across a range of sports remains unclear and thus advocates the need for further controlled research in the area to ascertain the true extent of CAI within sporting populations.

Keywords: Basketball, Basketball Injuries, Comparison, Data, Databases, Descriptive Epidemiology, Female Soccer Players, Field, First, Injury, Injury Surveillance System, Medline, Methods, Nov, Outcome, Populations, Professional Football, Prospective Cohort, Randomized Controlled-Trial, Recurrent, Reporting, Research, Results, Review, Risk-Factors, School Football Players, Science, Soccer, Symptoms, Systematic, Term, United-States, Web, Web Of Science

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Full Text: [2014\Spo Med44, 1573.pdf](2014/Spo%20Med44,%201573.pdf)

Abstract: Background Knee joint mechanics during sidestepping are associated with anterior cruciate ligament injury. Unplanned sidestepping more closely emulates game scenarios when compared with planned sidestepping by limiting decision time, increasing knee loading and challenging the integrity of soft-tissue structures in the knee. It is important to quantify the loads that may challenge the integrity of the knee during planned and unplanned sidestepping. Objective Our objective was to review literature on knee mechanics during planned and unplanned phases of sidestepping. Data sources PubMed, CINAHL, MEDLINE (EBSCO), SPORTDiscus and Web of Science were searched using the terms knee mechanics OR knee kine\*, and plan\*, unplan\*, anticipat\*, unanticipat\*, side\*, cut\* or chang\*. Study selection A systematic approach was used to evaluate 4,629 records. Records were excluded when not available in English, only available in abstract of conference proceedings, not involving a change-of-direction sidestep, not comparing planned and unplanned or maintaining a running velocity greater than 2 m s(-1). Data extraction Included studies were evaluated independently by two authors using a custom-designed methodological quality assessment derived from the Physiotherapy Evidence Database (PEDro) scale and then confirmed by a third author. Data synthesis Only six studies met the inclusion criteria and were retained for meta-analysis. Magnitude-based inferences were used to assess the standardised effect of the differences between planned and unplanned sidestepping. Knee angles and knee moments were extracted and reported for flexion/extension, abduction/adduction and internal/external rotation for initial contact, weight acceptance, peak push-off and final push-off phases of sidestepping. Results For kinematic variables, unplanned sidestepping produced a wide range of small to large increases in knee extension angles, small and moderate increases in knee abduction angles and a small increase in internal rotation angle relative to planned sidestepping during the sidestepping manoeuvre. For kinetic variables, unplanned sidestepping produced mostly small (small to large) increases in knee flexor moments, small to moderate increases in knee abductor moments and mostly moderate (small to large) increases in internal rotator moments relative to planned sidestepping. Limitations Approach velocity constraints during the sidestepping manoeuvre were lifted due to the low number of eligible studies. The varying approach velocities included (ranging from 3.0 to 5.5 m s(-1)) may impact the kinematic and kinetic variables examined in this review. Conclusions Differences in knee mechanics between planned and unplanned sidestepping exist. The most substantial effects occurred during the weight acceptance phase of sidestepping. It seems that biomechanical factors commonly associated with anterior cruciate ligament injury risk are affected the most during the loading phase compared with peak push-off; made evident in the coronal (abductor) and transverse (internal rotator) knee kinetic data presented in this review. The authors of this review propose a rationale for the incorporation of unplanned sport tasks in the development of anterior cruciate ligament injury screening and in prophylactic training programmes.

Keywords: Abduction, Acceptance, Acl Injury, Anterior Cruciate Ligament, Approach, Assessment, Australian Football, Authors, Basketball Players, Challenge, Conference Proceedings, Criteria, Cutting Maneuvers, Data, Database, Decision, Descriptive Epidemiology, Development, Differences, Effects, English, Evidence, Extraction, Factors, From, Impact, Injury, Injury Surveillance System, Kinetic, Kinetic Data, Knee, Literature, Loading, Loads, Lower-Extremity Kinematics, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Nov, Physiotherapy, Professional Rugby Union, Programmes, Prophylactic, Pubmed, Quality, Records, Results, Review, Review Literature, Risk, Scale, Scenarios, Science, Screening, Selection, Small, Soccer Injuries, Soft Tissue, Sources, Sport, Synthesis, Systematic, Systematic Review, Training, Training Programmes, Web, Web Of Science

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Full Text: [2014\Spo Med44, 1589.pdf](2014/Spo%20Med44,%201589.pdf)

Abstract: Background Evidence suggests that physical self-concept is associated with physical activity in children and adolescents, but no systematic review of this literature has been conducted. Objective The primary aim of this systematic review and meta-analysis was to determine the strength of associations between physical activity and physical self-concept (general and sub-domains) in children and adolescents. The secondary aim was to examine potential moderators of the association between physical activity and physical self-concept. Methods A systematic search of six electronic databases (MEDLINE, CINAHL, SPORTDiscus, ERIC, Web of Science and Scopus) with no date restrictions was conducted. Random effects meta-analyses with correction for measurement were employed. The associations between physical activity and general physical self-concept and sub-domains were explored. A risk of bias assessment was conducted by two reviewers. Results The search identified 64 studies to be included in the meta-analysis. Thirty-three studies addressed multiple outcomes of general physical self-concept: 28 studies examined general physical self-concept, 59 examined perceived competence, 25 examined perceived fitness, and 55 examined perceived appearance. Perceived competence was most strongly associated with physical activity (r = 0.30, 95 % CI 0.24-0.35, p < 0.001), followed by perceived fitness (r = 0.26, 95 % CI 0.2-0.32, p < 0.001), general physical self-concept (r = 0.25, 95 % CI 0.16-0.34, p < 0.001) and perceived physical appearance (r = 0.12, 95 % CI 0.08-0.16, p< 0.001). Sex was a significant moderator for general physical self-concept (p < 0.05), and age was a significant moderator for perceived appearance (p <= 0.01) and perceived competence (p < 0.05). No significant moderators were found for perceived fitness. Conclusion Overall, a significant association has been consistently demonstrated between physical activity and physical self-concept and its various sub-domains in children and adolescents. Age and sex are key moderators of the association between physical activity and physical self-concept.

Keywords: Activity, Adolescent Girls, Adolescents, Age, Assessment, Association, Bias, Body-Composition, Children, Competence, Databases, Description Questionnaire, Effects, Evidence, Fitness, General, Instructional Climates, Literature, Longitudinal Assessment, Measurement, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Moderator, Nov, Outcomes, Perceived Competence, Physical, Physical Activity, Potential, Preschool-Children, Primary, Prisma Statement, Publication Bias, Randomized Controlled-Trial, Restrictions, Results, Review, Reviewers, Risk, Science, Scopus, Self Concept, Sex, Strength, Systematic, Systematic Review, Web, Web Of Science

? Lack, S., Barton, C., Vicenzino, B. and Morrissey, D. (2014), Outcome predictors for conservative patellofemoral pain management: A systematic review and meta-analysis. *Sports Medicine*, **44** (12), 1703-1716.

Full Text: [2014\Spo Med44, 1703.pdf](2014/Spo%20Med44,%201703.pdf)

Abstract: Background Patellofemoral pain (PFP) is highly prevalent within both sporting and recreationally active populations. Multiple treatment approaches have been advocated for the management of PFP, attempting to address both intrinsic and extrinsic factors thought to contribute to the development and persistence of pain. A number of predictors of treatment success have been proposed, and evaluated, for directing intervention choice. Objective Our aim was to systematically review the literature that identifies outcome predictors of specific conservative interventions in the management of PFP, including quality of the current evidence, to guide clinical practice and future studies investigating outcome predictors within this population. Data Sources The AMED, CINAHL, EMBASE, MEDLINE and Web of Science databases were searched from inception to April 2013. Study Selection Randomized controlled trials (RCTs) and cohort studies. Study Appraisal and Synthesis Methods Following initial searching, all potential papers were assessed by two independent reviewers for inclusion using a checklist developed from the inclusion criteria. Cited, and citing, references were also searched in Google Scholar, but unpublished work was not sought. Methodological quality was assessed using a previously designed quality assessment scale. Definitions for levels of evidence were guided by recommendations made by van Tulder et al. Results Fifteen low-quality (LQ) cohort studies were included. No RCTs were found. This systematic review identified the evaluation of 205 conservative management outcome predictor variables. Of this large number of variables that have been assessed, 19 (9 %) were found to significantly predict a successful outcome. Where two or more outcome predictors and success determinants were consistent between studies, data were pooled. Within these studies, the low number of participants per output variable, and absence of controls, is likely to compromise the validity of the predictor’s accuracy. Very limited evidence identified higher functional index questionnaire scores (mean 0.82, 95 % confidence interval [CI] 0.18-1.46), greater forefoot valgus (mean 0.67, 95 % CI 0.05-1.28) and greater rearfoot eversion magnitude peak (mean -0.93, 95 % CI-1.84 to -0.01) to significantly predict improved outcomes with orthoses interventions. Shorter symptom duration (p = 0.019), lower frequency of pain (p = 0.012), younger age, faster vastus medialis oblique reflex response time (p = 0.026), negative patella apprehension, absence of chondromalacia patella, tibial tubercle deviation of <14.6 mm and greater total quadriceps cross-sectional area on magnetic resonance imaging (p = 0.01), and reduced eccentric average quadriceps peak torque (p = 0.015) significantly predicted exercise intervention success following multivariate statistical analysis. Limited evidence identified increased Q-angle (mean 0.38, 95 % CI 0.05-0.72) and very limited evidence identified greater usual pain (mean 0.43, 95 % CI 0.01-0.85) to predict taping intervention success. Conclusions This systematic review provides a comprehensive summary of current derivation level studies identifying indicators of prediction for conservative PFP management. The overall strength of evidence was low. With appropriate caution, clinicians should consider taping for those with greater usual pain, orthoses for older individuals and exercise for younger individuals, and orthoses intervention for patients with greater forefoot valgus and rearfoot eversion magnitude peak. RCTs with evaluation of outcome prediction as a primary aim are clearly warranted to provide clinicians with robust evidence and facilitate evidence-informed, tailored intervention to this heterogeneous patient population.

Keywords: Accuracy, Active, Age, Analysis, Anterior Knee Pain, Assessment, Choice, Clinical, Clinical Practice, Cohort, Confidence, Conservative, Conservative Management, Criteria, Cross-Sectional, Data, Databases, Development, Duration, Embase, Evaluation, Evidence, Exercise, Extrinsic, Factors, Follow-Up, Foot Orthoses Efficacy, From, Google, Google Scholar, Hip Abductor, Imaging, Index, Indicators, Individuals, Injuries, Interval, Intervention, Interventions, Intrinsic, Literature, Magnetic, Magnetic Resonance, Magnetic Resonance Imaging, Magnitude, Management, Medline, Meta-Analysis, Methodological Quality, Methods, Multivariate, Negative, Nonoperative Treatment, Older, Outcome, Outcome Prediction, Outcomes, Pain, Papers, Patients, Persistence, Population, Populations, Potential, Practice, Prediction, Predictor, Predictors, Primary, Prognostic-Factors, Quality, Quality Of, Questionnaire, Randomized, Randomized Clinical-Trial, Randomized Controlled Trials, Recommendations, References, Rehabilitation, Response, Results, Review, Reviewers, Scale, Science, Statistical Analysis, Strength, Success, Synthesis, Systematic, Systematic Review, Treatment, Validity, Web, Web Of Science, Web Of Science Databases, Work

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Full Text: [2014\Spo Med44, 1733.pdf](2014/Spo%20Med44,%201733.pdf)

Abstract: Background The promotion of sport and physical activity (PA) for children is widely recommended to support a healthy lifestyle, but being engaged in sport bears the risk of sustaining injuries. Injuries, in turn, can lead to a reduction in current and future involvement in PA and, therefore, may negatively affect future health as well as quality of life. Thus, sports injury prevention is of particular importance in youth. Objective The aim of this systematic review was to quantify the effectiveness of exercise-based injury prevention programs in child and adolescent sport in general, and with respect to different characteristics of the target group, injury prevention program, and outcome variables. Data Sources An Internet-based literature search was conducted in six databases (CINAHL, Cochrane, EMBASE, ISI Web of Science, PubMed, SPORTDiscus) using the following search terms with Boolean conjunction: (sport injur\* OR athletic injur\* OR sport accident\*) and (prevent\* OR prophylaxis OR avoidance) and (child\* OR adolescent OR youth). Study Selection Randomized controlled trials and controlled intervention studies in organized sport, published in English in a peer-reviewed journal, analyzing the effects of an exercise-based injury prevention program in athletes younger than 19 years of age. Data Extraction Two reviewers evaluated eligibility and methodological quality. Main outcome extracted was the rate ratio (RR). Statistical analyses were conducted using the inverse-variance random effects model. Results Twenty-one trials, conducted on a total of 27,561 athletes (median age 16.7 years [range 10.7-17.8]), were included. The overall RR was 0.54 (95 % CI 0.45-0.67) [p < 0.001]. Girls profited more from injury prevention than boys (p = 0.05). Both prevention programs with a focus on specific injuries (RR 0.48 [ 95 % CI 0.37-0.63]) and those aiming at all injuries (RR 0.62 [ 95 % CI 0.48-0.81]) showed significant reduction effects. Pre-season and in-season interventions were similarly beneficial (p = 0.93). Studies on programs that include jumping/plyometric exercises showed a significant better (p = 0.002) injury preventive effect (RR 0.45 [ 95 % CI 0.35-0.57], Z = 6.35, p < 0.001) than studies without such exercises (RR 0.74 [95 % CI 0.61-0.90], Z = 3.03, p = 0.002). Conclusions The results provide good evidence and clearly demonstrate beneficial effects of exercise-based injury prevention programs in youth sports as they can result in statistically significant and practically relevant injury reduction. In particular, multimodal programs including jumping/plyometric exercises can be recommended. However, there is a considerable lack of data for children (under 14 years of age) and for individual sports in general. Future research should include these groups and focus on the effect of specific exercises and compliance.

Keywords: Activity, Adolescent, Affect, Age, Analyses, Athletes, Balance-Training-Program, Characteristics, Child, Children, Compliance, Cruciate Ligament Injury, Data, Databases, Economic Burden, Effectiveness, Effects, Embase, English, Evidence, Exercises, Extraction, Female Football Players, From, General, Girls, Groups, Health, Injury, Injury Prevention, Intervention, Intervention Studies, Interventions, ISI, ISI Web Of Science, Journal, Lead, Life, Literature, Literature Search, Meta-Analysis, Methodological Quality, Model, Outcome, Peer-Reviewed, Physical, Physical Activity, Physical-Activity, Prevention, Promotion, Prophylaxis, Prospective Intervention, Pubmed, Quality, Quality Of, Quality Of Life, Random Effects Model, Randomized, Randomized Controlled Trials, Randomized-Controlled-Trial, Recreation Injuries, Reduction, Research, Results, Review, Reviewers, Risk, Risk-Factors, Science, Soccer Players, Sport, Support, Systematic, Systematic Review, Web, Web Of Science, Youth

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Full Text: [2015\Spo Med45, 133.pdf](2015/Spo%20Med45,%20133.pdf)

Abstract: Background Sports physicians are increasingly requested to perform magnetic resonance imaging (MRI) of acute hamstring muscle injuries and to provide a prognosis of the time to return to play (RTP) on the basis of their findings. Objectives To systematically review the literature on the prognostic value of MRI findings for time to RTP in acute hamstring muscle injuries. Data Sources The databases of PubMed, EMBASE, CI-NAHL, Web of Science and Cochrane Library were searched in June 2013. Study Eligibility Criteria Studies evaluating MRI as a prognostic tool for determining time to RTP in athletes with acute hamstring injuries were eligible for inclusion. Data Analysis Two authors independently screened the search results and assessed risk of bias using criteria for quality appraisal of prognosis studies. A best-evidence synthesis was used to identify the level of evidence. Results Of the 12 studies included, one had a low risk of bias and 11 a high risk of bias. There is moderate evidence that injuries without hyperintensity on fluid-sensitive sequences are associated with a shorter time to RTP and that injuries involving the proximal free tendon are associated with a longer time to RTP. Limited evidence was found for an association of central tendon disruption, injury not affecting the musculotendinous junction and a total rupture with a longer time to RTP. The other MRI findings studied showed either no association or there was conflicting evidence. Conclusion There is currently no strong evidence for any MRI finding that gives a prognosis on the time to RTP after an acute hamstring injury, owing to considerable risks of bias in the studies on this topic.

Keywords: Analysis, Association, Athletes, Authors, Best-Evidence Synthesis, Bias, Central Tendon, Clinical-Trial, Criteria, Data, Databases, Diagnosis, Embase, Epidemiology, Evidence, Imaging, Injury, Library, Literature, Low Risk, Magnetic, Magnetic Resonance, Magnetic Resonance Imaging, Mri, Muscle, Muscle Injuries, Physicians, Prevention, Professional Football, Prognosis, Prognostic, Pubmed, Quality, Rehabilitation, Results, Review, Risk, Risks, Rupture, Science, Strain Injuries, Synthesis, Systematic Reviews, Topic, Value, Web, Web Of Science

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Full Text: [2015\Spo Med45, 257.pdf](2015/Spo%20Med45,%20257.pdf)

Abstract: Background and Objective While some authors report that dancers have reduced bone mineral density (BMD) and increased risk of osteoporosis, others have stressed the positive effects of dance training on developing healthy BMD. Given the existing controversy, the aim of this systematic review was to examine the best evidence-based information available in relation to female dancers. Methods Four databases (Web of Science, PubMed, EBSCO, Scopus) and two dance science journals (Journal of Dance Medicine and Science and Medical Problems of Performing Artists) were searched for relevant material using the keywords “dance’’, “ballet’’, “BMD’’, “bone density’’, “osteoporosis’’ and “female athlete triad syndrome’’. A total of 257 abstracts were screened using selected inclusion (studies involving bone measurements in dancers) and exclusion (editorials, opinion papers, chapters in books, narrative reviews and non-English language papers) criteria according to PRISMA guidelines. Following the above screening, a total of 108 abstracts were identified as potentially relevant. After the exclusion of conference proceedings, review papers, studies focusing only in male dancers and studies in which dancers’ information were combined with other athletes, the eligible papers were subsequently assessed using the GRADE system and grouped according to: (1) prevalence of low BMD and associated factors, (2) incidence of low BMD and risk factors, (3) prevention/treatment of low BMD in dancers, and (4) other studies. Results Of the 257 abstracts that were initially screened, only 35 studies were finally considered. Only one of these 35 was of high quality, while the remaining 34 were of relatively low quality. Seven studies reported prevalence of low BMD and associated factors, 10 reported associated factors with no prevalence data, while one reported prevalence with no associated factors data. One study cited risk factors, while another one elaborated on the treatment of low BMD in dancers. The remaining 15 studies were classified as “other studies’’. Conclusions It remains unclear whether low BMD is prevalent in female dancers. The present review highlights the need for high-quality BMD research in this area.

Keywords: Abstracts, Anthropometric Factors, Associated Factors, Athlete Triad, Athletes, Authors, Bone, Bone Mineral Density, Chinese Adolescent Dancers, Conference Proceedings, Criteria, Data, Databases, Density, Developing, Effects, Evidence Based, Evidence-Based, Exercise, Factors, Female, Grade, Guidelines, Incidence, Information, Journal, Journals, Language, Leptin Levels, Male, Mass, Medical, Medicine, Methods, Mineral, Osteoporosis, Papers, Prevalence, Professional Ballet Dancers, Pubmed, Quality, Research, Results, Review, Reviews, Risk, Risk Factors, Science, Science Journals, Scopus, Screening, Stress-Fractures, Systematic, Systematic Review, Training, Treatment, Web, Web Of Science, Weight-Bearing, Young-Women

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Full Text: [2015\Spo Med45, 269.pdf](2015/Spo%20Med45,%20269.pdf)

Abstract: Background Matrix metalloproteinases (MMPs) are a major group of enzymes that play essential roles in normal functioning of diverse tissues during growth, development, and aging. However, among the MMPs little is known regarding the role of exercise in MMP-9 and MMP-2 function in humans. Objective The aim of this study was to provide a systematic comprehensive review of the literature examining the effect of different exercise interventions on MMP-9 and MMP-2 in human investigations. Data Sources A comprehensive systematic database search was performed, including PubMed/MEDLINE, Scopus, ScienceDirect, and Web of Science. Study Selection Both the acute and chronic effects of exercise were included for evaluation in this systematic review. Inclusion criteria included the use of any type of planned, structured, and repetitive movement and its effects on the MMP-2 and MMP-9 response (obtained from plasma samples), participants (humans only) of any age with or without diseases, sedentary participants and those involved in light, moderate, and vigorous activity, randomized controlled trials (RCTs) and clinical trials (CTs), full text article citations with no restrictions in terms of language, and scored at least 5/11 on the Physiotherapy Evidence Database (PEDro) quality scale. Study Appraisal and Synthesis Methods The PEDro scale was used to appraise study quality of RCTs and CTs. Two reviewers independently reviewed the full texts of all potentially relevant articles for eligibility and disagreements were discussed and resolved. Results Seven studies met the previously determined quality indicators and were reviewed; three were RCTs and four were CTs. In general, the quality of the studies ranged from 5 to 9 out of a maximum of 11 on the PEDro quality criteria scale. Results revealed that chronic aerobic training induces a decrease in MMP-9 and MMP-2 levels, possibly indicating a cardioprotective effect, while resistance exercise training displayed conflicting results. Conclusion Alterations in MMP-9 and MMP-2 plasma concentrations may be valuable biomarkers to reflect the influence of exercise on the inflammatory state. Nevertheless, the limited evidence available regarding the effects of exercise on the MMP-9 and MMP-2 response in human participants suggests that further studies are needed to fully define the connection between the role of exercise on the MMP-9 and MMP-2 response.

Keywords: Activity, Acute Resistance Exercise, Age, Aging, Angiogenic Factors, Article, Articles, Biomarkers, Chronic, Citations, Clinical, Clinical Trials, Connective-Tissue, Criteria, Data, Database, Development, Diseases, Effects, Enzymes, Evaluation, Evidence, Exercise, Exercise Training, Expression, From, Function, General, Growth, Human, Human Skeletal-Muscle, Humans, Indicators, Influence, Interventions, Investigations, Language, Literature, Matrix Metalloproteinases, Metabolic Syndrome, Metalloproteinases, Methods, Mmp-2, Mmp-9, Movement, Normal, Physiotherapy, Plasma, Quality, Quality Criteria, Quality Indicators, Quality Of, Randomized, Randomized Controlled Trials, Resistance, Response, Restrictions, Results, Review, Reviewers, Risk, Role, Scale, Science, Sciencedirect, Scopus, Sedentary, Short-Term Diet, State, Synthesis, Systematic, Systematic Review, Training, Web, Web Of Science

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Full Text: [2015\Spo Med45, 411.pdf](2015/Spo%20Med45,%20411.pdf)

Abstract: Background The effect of footwear on running economy has been investigated in numerous studies. However, no systematic review and meta-analysis has synthesised the available literature and the effect of footwear on running performance is not known. Objective The aim of this systematic review and meta-analysis was to investigate the effect of footwear on running performance and running economy in distance runners, by reviewing controlled trials that compare different footwear conditions or compare footwear with barefoot. Methods The Web of Science, Scopus, MEDLINE, CENTRAL (Cochrane Central Register of Controlled Trials), EMBASE, AMED (Allied and Complementary Medicine), CINAHL and SPORTDiscus databases were searched from inception up until April 2014. Included articles reported on controlled trials that examined the effects of footwear or footwear characteristics (including shoe mass, cushioning, motion control, longitudinal bending stiffness, midsole viscoelasticity, drop height and comfort) on running performance or running economy and were published in a peer-reviewed journal. Results Of the 1,044 records retrieved, 19 studies were included in the systematic review and 14 studies were included in the meta-analysis. No studies were identified that reported effects on running performance. Individual studies reported significant, but trivial, beneficial effects on running economy for comfortable and stiff-soled shoes [standardised mean difference (SMD) <0.12; P < 0.05), a significant small beneficial effect on running economy for cushioned shoes (SMD = 0.37; P < 0.05) and a significant moderate beneficial effect on running economy for training in minimalist shoes (SMD = 0.79; P < 0.05). Meta-analysis found significant small beneficial effects on running economy for light shoes and barefoot compared with heavy shoes (SMD < 0.34; P < 0.01) and for minimalist shoes compared with conventional shoes (SMD = 0.29; P < 0.01). A significant positive association between shoe mass and metabolic cost of running was identified (P < 0.01). Footwear with a combined shoe mass less than 440 g per pair had no detrimental effect on running economy. Conclusions Certain models of footwear and footwear characteristics can improve running economy. Future research in footwear performance should include measures of running performance.

Keywords: Articles, Association, Barefoot, Boots, Cardiorespiratory Responses, Characteristics, Control, Conventional, Cost, Databases, Economy, Effect, Effects, Embase, Energy-Cost, From, Journal, Literature, Longitudinal, Mar, Measures, Medicine, Medline, Meta Analysis, Meta-Analysis, Metaanalyses, Metaanalysis, Metabolic Cost, Methods, Models, Motion Control, Oxygen Cost, P, Peer-Reviewed, Performance, Records, Research, Results, Review, Science, Scopus, Shoes, Small, Systematic, Systematic Review, Training, Trials, Viscoelasticity, Walking, Web, Web Of Science

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Full Text: [2015\Spo Med45, 533.pdf](2015/Spo%20Med45,%20533.pdf)

Abstract: Background Physical fitness is a powerful health marker in childhood and adolescence, and it is reasonable to think that it might be just as important in younger children, i.e. preschoolers. At the moment, researchers, clinicians and sport practitioners do not have enough information about which fitness tests are more reliable, valid and informative from the health point of view to be implemented in preschool children. Objective Our aim was to systematically review the studies conducted in preschool children using field-based fitness tests, and examine their (1) reliability, (2) validity, and (3) relationship with health outcomes. Our ultimate goal was to propose a field-based physical fitness-test battery to be used in preschool children. Data Sources PubMed and Web of Science. Study Eligibility Criteria Studies conducted in healthy preschool children that included field-based fitness tests. Study Appraisal and Synthesis Methods When using PubMed, we included Medical Subject Heading (MeSH) terms to enhance the power of the search. A set of fitness-related terms were combined with ‘child, preschool’ [MeSH]. The same strategy and terms were used for Web of Science (except for the MeSH option). Since no previous reviews with a similar aim were identified, we searched for all articles published up to 1 April 2014 (no starting date). A total of 2,109 articles were identified, of which 22 articles were finally selected for this review. Results Most studies focused on reliability of the fitness tests (n = 21, 96%), while very few focused on validity (0 criterion-related validity and 4 (18%) convergent validity) or relationship with health outcomes (0 longitudinal and 1 (5%) cross-sectional study). Motor fitness, particularly balance, was the most studied fitness component, while cardiorespiratory fitness was the least studied. After analyzing the information retrieved in the current systematic review about fitness testing in preschool children, we propose the PREFIT battery, field-based FITness testing in PREschool children. The PREFIT battery is composed of the following tests: the 20 m shuttle-run test for assessing cardiorespiratory fitness, the handgrip-strength and the standing long-jump tests for assessing musculoskeletal fitness, and the 4 x 10 m shuttle run and the one-legstance tests for assessing motor fitness, i.e. speed/agility and balance, respectively. The rationale for the selection of each of the tests included in the PREFIT battery is provided in this review, as well as directions for future research. Limitations Levels of evidence based on quality assessment of selected studies could not be constructed due to the limited number of studies identified for each test. Conclusions The present systematic review has identified a need for further research on the validity of fitness tests in preschool children, as well as on their relationship with health. Due to this limited information, the PREFIT battery hereby proposed is based on the output of the current systematic review in preschool children, together with existing evidence in older children and adolescents. While we wait for more evidence to be accumulated in preschool children, the PREFIT battery hereby proposed is a useful tool for assessing physical fitness in children aged 3-5 years.

Keywords: 5-Year-Old Children, 6-Year-Old Children, Adolescence, Adolescents, Aerobic Fitness, Age, Aged, Articles, Assessing, Assessment, Balance, Cardiorespiratory Fitness, Child, Childhood, Children, Constructed, Convergent Validity, Cross-Sectional, Data, Evidence, Evidence Based, Evidence-Based, Fitness, From, Grip-Strength, Health, Health Outcomes, Information, Longitudinal, Marker, Medical, Methods, Motor-Performance, Movement Assessment Battery, Muscular Fitness, Musculoskeletal, Older, Outcomes, Physical, Physical Fitness, Power, Preschool, Preschool Children, Pubmed, Quality, Reliability, Research, Researchers, Results, Review, Reviews, Science, Selection, Sport, Strategy, Synthesis, Systematic, Systematic Review, Test-Retest Reliability, Testing, Validity, Web, Web Of Science

# Title: Sportverletzung-Sportschaden

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? Lesinski, M., Muehlbauer, T., Busch, D. and Granacher, U. (2014), Effects of complex training on strength and speed performance in athletes: A systematic review effects of complex training on athletic performance. *Sportverletzung-Sportschaden*, **28** (2), 85-107.

Full Text: 2014\Spo-Spo28, 85.pdf

Abstract: Background: Post-activation potentiation (PAP) can elicit acute performance enhancements in variables of strength, power, and speed. However, it is unresolved whether the frequent integration of PAP eliciting conditioning activities in training (i.e., complex training) results in long-term adaptations. In this regard, it is of interest to know whether complex training results in larger performance enhancements as compared to more traditional and isolated training regimens (e. g., resistance training). Thus, this systematic literature review summarises the current state of the art regarding the effects of complex training on measures of strength, power, and speed in recreational, subelite, and elite athletes. Further, it provides information on training volume and intensities that proved to be effective. Methods: Our literature search included the electronic databases Pubmed, SportDiscus, and Web of Science (1995 to September 2013). In total, 17 studies met the inclusionary criteria for review. Ten studies examined alternating complex training and 7 studies sequenced complex training. Results: Our findings indicated small to large effects for both alternating complex training (countermovement jump height: +7.4 % [ESd = -0.43]; squat jump height: +9.8 % [ESd = -0.66]; sprint time: -2.4% [ESd = 0.63]) and sequenced complex training (countermovement jump height: +6.0 % [ESd = -0.83]; squat jump height: +11.9% [ESd = -0.97], sprint time: -0.7% [ESd = 0.52]) in measures of power and speed. As compared to more traditional training regimens, alternating and sequenced complex training showed only small effects in measures of strength, power, and speed. A more detailed analysis of alternating complex training revealed larger effects in countermovement jump height in recreational athletes (+9.7% [ESd = -0.57]) as compared to subelite and elite athletes (+2.7% [ESd = -0.15]). Based on the relevant and currently available literature, missing data (e.g., time for rest interval) and diverse information regarding training volume and intensity do not allow us to establish evidence-based dose-response relations for complex training. Conclusion: Complex training represents an effective training regimen for athletes if the goal is to enhance strength, power, and speed. Studies with high methodological quality have to be conducted in the future to elucidate whether complex training is less, similar, or even more effective compared to more traditional training regimens. Finally, it should be clarified whether alternated and/or sequenced conditioning activities implemented in complex training actually elicit acute PAP effects.

Keywords: Analysis, Art, Athletes, Athletic Performance, Basketball Players, Conditioning, Criteria, Data, Databases, Dose-Response Relation, Effects, Elite Sport, Elite Volleyball Players, Evidence Based, Evidence-Based, Information, Integration, Intensity, Interval, Literature, Literature Review, Literature Search, Long Term, Long-Term, Measures, Methods, Modalities, Performance, Plyometric Training, Postactivation Potentiation, Power, Programs, Quality, Relations, Resistance, Resistance Training, Results, Review, Science, Small, Soccer Players, Sprint, State, State-Of-The-Art, Strength, Systematic, Systematic Literature Review, Systematic Review, Training, Vertical Jump Height, Volume, Web Of Science

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Full Text: 2015\Spo-Spo29, 27.pdf

Abstract: Aim and Hyopthesis: This systematic review and the metanalysis were performed to investigate the relation between football activity and the potential risk of knee osteoarthritis (possible occupational disease). It was hypothesised that soccer players suffer more than controls from knee osteoarthritis also in cases with an absence of documented major injuries. Methods: The review and the metaanalysis were performed accordingly to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. On 2014.02.01 a search was conducted within the medical databases PubMed, Medline, Cochrane, EMBASE und Web-of-Science. A total of 4,649 papers underwent a “Title-Abstract- Review”. Finally 6 publications were included in the metaanaylsis. Results: There were no longitudinal community-based studies as well as no Cochrane Reviews regarding the risk of knee osteoarthritis in soccer players. After adjustment of major injuries of the knee, soccer players have a slightly increased risk for knee osteoarthritis: relative risk 1.3 (95% CI 1.0 -1.7); I-2 = 37.4 %; p = 0.002. In contrast, in studies without differentiation of injured and non-injured knees, the relative risk was significantly increased: 2.9 (95% CI 2.0-4.1); I-2 = 56.3 %; p < 0.001. Conclusions: Soccer players are a very heterogeneous group. The soccer player’s knee undergoes different loadings including minor and major injuries. But the individual load also strongly depends on the player’s status, his position within the football field and many other factors. In the absence of a major trauma the soccer player has only a slightly increased risk for the development of osteoarthritis. Thus we conclude that an injury in professional football does not fulfil the characteristics of an occupational disease.

Keywords: Activity, Asymptomatic Professional Basketball, Characteristics, Chondral Defects, Community Based, Community-Based Studies, Databases, Development, Differentiation, Disease, Embase, Factors, Field, Football, From, Grade Degenerated Cartilage, Guidelines, Hip, Injury, Joint Injury, Knee, Load, Loadings, Longitudinal, Mar, Medical, Medline, Metaanalysis, Methods, Minor, Occupational, Occupational Disease, Olympic Games, Osteoarthritis, Papers, Position, Potential, Prevalence, Publications, Pubmed, Relative Risk, Results, Review, Risk, Soccer, Soccer Players, Subchondral Bone, Systematic, Systematic Review, Systematic Reviews, Tournaments, Trauma, Web Of Science

# Title: SRA-Journal of the Society of Research Administrators

Full Journal Title: [SRA-Journal of the Society of Research Administrators](http://proquest.umi.com/pqdlink?Ver=1&Exp=11-02-2015&RQT=318&PMID=18912&clientId=39645&cfc=1)

ISO Abbreviated Title:

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ISSN: 1062-8142

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Publisher Address:

Subject Categories:

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? Porter, A.L., Jin, X.Y., Gilmour, J.E., Cunningham, S., Xu, H.D., Stanard, C. and Wang, L. (1994), Technology opportunities analysis: Integrating technology monitoring, forecasting, and assessment with strategic planning. *SRA-Journal of the Society of Research Administrators*, **26** (2), 21-31.

Full Text: [1994\SRA-J Soc Res Adm26, 21.pdf](1994/SRA-J%20Soc%20Res%20Adm26,%2021.pdf)

Abstract: This paper describes a research management activity, Technology Opportunities Analysis (TOA), undertaken at the Georgia Institute of Technology (Georgia Tech) to identify and assess the implications of emerging scientific areas and new research technologies. TOA aims to aid the university plan and prioritize research and educational efforts. The TOA process combines a number of activities in the quest for technology planning information: (1) monitoring various literatures; (2) analyzing various funding trends; (3) analyzing bibliometric materials; (4) networking with experts; (5) assessing the implications of emerging technologies to present university capabilities, core competencies, gaps, and educational objectives; and (6) analyzing policy and action options. During its first year, the TOA process focused on seven high-profile technologies. Experiences encountered in setting up the TOA process are discussed and strong and weak points are presented.

Keywords: Assessing, Bibliometric, Competencies, Core Competencies, Emerging Technologies, Experts, First, Funding, Georgia, Information, Management, Monitoring, Options, Planning, Policy, Research, Technologies, Technology, Trends, University

# Title: SRELS Journal of Information Management

Full Journal Title: SRELS Journal of Information Management

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 0972-2467

Issues/Year:

Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Vijayakumar, M. and Shehbaz, H. (2002), Authorship trend in Azadirachta Indica literature: A bibliometric study. *SRELS Journal of Information Management*, **39** (4), 445-455.

Abstract: Studies the authorship pattern of Azadirachta Indica literature. The study revealed that the collaborative research is more favoured than the solo research. The degree of collaboration in Azadirachta Indica literature is 0.9402.

Keywords: Authorship, Authorship Pattern, Bibliometric, Bibliometric Study, Collaboration, Collaborative Research, Literature, Pattern, Research, Trend

Notes: JJournal

? Senthilkumaran, P. and Vadivel, V. (2004), *Journal of Spices and Aromatic Crops*: A bibliometric appraisal. *SRELS Journal of Information Management*, **41** (1), 121-132.

Abstract: Bibliometric study of the ‘Journal of Spices and Aromatic Crops’ for the period 1992-2000 is analyzed to understand the various characteristics of literature on the subject. Based on collected data, the study attempts to examine the year wise distribution of articles, authorship pattern, length of articles, subject wise breakup of articles and leading authors. Some inferences are also suggested based on the output of the analysis.

Keywords: Analysis, Authors, Authorship, Authorship Pattern, Bibliometric, Characteristics, Data, Distribution, Length, Literature, Pattern

? Krishna, K. and Kumar, S. (2004), Authorship trends in agriculture research: A bibliometric analysis. *SRELS Journal of Information Management*, **41** (2), 229-234.

Abstract: A case study of citations analysis of 68 doctoral theses on agriculture and veterinary sciences submitted to Rajasthan Agriculture University, Bikaner, during 1996 to 2000 for analysis of subjectwise authorship pattern and trend graph for books and journals is made and reported.

Keywords: Agriculture, Analysis, Authorship, Authorship Pattern, Bibliometric, Bibliometric Analysis, Case Study, Citations, Journals, Pattern, Rajasthan, Research, Sciences, Trend, Trends, Veterinary

? Mahapatra, R. and Panda, K. (2004), Health research literature on Orissa: A bibliometric analysis. *SRELS Journal of Information Management*, **41** (4), 383-392.

Abstract: Vividly describes the growth trend in health science literature on Orissa published from 1993-2002. Includes in its scope 118 research papers on ‘health literature’ from 59 Indian and foreign journals. Analyses the data by their authorship pattern, year wise growth subject wise break up of papers, category of journals, country of origin, length of papers, and ranking of journals.

Keywords: Analysis, Authorship, Authorship Pattern, Bibliometric, Bibliometric Analysis, Country, Country of Origin, Data, Growth, Health, Journals, Length, Literature, Origin, Papers, Pattern, Ranking, Research, Science, Scope, Trend

? Kademani, B., Kumar, V., Mohan, L., Sagar, A., Kumar, A., Gaderao, C. and Sunvase, G. (2006), Scientometric dimensions and publication productivity of the Analytical Chemistry Division at Bhabha Atomic Research Centre. *SRELS Journal of Information Management*, **43** (1), 5-20.

Abstract: This study tried to highlight quantitatively the contributions made by the scientists of Analytical Chemistry Division at BARC during 1972-2003. The Analytical Chemistry Division is primarily a service oriented division and every analysis of samples they receive did not always result in publications. This aspect also has to be taken into consideration while comparing the publication productivity with other divisions or group in the institute. The analysis shows that the Analytical Chemistry Division has produced 724 publications in diverse areas of research such as other analytical techniques (283), electro chemistry (186), neutron activation analysis (114), Separation techniques (89) and thermal analysis and thermochemistry (52). The division published 22 papers in 1972. Highest number of publications (58) were produced in 2003. The collaboration trend among the analytical chemists towards multi-authored papers is indicative of the highly specialized areas of scientific work that they were engaged in. The most prolific authors identified in the study were/are holding important positions in Bhabha Atomic Research Centre/Department of Atomic Energy shows that publication productivity is one of the important indicators to identify the scientists for newer responsibilities. The publication behaviour of analytical chemists shows that they were highly selective in publishing their research results in highly specialized journals.

Keywords: Activation, Analysis, Analytical Techniques, Behaviour, Chemistry, Collaboration, Indicators, Journals, Papers, Productivity, Publication, Publications, Publishing, Research, Research Results, Responsibilities, Service, Techniques, Thermal Analysis, Trend, Work

Notes: JJournal

? Kumar, S. and Kumar, S. (2005), A bibliometric study of the *Journal of Oilseeds Research*, since 1993-2001. *SRELS Journal of Information Management*, **42** (3), 305-334.

Abstract: Analyses 743 research papers comprising 435 main articles and 308 short communications published (Total 743) in nine volumes 10 to 18, (1993-2001) in Journal of Oilseed Research (JOR), based on earlier study covering Vol. 1-9 (1984 to 1992) comprising 241 main articles and 257 short communications (Total 498 papers). The study gives status of oilseed research and importance of oilseeds in India. Also gives account of JOR, objectives and methodology of this study. Analyses papers into year wise distribution, length of articles, use of tables, graphs diagrams. Finds authorship pattern and calculates collaboration coefficients. Also finds out prolific contributors, location of papers, subject wise distribution and crop wise distribution. The paper analyses in details citations given in these articles in various tables viz number of citations per article and types of documents used for citations. Paper also ranks periodicals and apply Brodford Law.

Keywords: Analyses, Authorship, Authorship Pattern, Bibliometric, Bibliometric Study, Citations, Collaboration, Communications, Distribution, India, Length, Location, Methodology, Papers, Pattern, Periodicals, Research, Status

? Angadi, M., Koganuramath, M., Kademam, B. and Kumbar, B. (2006), Publication productivity of Tata Institute of Social Sciences: A scientometric study. *SRELS Journal of Information Management*, **43** (4), 363-374.

Abstract: This study attempts to analyse quantitatively 358 publications published by the social scientists of Tata Institute of Social Sciences during 2001-2004 in various Departments and Research Units for authorship pattern and collaboration trend. The results indicate that 90.22% of papers were single authored followed by two authored papers - 5.86% and three authored papers $3.35%. Most prolific authors were Shalini Bharat (21), M. M. Koganuramath (18), Mallikarjun Angadi, (13), R. N. Sharma (13), Chhaya Datar, (12), Siva Raju, (12), and Sarthi Acharya, (10). The most preferred journals by the social scientists were: Economic and Political Weekly, Indian Journal of Social Work, and Indian Journal of Labour Economics, with four papers each. Publication Density observed in the present study was 1.46.

Keywords: Authorship, Authorship Pattern, Collaboration, Journals, N, Papers, Pattern, Productivity, Publications, Scientometric, Social, Trend

? Nazim, M. and Ahmad, M. (2007), Research trends in information literacy: A bibliometric study. *SRELS Journal of Information Management*, **44** (1), 53-62.

Abstract: This study presents a bibliometric analysis of scientific output in the area of ‘information literacy’ (IL), The aim being to offer an overview of research trends in this field and characterize its most important aspects and their evolution over the last quarter of the 20th century. The analysis makes use of LISA Plus database, the search being restricted to published journal articles and which contain the terms ‘information literacy’. The various analyses focus on the presentation of publications, frequencies and percentages, as well as the application of Bradford’s law of scattering and Lotka’s law.

Keywords: Analyses, Analysis, Application, Bibliometric, Bibliometric Analysis, Bibliometric Study, Database, Evolution, Field, Information, Journal, Journal Articles, Law, Literacy, Presentation, Publications, Research, Scattering, Scientific Output, Trends

? Shafi, S., Rather, R., Jan, R. and Shah, G. (2007), D-LIB magazine: A bibliometric study. *SRELS Journal of Information Management*, **44** (3), 271-278.

Abstract: This paper examines the articles published in on-line D-Lib magazine for authorship trend, contribution of teaching and professionals, country-wise contribution, degree of collaboration and productivity within different facets of digital/electronic libraries. The study carried out for this paper found that collaborative research is given priority over solo research. The degree of collaboration is found to be 0.66.The study further reveals more contribution from teaching community compared to professionals. Country-wise distribution reveals that most of the contribution comes from the USA and Germany while facet-wise distribution of articles depicts that most of the articles cover digital libraries and preservation followed by metadata/cataloguing.

Keywords: Authorship, Bibliometric, Bibliometric Study, Collaboration, Collaborative Research, Community, Digital Libraries, Distribution, Germany, Productivity, Research, Teaching, Trend, USA

# Title: Standards in Genomic Sciences

Full Journal Title: Standards in Genomic Sciences

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Nelson, O.W. and Garrity, G.M. (2011), Genome sequences published outside of *Standards in Genomic Sciences*, January-June 2011. *Standards in Genomic Sciences*, **4** (3), 402-417.

Full Text: [2011\Sta Gen Sci4, 402.pdf](2011/Sta%20Gen%20Sci4,%20402.pdf)

Abstract: the purpose of this table is to provide the community with a citable record of publications of on-going genome sequencing projects that have led to a publication in the scientific literature. While our goal is to make the list complete, there is no guarantee that we may have omitted one or more publications appearing in this time frame. Readers and authors who wish to have publications added to this subsequent versions of this list are invited to provide the bibliometric data for such references to the SIGS editorial office.

Keywords: Actinomycete, Authors, Bibliometric, Clade, Community, Data, Family, Gammaproteobacteria, Literature, Member, Pathogenic Bacterium, Publication, Publications, Purpose, Record, References, Scientific Literature, Sea, Sequencing, Soil, Strain, Virulence

? Nelson, O.W. and Garrity, G.M. (2011), Genome sequences of Bacteria and Archaea published outside of *Standards in Genomic Sciences*, June-September 2011. *Standards in Genomic Sciences*, **5** (1), 154-167.

Full Text: [2011\Sta Gen Sci5, 154.pdf](2011/Sta%20Gen%20Sci5,%20154.pdf)

Abstract: the purpose of this table is to provide the community with a citable record of publications of ongoing genome sequencing projects that have led to a publication in the scientific literature. While our goal is to make the list complete, there is no guarantee that we may have omitted one or more publications appearing in this time frame. Readers and authors who wish to have publications added to this subsequent versions of this list are invited to provide the bibliometric data for such references to the SIGS editorial office.

Keywords: Actinomycete, Anoxic Brine Lake, Authors, Bacteria, Bibliometric, Clinical Isolate, Community, Data, Deep, Escherichia-Coli Strain, Human Pathogen, Literature, Plant, Publication, Publications, Purpose, Record, References, Reveals, Scientific Literature, Sea, Sequencing, Vaccine Strain

# Title: Statistical Methods and Applications

Full Journal Title: Statistical Methods and Applications

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? De Battisti, F. and Salini, S. (2013), Robust analysis of bibliometric data. *Statistical Methods and Applications*, **22** (2), 269-283.

Full Text: [2013\Sta Met App22, 269.pdf](2013/Sta%20Met%20App22,%20269.pdf)

Abstract: This work stems from the idea of describing the scientific productivity of Italian statisticians. There are several problems that must be addressed in achieving this goal: What data should be used? Have the data been cleaned? What techniques can be used? We propose the use of multiple sources and multiple metrics to get a complete information base. We check the correctness of the data using multivariate outlier identification techniques. We appropriately transform the data. We apply robust clustering to verify the existence of homogeneous groups. We suggest the use of forward search to establish a ranking among scholars. The proposed methodology, which, in this case, allowed us to group scholars into four homogeneous groups and sort them according to multidimensional data, can be applied to other similar applications in bibliometrics.

Keywords: Analysis, Bibliometric, Bibliometrics, Clustering, Complete, Data, Groups, Identification, Information, Methodology, Metrics, Multidimensional, Multivariate, Outlier, Productivity, Ranking, Scientific Productivity, Sources, Techniques, Work

# Title: Statistical Science

Full Journal Title: Statistical Science

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Stigler, S.M. (1994), Citation patterns in the journals of statistics and probability. *Statistical Science*, **9** (1), 94-108.

Full Text: [1994\Sta Sci9, 94.pdf](1994/Sta%20Sci9,%2094.pdf)

Abstract: This is a study of the use of citation data to investigate the role statistics journals play in communication within that field and between statistics and other fields. The study looks at citations as import-export statistics reflecting intellectual influence. The principal findings include: there is little variability in both the number and diversity of imports, but great variability in both the number and diversity of exports and hence in the balance of trade; there is a tendency for influence to flow from theory to applications to a much greater extent than in the reverse direction; there is little communication between statistics and probability journals. The export scores model is introduced and employed to map a set of journals’ bilateral intellectual influences onto a one-dimensional scale, and the Cox effect is identified as a phenomenon that can occur when a disciplinary paper attracts a large degree of attention from outside its discipline.

Keywords: Applications, Bibliometrics, Bradley-Terry Model, Citation, Citations, Diversity, Field, GINI Index, Herfindahl Index, Journals, Models, Quasi-Symmetry, Science, Simpsons Index, Statistics, Theory

# Title: Statistics in Medicine

Full Journal Title: Statistics in Medicine

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Campbell, M.J. and Julious, S.A. (1994), Statistics in medicine - Citations of papers in the 1st 10 years. *Statistics in Medicine*, **13** (1), 3-10.

Full Text: [1994\Sta Med13, 3.pdf](1994/Sta%20Med13,%203.pdf)

Abstract: All papers from Volume 1 of Statistics in Medicine were followed up in the Science Citation Index. There were 6.7 citations per paper in medical journals as opposed to 1.5 citations per paper in statistical journals, and overall there were 8.7 citations per paper. The average citation rate was lower than that of the first issue of Biometrics, published in the same year, but this was partly because of a greater proportion of zero-cited papers. Citations from medical journals increased annually, until about 5 years after publication, after which they remained steady. Volumes 2-6 of Statistics in Medicine and Volumes 29-33 of Biometrics, for the years 1983-87, were followed up for statistical, medical source of the citations. Citations for Volumes 2-4 of Statistics in Medicine were relatively low, but picked up by Volume 5. Biometrics had more citations from statistical sources than from medical, by contrast to Statistics in Medicine which had far more citations from medical sources than from statistical.

Keywords: Citation, Citations, Journals, Papers, Publication, Regression, Science Citation Index, Statistical

? Henderson, R. (1995), Problems and prediction in survival-data analysis. *Statistics in Medicine*, **14** (2), 161-184.

Full Text: [1995\Sta Med14, 161.pdf](1995/Sta%20Med14,%20161.pdf)

Abstract: Twenty-one years after its appearance, Cox’s 1972 paper on ‘Regression models and life tables’ continues to be one of the most frequently cited publications in the scientific and medical literature. The proportional-hazards model and partial-likelihood technique have been applied to thoUSAnds of data sets, not always appropriately, and have motivated hundreds of theoretical studies, not always relevant. Recent developments are reviewed and continuing problems discussed, especially with respect to predictive inference. The accuracy of model-based predictions, and how they compare with consultants’ judgements are investigated by means of an example.

Keywords: Proportional Hazards Regression, Partial Likelihood Approach, Relative Risk Regression, Failure Time Model, Life-History Data, Cox Regression, Censored-Data, Explained Variation, Rank-Tests, Bayesian-Inference

? Chevret, S. (2012), Bayesian adaptive clinical trials: A dream for statisticians only? *Statistics in Medicine*, **31** (11-12), 1002-1013.

Full Text: [2012\Sta Med31, 1002.pdf](2012/Sta%20Med31,%201002.pdf)

Abstract: Adaptive or flexible designs have emerged, mostly within frequentist frameworks, as an effective way to speed up the therapeutic evaluation process. Because of their flexibility, Bayesian methods have also been proposed for Phase I through Phase III adaptive trials; however, it has been reported that they are poorly used in practice. We aim to describe the international scientific production of Bayesian clinical trials by investigating the actual development and use of Bayesian adaptive methods in the setting of clinical trials. A bibliometric study was conducted using the PubMed and Science Citation Index-Expanded databases. Most of the references found were biostatistical papers from various teams around the world. Most of the authors were from the US, and a large proportion was from the MD Anderson Cancer Center (University of Texas, Houston, TX). The spread and use of these articles depended heavily on their topic, with 3.1% of the biostatistical articles accumulating at least 25 citations within 5 years of their publication compared with 15% of the reviews and 32% of the clinical articles. We also examined the reasons for the limited use of Bayesian adaptive design methods in clinical trials and the areas of current and future research to address these challenges. Efforts to promote Bayesian approaches among statisticians and clinicians appear necessary. Copyright (C) 2011 John Wiley & Sons, Ltd.

Keywords: Adaptive Designs, Articles, Authors, Bayesian Clinical Trials, Benefits, Bibliometric, Bibliometric Study, Bibliometrics, Cancer, Citation, Citations, Clinical, Clinical Trials, Cluster Randomized-Trials, Databases, Design, Development, Evaluation, Flexibility, Health, International, Methods, Opportunities, Papers, Phase-1 Oncology Trials, Practice, Publication, Pubmed, References, Research, Responses, Reviews, Risks, Science, Science Citation Index Expanded, Scientific Production, Si, Strategies, Texas, Therapeutic, University, US, World

? Nietert, P.J., Wahlquist, A.E. and Herbert, T.L. (2013), Characteristics of recent biostatistical methods adopted by researchers publishing in general/internal medicine journals. *Statistics in Medicine*, **32** (1), 1-10.

Full Text: [2013\Sta Med32, 1.pdf](2013/Sta%20Med32,%201.pdf)

Abstract: Background Novel statistical methods are constantly being developed within the context of biomedical research; however, the characteristics of biostatistics methods that have been adopted into the field of general/internal medicine (GIM) is unclear. This study highlights the statistical journal articles, the statistical journals, and the types of statistical methods that appear to be having the most direct impact on GIM research. Methods Descriptive techniques, including analyses of articles’ keywords and controlled vocabulary terms, were used to characterize the articles published in statistics and probability journals that were subsequently referenced within GIM journal articles during a recent 10-year period (20002009). Results From the 45 statistics and probability journals of interest, a total of 989 unique articles were identified as being cited by 2183 (out of a total of about 127?469) unique GIM journal articles. The most frequently cited statistical topics included general/other statistical methods, followed by randomized trials, epidemiologic methods, meta-analysis, generalized linear models, and computer simulation. Conclusion As statisticians continue to develop and refine techniques, the promotion and adoption of these methods should also be addressed so that their efforts spent in developing the methods are not done in vain. Copyright (c) 2012 John Wiley & Sons, Ltd.

Keywords: Adoption, Analyses, Bibliometrics, Biomedical, Biomedical Research, Biostatistical Methods, Characteristics, Computer Simulation, Context, Developing, Epidemiologic Methods, Field, General, Impact, Impact Factors, Internal Medicine, Journal, Journal Articles, Journal Impact Factor, Journals, Medicine, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Models, Promotion, Publishing, Randomized, Recent, Research, Simulation, Statistics, Techniques

# Title: Statistics & Probability Letters

Full Journal Title: [Statistics & Probability Letters](http://www.sciencedirect.com/science?_ob=JournalURL&_cdi=5672&_auth=y&_acct=C000047720&_version=1&_urlVersion=0&_userid=2007471&md5=880f3d1d735e2bad0ae604db688795f6)

ISO Abbreviated Title:

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ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

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Subject Categories:

: Impact Factor

Wimmer, G. and Altmann, G. (2001), A new type of partial-sums distributions. *Statistics & Probability Letters*, **52** (4), 359-364.

Full Text: [2001\Sta Pro Let52, 359.pdf](2001/Sta%20Pro%20Let52,%20359.pdf)

Abstract: Generalizing Brookes theoretical explorations of the Bradford law (J. DOC. 33 (1977) 180) and searching for law-like hypotheses (J. Quant. Linguistics 6 (1999) 188) in linguistics and musicology led to a new type of partial-sums distributions. Some properties of this class of distributions are investigated.

Keywords: Discrete Probability Distributions, Partial-Sums Distributions

# Title: Steel Research International

Full Journal Title: Steel Research International

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

? Lee, H. and Sohn, I. (2015), Looking back at steel research international and its future. *Steel Research International*, **86** (1), 10-24.

Full Text: 2015\Ste Res Int86, 10.pdf

Abstract: The knowledge structure of steel research in the journal of Steel Research International from 1990 to 2013 was identified by extracting and analyzing 5700 keywords from 2430 papers in the Journal. Analysis of the keyword frequency over a 24-year period (1990-2013) identified keywords that consistently dominated the field of steel research including microstructure, finite element method, transformation induced plasticity, mechanical properties, continuous casting. By incorporating social network analysis to the identified keywords, a high degree of centrality was microstructure, finite element method, continuous casting, and slag. From the co-occurrence matrix of cohesiveness, eight cohesive subgroups were identified. Additionally, subgroup mapping reflected research development trends in each of the eight subgroup research areas. By incorporating the author’s country of origin the frequency of articles published by country was ascertained and found to be in the order of Germany, China, Sweden, Japan, South Korea, India, Austria, and USA. By identifying the trends of steel research, confirmed sub-research areas, and revealing core keywords, the results of this study provide valuable insights into understanding the knowledge structure of the steel research field and research directions for Steel Research International.

Keywords: Acidification, Analysis, Articles, Austria, Big Data Analysis, Centrality, China, Co-Word Analysis, Co-Word Analysis, Cohesive Subgroup, Country, Country Of Origin, Development, Development Trends, Field, Fields, Finite Element, Finite Element Method, From, Germany, India, Induced, International, Japan, Journal, Knowledge, Knowledge Structure, Korea, Map, Mapping, Matrix, Mechanical Properties, Microstructure, Network, Network Analysis, Networks, Origin, Papers, Properties, Research, Research Areas, Science, Scientometrics, Slag, Social, Social Network, Social Network Analysis, South Korea, Steel Research, Structure, Sweden, Transformation, Trends, Understanding, USA

# Title: Stem Cell Reviews and Reports

Full Journal Title: Stem Cell Reviews and Reports

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

? Gheisari, Y., Baharvand, H., Nayernia, K. and Vasei, M. (2012), Stem cell and tissue engineering research in the Islamic Republic of Iran. *Stem Cell Reviews and Reports*, **8** (3), 629-639.

Full Text: [2012\Ste Cel Rev Rep8, 629.pdf](2012/Ste%20Cel%20Rev%20Rep8,%20629.pdf)

Abstract: During the last few years, the Islamic republic of Iran has consistently grown in nearly all scientific fields and achieved considerable success in producing science and developing technology. The Iranian government and scientific community have jointly started programs to support the creation of new scientific opportunities and technology platforms for research in the domain of stem cell and tissue engineering. In addition, clinical translation of basic researches in the fields of stem cell and regenerative medicine has been amongst the top priorities. Interestingly, the public sector, media, and authorities are also actively monitoring these attainments. In spite of this nationwide interest, however, there is currently a dearth of analytical information on these accomplishments. To address this issue, here we introduce the key decisions made by the country’s policy makers and also review some of the Iranian researchers’ publications in this field.

Keywords: Autologous Transplantation, Bibliometric Analysis, Bone-Marrow, Cardiomyocyte Differentiation, Clinical, Community, Developing, Dopamine-Associated Genes, Engineering, Ethics, Field, Hepatocyte-Like Cells, In-Vitro Differentiation, Information, Iran, Media, Medicine, Monitoring, Mustard Gas Keratopathy, Myocardial-Infarction, Policy, Public, Public Sector, Publications, Regenerative Medicine, Research, Retinoic Acid, Review, Science, Sector, Spinal-Cord, Stem Cell, Stem Cell Research, Support, Technology, Tissue Engineering, Translation

# Title: Stem Cell Research & Therapy

Full Journal Title: Stem Cell Research & Therapy

ISO Abbreviated Title:

JCR Abbreviated Title:

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Publisher Address:

Subject Categories:

? Nucci, L.P., Silva, H.R., Giampaoli, V., Mamani, J.B., Nucci, M.P. and Gamarra, L.F. (2015), Stem cells labeled with superparamagnetic iron oxide nanoparticles in a preclinical model of cerebral ischemia: A systematic review with meta-analysis. *Stem Cell Research & Therapy*, **6**, Article Number: 27.

Full Text: [2015\Ste Cel Res The6, 27.pdf](2015/Ste%20Cel%20Res%20The6,%2027.pdf)

Abstract: Introduction: Although there is an increase in clinical trials assessing the efficacy of cell therapy in structural and functional regeneration after stroke, there are not enough data in the literature describing the best cell type to be used, the best route, and also the best nanoparticle to analyze these stem cells in vivo. This review analyzed published data on superparamagnetic iron oxide nanoparticle (SPION)-labeled stem cells used for ischemic stroke therapy. Method: We performed a systematic review and meta-analysis of data from experiments testing the efficacy of cellular treatment with SPION versus no treatment to improve behavioral or modified neural scale outcomes in animal models of stroke by the Cochrane Collaboration and indexed in EMBASE, PubMed, and Web of Science since 2000. To test the impact of study quality and design characteristics, we used random-effects meta-regression. In addition, trim and fill were used to assess publication bias. Results: The search retrieved 258 articles. After application of the inclusion criteria, 24 reports published between January 2000 and October 2014 were selected. These 24 articles were analyzed for nanoparticle characteristics, stem cell types, and efficacy in animal models. Conclusion: This study highlights the therapeutic role of stem cells in stroke and emphasizes nanotechnology as an important tool for monitoring stem cell migration to the affected neurological locus.

Keywords: Application, Assessing, Bias, Cell Migration, Cell Therapy, Cerebral, Characteristics, Clinical, Clinical Trials, Cochrane Collaboration, Collaboration, Criteria, Data, Design, Efficacy, Experimental Stroke, Experiments, Impact, In-Vivo Tracking, Iron, Iron Oxide, Iron-Oxide, Ischemia, Literature, Mar, Mesenchymal Stromal Cells, Meta-Analysis, Metaanalysis, Migration, Model, Models, Modified, Monitoring, Mononuclear-Cells, Mri, Nanoparticle, Nanoparticles, Nanotechnology, Neural Progenitor Cells, Neurological, Outcomes, Oxide, Plasminogen-Activator, Publication, Publication Bias, Pubmed, Quality, Rat-Brain, Regeneration, Review, Role, Route, Scale, Science, Spinal-Cord, Stem Cell, Stem Cells, Stroke, Systematic Review, Testing, Therapeutic, Therapy, Transplanted Bone-Marrow, Treatment, Web Of Science

? Peng, W.J., Sun, J., Sheng, C.X., Wang, Z., Wang, Y., Zhang, C.H. and Fan, R. (2015), Systematic review and meta-analysis of efficacy of mesenchymal stem cells on locomotor recovery in animal models of traumatic brain injury. *Stem Cell Research & Therapy*, **6**, Article Number: 47.

Full Text: [2015\Ste Cel Res The6, 47.pdf](2015/Ste%20Cel%20Res%20The6,%2047.pdf)

Abstract: Introduction: The therapeutic potential of mesenchymal stem cells (MSCs) for traumatic brain injury (TBI) is attractive. Conducting systematic review and meta-analyses based on data from animal studies can be used to inform clinical trial design. To conduct a systematic review and meta-analysis to (i) systematically review the literatures describing the effect of MSCs therapy in animal models of TBI, (ii) determine the estimated effect size of functional locomotor recovery after experimental TBI, and (iii) to provide empirical evidence of biological factors associated with greater efficacy. Methods: We conducted a systematic search of PubMed, EMBASE, and Web of Science and hand searched related references. Studies were selected if they reported the efficacy of MSCs in animal models of TBI. Two investigators independently assessed the identified studies. We extracted the details of individual study characteristics from each publication, assessed study quality, evaluated the effect sizes of MSCs treatment, and performed stratified meta-analysis and meta-regression, to assess the influence of study design on the estimated effect size. The presence of small effect sizes was investigated using funnel plots and Egger’s tests. Results: Twenty-eight eligible controlled studies were identified. The study quality was modest. Between-study heterogeneity was large. Meta-analysis showed that MSCs exert statistically significant positive effects on sensorimotor and neurological motor function. For sensorimotor function, maximum effect size in studies with a quality score of 5 was found in the weight-drop impact injury TBI model established in male SD rats, to which syngeneic umbilical cord-derived MSCs intracerebrally at cell dose of (1-5) x 10(6) was administered r 6 hours following TBI, using ketamine as anesthetic agent. For neurological motor function, effect size was maximum for studies with a quality score of 5, in which the weight-drop impact injury TBI models of the female Wistar rats were adopted, with administration syngeneic bone marrow-derived MSCs intravenously at cell dose of 5 x 10(6) at 2 months after TBI, using sevofluorane as anesthetic agent. Conclusions: We conclude that MSCs therapy may improve locomotor recovery after TBI. However, additional well-designed and well-reported animal studies are needed to guide further clinical studies.

Keywords: Administration, Animal Studies, Biological, Bone, Brain, Brain Injury, Cerebral-Ischemia, Characteristics, Clinical, Clinical Studies, Clinical Trial, Controlled-Trials, Data, Design, Effect Size, Effects, Efficacy, Evidence, Experimental, Female, Function, Heterogeneity, Impact, Injury, Ketamine, Male, Mar, Marrow Stromal Cells, Mesenchymal Stem Cells, Meta-Analysis, Metaanalysis, Mice Brain, Model, Models, Neural Stem, Neurological, Neurological Function, Position Statement, Potential, Promotes Functional Recovery, Publication, Pubmed, Quality, Rat Model, Recovery, References, Review, Science, Size, Small, Stem Cells, Study Design, Systematic Review, Therapeutic, Therapy, Traumatic, Traumatic Brain Injury, Treatment, Trial, Umbilical, Umbilical-Cord Blood, Web Of Science

# Title: Stem Cells and Development

Full Journal Title: Stem Cells and Development

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

? Wang, K.W., Chen, X.P. and Ren, J.M. (2015), Autologous bone marrow stem cell transplantation in patients with liver failure: A meta-analytic review. *Stem Cells and Development*, **24** (2), 147-159.

Full Text: [2015\Ste Cel Dev24, 147.pdf](2015/Ste%20Cel%20Dev24,%20147.pdf)

Abstract: Autologous bone marrow stem cell (ABMSC) transplantation has been utilized in clinical practice to treat patients with liver failure, but the therapeutic effect remains to be defined. A meta-analysis is essential to assess clinical advantages of ABMSC transplantation in patients with liver failure. A systematic search of published works [eg, PubMed, Medline, Embase, Chin J Clinicians (Electronic edition), and Science Citation Index] was conducted to compare clinical outcomes of ABMSC transplantation in patients with liver failure. Meta-analytic results were tested by fixed-effects model or random-effects model, dependent on the characteristics of variables. A total of 534 patients from seven studies were included in final meta-analysis. Subsequent to ABMSC transplantation, there was no significant improvement in general symptom and signs such as loss of appetite, fatigue, and ascites. Activities of serum ALT were not significantly decreased with weighted mean difference (WMD) of -19.36 and 95% confidence interval (CI) -57.53 to 18.80 (P=0.32). Postoperative level of albumin (ALB) was expectedly enhanced by stem cell transplantation (WMD 2.97, 95% CI 0.52 to 5.43, P<0.05, I-2=84%). Coagulation function was improved as demonstrated by a short prothrombin time (PT) (WMD -1.18, 95% CI -2.32 to -0.03, P<0.05, I-2=6%), but was not reflected by prothrombin activity (PTA) (P=0.39). Total bilirubin (TBIL) was drastically diminished after ABMSC therapy (WMD -14.85, 95% CI -20.39 to -9.32, P<0.01, I-2=73%). Model for end-stage liver disease (MELD) scores were dramatically reduced (WMD -2.27, 95% CI -3.53 to -1.02, P<0.01, I-2=0%). The advantage of ABMSC transplantation could be maintained more than 24 weeks as displayed by time-courses of ALB, TBIL, and MELD score. ABMSC transplantation does provide beneficial effects for patients with liver failure. Therapeutic effects can last for 6 months. However, long-term effects need to be determined.

Keywords: Activity, Albumin, Bilirubin, Bone, Bone Marrow, Cell, Cell Transplantation, Characteristics, Cirrhosis Patients, Citation, Clinical, Clinical Outcomes, Clinical Practice, Coagulation, Colony-Stimulating Factor, Confidence, Disease, Effects, Failure, Fatigue, Fixed Effects Model, From, Function, General, Hepatic-Artery, Ii Clinical-Trial, Improvement, Infusion, Interval, Liver, Liver Failure, Long Term, Long-Term, Long-Term Outcomes, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Model, Outcomes, Patients, Portal-Vein Embolization, Postoperative, Practice, Published Works, Pubmed, Random Effects Model, Rat-Liver, Regenerative Medicine, Review, Science, Serum, Stem Cell, Stem Cell Transplantation, Systematic, Therapeutic, Therapy, Transplantation

# Title: Stereotactic and Functional Neurosurgery

Full Journal Title: Stereotactic and Functional Neurosurgery

ISO Abbreviated Title:

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Journal Country/Territory:

Language:

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Publisher Address:

Subject Categories:

? Georgiopoulos, M., Katsakiori, P., Kefalopoulou, Z., Ellul, J., Chroni, E. and Constantoyannis, C. (2010), Vegetative state and minimally conscious state: A review of the therapeutic interventions. *Stereotactic and Functional Neurosurgery*, **88** (4), 199-207.

Abstract: Background/Aims: the purpose of the present article is a systematic review of the proposed medical or surgical treatments in patients in chronic vegetative state (VS) or minimally conscious state (MCS), as well as of their mechanisms of action and limitations. Methods: for this review, we have agreed to include patients in VS or MCS having persisted for over 6 months in posttraumatic cases, and over 3 months in nontraumatic cases, before the time of intervention. Searches were independently conducted by 2 investigators between May 2009 and September 2009 in the following data-bases: MEDLINE, Web of Science and the Cochrane Library. The electronic search was complemented by cross-checking the references of all relevant articles. Overall, 16 papers were eligible for this systematic review. Results: According to the 16 eligible studies, medical management by dopaminergic agents (levodopa, amantadine), zolpidem and median nerve stimulation, or surgical management by deep brain stimulation, extradural cortical stimulation, spinal cord stimulation and intrathecal baclofen have shown to improve the level of consciousness in certain cases. Conclusion: the treatments proposed for disorders of consciousness have not yet gained the level of ‘evidence-based treatments’; moreover, the studies to date have led to inconclusiveness. The published therapeutic responses must be substantiated by further clinical studies of sound methodology. Copyright (C) 2010 S. Karger AG, Basel.

Keywords: Amantadine, AroUSAl, Brain, Cochrane, Coma, Consciousness, Copyright, Databases, Deep-Brain-Stimulation, Electrical-Stimulation, Injury, Intervention, Intrathecal Baclofen, Management, Medical, Medical Aspects, Methodology, Methods, Minimally Conscious State, Papers, Patient, Patients, Review, Science, Surgical, Systematic, Systematic Review, Treatment Outcome, Vegetative State, Web of Science, Zolpidem

? Lipsman, N. and Lozano, A.M. (2012), Measuring impact in stereotactic and functional neurosurgery: An analysis of the top 100 most highly cited works and the citation classics in the field. *Stereotactic and Functional Neurosurgery*, **90** (3), 201-209.

Full Text: [2012\Ste Fun Neu90, 201.pdf](2012/Ste%20Fun%20Neu90,%20201.pdf)

Abstract: Background: Functional neurosurgery is a rapidly expanding field, with an exponentially growing literature. However, as with other fields, it can sometimes be difficult to distinguish between what is incremental and what is transformational. One way of measuring durable impact is examining the number of times a specific piece of scholarship is cited by others in the field. for example, papers that have been cited at least 400 times are designated ‘citation classics’ or works that, by virtue of very high citations, have been deemed of particular importance by researchers working in related disciplines. Methods: We queried a large, web-based scholarly database using 49 pre-selected search terms. The results for each individual query was manually examined for relevance to the functional neurosurgery field in order to arrive at the top 100 most highly cited papers as well as the citation classics. Results:The top 100 most cited papers, including 61 citation classics, in the stereotactic and functional neurosurgery field can be divided into 7 categories: functional/anatomic studies, technological innovations, and papers relevant to movement disorders, pain, psychiatry, radiosurgery and epilepsy. Conclusions: We have attempted to ascertain which papers have had, and continue to have, significant impact in our rapidly advancing field. At a minimum, the citation classics in functional neurosurgery provide both trainees and seasoned surgeons with a reading list of the ‘must-know’ works in the field - works whose influence have helped shape the direction of functional neurosurgery well into the future. Copyright (C) 2012 S. Karger AG, Basel.

Keywords: Ag, Citation, Citation Classics, Citation Indices, Citations, Classics, Database, Depression, Epilepsy, Field, Functional Neurosurgery, Highly Cited Papers, Impact, Literature, Literature Search, Methods, Minimum, Movement, Neurosurgery, Pain, Papers, Psychiatry, Reading, Relevance, Scholarship, Stereotactic, Stimulation, Top 100 Papers

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ISSN: 0179-7158

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Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Lehrl, S. (1999), Evaluating scientific performances by impact factors - the right for equal chances. *Strahlentherapie und Onkologie*, **175** (4), 141-153.

Full Text: [1999\Str Onk175, 141.pdf](1999/Str%20Onk175,%20141.pdf)

Abstract: Background: Regularly the Institute of Scientific Information publishes the impact factor (LF) that plays an increasing role when the scientific quality of scientific performances of journals, single publications, scientists, and research groups have to be evaluated in order to support them. Questions: How valid is the IF assigned to journals, single publications, scientists, and research groups? Have all these the same chance to be evaluated? How can fairness of evaluation be increased? Can its validity be improved? Results: the value of IF equals the average number of citations per article published in the preceding 2 calender years in a journal. The criteria for selection of citing journals and of those with an ‘official’ IF are not fully explicated. Although the citations have no equal units of measurement, empirical findings confirm their pragmatic applicability. IF of journals and even the citation rates of its articles are skewedly distributed to right hand. Additionnally, the citation rates of the articles within a journal vary. Therefore, the IF of journals rarely equal the actual citation rates of their articles. Usually, IF overestimates the citation rate and quality of the articles. Its tendency not to recognize low and high quality even increases when IF is administered to individual scientists and small research groups, whereas it decreases in large research groups. Under the premise that the extent of scientific quality corresponds to the amount of information a paper adds to the state of science, language, actuality etc. are confounders because English, reviewing, biomedical, and actual articles have preferred citation rates. Conclusions: Evaluation of scientific performances by IF is to be restricted to journals and large research groups. Fairness demands comparisons to homogeneous journals with respect to confounders such as language, Principally, no journal should be excluded to obtain an IF if it fullfills the minimum criteria of an internationally communicating science. for this purpose they have to provide a title, key words, and an abstract in English, a peer review system etc. Often journals are the centre of science cultures that an able to generate research of highest levels. The users can contribute to increase the IF of ‘their’ journal and to we for the valid application of this indicator.

Keywords: Bibliometry, Citation-Classics, Clinical Physiology, Economics, Evaluation of Scientific Performance, Impact, Impact Factor, Indicators, Journal Impact, Nuclear-Medicine, Patterns, Peer Review, Publications, Quality, Quality of Research, Research, Science, Scientific Journals

? Nieder, C. (2012), Highly cited German research contributions to the fields of radiation oncology, biology, and physics: Focus on collaboration and diversity. *Strahlentherapie und Onkologie*, **188** (10), 865-872.

Full Text: [2012\Str Onk188, 865.pdf](2012/Str%20Onk188,%20865.pdf)

Abstract: Background and purpose. Tight budgets and increasing competition for research funding pose challenges for highly specialized medical disciplines such as radiation oncology. Therefore, a systematic review was performed of successfully completed research that had a high impact on clinical practice. These data might be helpful when preparing new projects.

Methods. Different measures of impact, visibility, and quality of published research are available, each with its own pros and cons. for this study, the article citation rate was chosen (minimum 15 citations per year on average). Highly cited German contributions to the fields of radiation oncology, biology, and physics (published between 1990 and 2010) were identified from the Scopus database.

Results. Between 1990 and 2010, 106 articles published in 44 scientific journals met the citation requirement. The median average of yearly citations was 21 (maximum 167, minimum 15). All articles with a parts per thoUSAnd yenaEuro parts per thoUSAnd 40 citations per year were published between 2003 and 2009, consistent with the assumption that the citation rate gradually increases for up to 2 years after publication. Most citations per year were recorded for meta-analyses and randomized phase III trials, which typically were performed by collaborative groups.

Conclusion. A large variety of clinical radiotherapy, biology, and physics topics achieved high numbers of citations. However, areas such as quality of life and side effects, palliative radiotherapy, and radiotherapy for nonmalignant disorders were underrepresented. Efforts to increase their visibility might be warranted.

Keywords: Radiotherapy, Scientific Publishing, Citation, Research Evaluation, German Research, Strand Break Repair, Cell Lung-Cancer, Positron-Emission-Tomography, Consensus-Group Egcccg, Hyperfractionated Accelerated Radiotherapy, Prospective Randomized-Trial, Combined-Modality Treatment, 3-Weekly Chop Chemotherapy, International Expert Panel, Carbon Ion Radiotherapy

? Sole, C.V., Calvo, F.A., Ferrer, C., Pascau, J. and Marsiglia, H. (2014), Bibliometrics of intraoperative radiotherapy Analysis of technology, practice and publication tendencies. *Strahlentherapie und Onkologie*, **190** (12), 1111-1116.

Full Text: [2014\Str Onk190, 1111.pdf](2014/Str%20Onk190,%201111.pdf)

Abstract: To analyze the performance and quality of intraoperative radiation therapy (IORT) publications identified in medical databases during a recent period in terms of bibliographic metrics. A bibliometric search was conducted for IORT papers published in the PubMed database between 1997 and 2013. Publication rate was used as a quantity indicator; the 2012 Science Citation Index Impact Factor as a quality indicator. Furthermore, the publications were stratified in terms of study type, scientific topic reported, year of publication, tumor type and journal specialty. We performed a one-way analysis of variance (ANOVA) to determine differences between the means of the analyzed groups. Among the total of 207 journals, articles were reported significantly more frequently in surgery (n = 399, 41 %) and radiotherapy journals (n = 273, 28 %; p < 0.01). The highest impact factor was achieved by clinical oncology journals (p < 0.01). The majority of identified articles were retrospective cohort reports (n = 622, 64 %), followed by review articles (n = 204, 21 %; p < 0.001). Regarding primary topic, reports on cancer outcome following specific tumor therapy were most frequently published (n = 661, 68 %; p < 0.001) and gained the highest mean impact factor (p < 0.01). Gastrointestinal tumor reports were represented most frequently (n = 456, 47 %; p < 0.001) and the mean superior impact factor was earned by breast and gynecologic publications (p < 0.01). We identified a consistent and sustained scientific productivity of international IORT expert groups. Most publications appeared in journals with surgical and radiooncological content. The highest impact factor was achieved by medical oncology journals.

Keywords: Adenocarcinoma, Advanced Rectal-Cancer, Analysis, Anova, Articles, Beam Radiation-Therapy, Bibliographic, Bibliometric, Bibliometrics, Cancer, Chemoradiation, Citation, Clinical, Cohort, Colorectal-Cancer, Content, Database, Databases, Gastrointestinal, Groups, Impact, Impact Factor, Indicator, International, Journal, Journal Impact Factor, Journals, Long-Term Outcomes, Medical, Medical Oncology, Metrics, Nov, Oncology, Outcome, Papers, Performance, Practice, Primary, Productivity, Publication, Publications, Pubmed, Quality, Quality Of, Radiation, Radiation Therapy, Radiotherapy, Recent, Review, Science, Science Citation Index, Scientific Productivity, Specialty, Surgery, Surgical Resection, Technology, Therapy, Topic, Trial, Tumor

# Title: Strait Pharmaceutical Journal

Full Journal Title: [Strait Pharmaceutical Journal](http://e29.cnki.net/KNS50/Navi/item.aspx?NaviID=1&BaseID=HAIX&NaviLink=%e6%b5%b7%e5%b3%a1%e8%8d%af%e5%ad%a6)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 1006-3765

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Ying, X., He, W., Qi, Y. and Li, S.G. (2003), Research in a novel immunosuppressant FTY720: A bibliometric analysis. *Strait Pharmaceutical Journal*, **15** (6), 6-8.

Full Text: [2003\Str Pha J15, 6.pdf](2003/Str%20Pha%20J15,%206.pdf)

Abstract: It is summarized in the article that basic principle of photodynamic the rapy, comm only use dphotosens itizers and state of development, and the choice of light source. The developmental prospects of PDT have also been predicted.

Keywords: FTY720, Bibliometric Analysis, Immunosuppressant

# Title: Strategic Management Journal

Full Journal Title: [Strategic Management Journal](http://www3.interscience.wiley.com/cgi-bin/jhome/2144); [Strategic Management Journal](http://uk.jstor.org/journals/01432095.html); [Strategic Management Journal](http://proquest.umi.com/pqdweb?RQT=318&pmid=18413&cfc=1)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

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Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Park, S.H. and Gordon, M.E. (1996), Publication records and tenure decisions in the field of strategic management. *Strategic Management Journal*, **17** (2), 109-128.

Full Text: [1996\Str Man J17, 109.pdf](1996/Str%20Man%20J17,%20109.pdf)

Abstract: To better define levels of accomplishment for publishing journal articles in strategic management, a bibliometric study was performed on the publication records of 96 doctorates in the field whose first post-degree job was in academics. By examining 20 journals that are outlets for research in strategic management, publication records were developed for each individual for the first 5-10 years following receipt of the doctoral degree. Two factors influenced the publication records of these new faculty. Having publications prior to receiving the doctorate and getting a first job at an institution with a graduate program in management were associated with more frequent publishing after an academic career began. As expected, the number of papers published was related to the likelihood of receiving tenure. However, despite the fact that they had produced more papers during the first 5 years than male faculty members and had higher citation rates, female faculty members were less likely to receive tenure. The findings are discussed in terms of institutional policy for hiring and evaluating new faculty

Keywords: Article, Bibliometric, Bibliometric Study, Business Policy Scholars, Career, Citation, Determinants, English, Forum, Journal, Journals, Patterns, Productivity, Psychology, Publication, Publishing, Research, Research Productivity, Tenure Decisions

Ramos-Rodríguez, A.R. and Ruíz-Navarro, J. (2004), Changes in the intellectual structure of strategic management research: A bibliometric study of the *Strategic Management Journal*, 1980-2000. *Strategic Management Journal*, **25** (10), 981-1004.

Full Text: [2004\Str Man J25, 981.pdf](2004/Str%20Man%20J25,%20981.pdf)

Abstract: the aim of this paper is to identify the works that have had the greatest impact on strategic management research and to analyze the changes that have taken place in the intellectual structure of this discipline. The methodology is based on the bibliometric techniques of citation and co-citation analysis which are applied to all the articles published in the *Strategic Management Journal* from its first issue in 1980 through 2000. Copyright © 2004 John Wiley & Sons, Ltd.

Keywords: Analysis, Author Cocitation Analysis, Bibliometric, Bibliometric Study, Bibliometric Techniques, Bibliometrics, Changes, Citation, Co-Citation, Co-Citation Analysis, Cocitation, Competitive Advantage, Diversification Strategy, Firm, First, Impact, Industry, Intellectual Structure, Knowledge, Local Search, Management, Methodology, Performance, Research, Resource-Based View, Strategic, Strategic Management, Strategic Management Research, Structure, Techniques

? Nerur, S.P., Rasheed, A.A. and Natarajan, V. (2008), The intellectual structure of the strategic management field: An author co-citation analysis. *Strategic Management Journal*, **29** (3), 319-336.

Full Text: [2008\Str Man J29, 319.pdf](2008/Str%20Man%20J29,%20319.pdf)

Abstract: This paper complements a recent study by Ramos-Rodriguez and Ruiz-Navarro (2004) that investigated the intellectual structure of the strategic management field through co-citation analysis. By using authors as the units of analysis and incorporating all the citations that are included in the Science Citation Index and the Social Science Citation Index, we trace the evolution of the intellectual structure of the strategic management field during the period 1980-2000. Using a variety of data analytic techniques such as multidimensional scaling, factor analysis, and Pathfinder analysis, we (1) delineate the subfields that constitute the intellectual structure of strategic management; (2) determine the relationships between the subfields; (3) identify authors who play a pivotal role in bridging two or more conceptual domains of research; and (4) graphically map the intellectual structure in two-dimensional space in order to visualize spatial distances between intellectual themes. The analysis provides insights about the influence of individual authors as well as changes in their influence over time. Copyright (C) 2007 John Wiley & Sons, Ltd.

Keywords: Analysis, Author Co-Citation Analysis, Authors, Bibliometrics, Citation, Citation Analysis, Citation Index, Citations, Co-Citation, Co-Citation Analysis, Cocitation, Cocitation Analysis, Discipline, Evolution, Factor Analysis, Field, Information Theory, Intellectual Structure, Journals, Management, Pathfinder Analysis, Research, Science, Science Citation Index, Social Science Citation Index, Strategic Management, Strategic Management Research, Systems

? Shafique, M. (2013), Thinking inside the box? Intellectual structure of the knowledge base of innovation research (1988-2008). *Strategic Management Journal*, **34** (1), 62-93.

Full Text: [2013\Str Man J34, 62.pdf](2013/Str%20Man%20J34,%2062.pdf)

Abstract: Innovation is becoming increasingly popular as a concept as well as a field of research. As a field, it has accumulated a significant amount of scientific knowledge. Based on bibliometric data from four major social science disciplineseconomics, sociology, psychology, and managementthis study presents a global view of the field by combining longitudinal and structural perspectives. It identifies major research traditions in the field, determines the content and disciplinary composition of each tradition, and maps the changes in the intellectual structure of the field over time. The study suggests that innovation research is becoming increasingly compartmentalized between economics and management disciplines and each segment is becoming increasingly self-contained. A strategy along with a framework is suggested for making research contribution to the field. Copyright (c) 2012 John Wiley & Sons, Ltd.

Keywords: Absorptive Capacity, Author Cocitation, Bibliometric, Bibliometrics, Changes, Citation, Co-Citation, Cocitation Analysis, Combining, Composition, Creative Capacity, Data, Documents, Economics, Field, Framework, Global, Innovation, Intellectual Structure, Knowledge, Knowledge Base, Knowledge Convergence, Longitudinal, Management, Movements, Multidisciplinarity, Networks, Psychology, Research, Science, Scientific Literatures, Social, Sociology, Strategic-Management, Strategy, Structure

# Title: Strategies of the International Scientific Cooperation in South-East Europe

Full Journal Title: Strategies of the International Scientific Cooperation in South-East Europe

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

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Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Rozhkov, S. and Ivancheva, L. (2000), International S&T cooperation in Black Sea environmental research: A complex bibliometric analysis. *Strategies of the International Scientific Cooperation in South-East Europe*, **30**, 162-170.

Abstract: the results of an analysis of the publication activity of scientists from different countries on the Black Sea environmental problems are discussed. Only publications in journals, indexed in Science Citation Index (SCI) have been considered. By methods of formal scientometric analysis, the most important publications in the field have been presented. The journals that publish the greatest number of papers on the considered problems the structure of international scientific communications, etc. This approach enables the identification of some “hot pots” and new trends in the scientific world concerning that sphere of consolidation of the efforts of scientists from different countries in solving the environmental problems of the region. Such information could support research currently being carried out, and could also initiate a submission of new international research projects in that important scientific field.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Citation, Citation Index, Countries, Field, Journals, Methods, Papers, Publication, Publication Activity, Publications, Research, Research Projects, SCI, Science, Science Citation Index, Scientific Field, Scientometric, Scientometric Analysis, Trends

? Kristapsons, J. and Gedina, K. (2000), International R&D cooperation in Eastern Europe after 1990: Bibliometric analysis. *Strategies of the International Scientific Cooperation in South-East Europe*, **30**, 171-183.

Abstract: We performed bibliometric analysis of cooperation quantity and quality for different countries and groups of countries (Eastern Europe, Central Europe, Southern Europe, the Baltics, etc.), main directions and links (countries) of cooperation and their changes. Trends in changes of past internal USSR contacts were studied. The impact of the respective scientific fields was taken into account, and comparisons were made with Western standards of international cooperation. Obstacles and problems of international cooperation, including the influence of political developments, etc., are discussed.

Keywords: Analysis, Bibliometric, Bibliometric Analysis, Central Europe, Collaboration, Countries, Eastern Europe, Europe, Impact, International Cooperation, Quality, R&D, Standards

# Title: Strojarstvo

Full Journal Title: Strojarstvo

ISO Abbreviated Title:

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Language:

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Subject Categories:

: Impact Factor

Notes: JJournal

? Krajna, T. and Petrak, J. (2004), Bibliometric characteristics of the journal *Strojarstvo* in the period 1992-2001. *Strojarstvo*, **46** (1-3), 19-23.

Full Text: 2004\Strojarstvo46, 19.pdf

Abstract: the authorship, institution affiliation, bibliographic references and citations of all articles published in the journal Strojarstvo between 1992 and 2001 have been analysed. The results show: decrease in number of original articles over the analyzed period, institutionally homogenized authors pool, small number of citations received and all characteristics commonly shared by the other journals produced by small scientific communities.

Keywords: Affiliation, Authors, Authorship, Bibliometric, Bibliometrics, Characteristics, Citations, Communities, Institution, Journal, Journals, References, Small, Strojarstvo

# Title: Stroke

Full Journal Title: [Stroke](http://proquest.umi.com/pqdlink?Ver=1&Exp=09-17-2010&RQT=318&PMID=23419&clientId=43660); [Stroke](http://gateway.ut.ovid.com/gw1/ovidweb.cgi?QS2=434f4e1a73d37e8cd9ada7a51d6645c4f7341aac700f7fb0cc89ff040274b6062bcde6c502c236bcf05f6d77517e3ae2fb02fc19fbe70689b533aa154b1c9bd8792bbd70eb5b8c5cf91891c95900b7f6e145097907f1d549f1f214bba3a635ce8644e7b28429b8794)

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ISSN: 0039-2499

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Journal Country/Territory: United States

Language: English

Publisher: Lippincott Williams & Wilkins

Publisher Address: 530 Walnut St, Philadelphia, PA 19106-3621

Subject Categories:

Clinical Neurology Peripheral Vascular Disease: Impact Factor

? Brilstra, E.H., Rinkel, G.J.E., van der Graaf, Y., van Rooij, W.J.J. and Algra, A. (1999), Treatment of intracranial aneurysms by embolization with coils - A systematic review. *Stroke*, **30** (2), 470-476.

Full Text: [1999\Stroke30, 470.pdf](1999/Stroke30,%20470.pdf)

Abstract: Background-Embolization with coils is increasingly used for the treatment of intracranial aneurysms. To assess the percentage of complications, the percentage of aneurysm occlusion, and the short-term outcome, we performed a systematic review of studies on embolization with controlled detachable or pushable coils. Summary of Review-To find studies on embolization with coils, we performed a MEDLINE search from January 1990 to March 1997, checked all reference lists of the studies found, performed a Science Citation Index search on Guglielmi, and hand searched recent volumes of 25 journals. Two authors independently extracted data by means of a standardized data extraction form from 48 eligible studies totalling 1383 patients. permanent complications of embolization with controlled detachable coils occurred in 46 of 1256 patients (3.7%; 95% CI, 2.7% to 4.9%); 400 of 744 aneurysms (54%; 95% CI, 50% to 57%) were completely occluded. By means of weighted linear regression, no relation between baseline characteristics and outcome measurements was found. The results in the prespecified subgroups of patients with a ruptured aneurysm, an unruptured aneurysm, or a basilar bifurcation aneurysm were essentially the same as the overall results. Conclusions-Short-term results indicate that embolization with coils is a reasonably safe treatment for patients with an unruptured aneurysm and for patients with aneurysmal subarachnoid hemorrhage. The effectiveness in terms of complete occlusion of the aneurysm is moderate. Randomized trials are warranted to compare surgical clipping with embolization with coils.

Keywords: Artery Aneurysms, Basilar Tip Aneurysms, Bifurcation, Cerebellar Artery, Cerebral Aneurysm, Characteristics, Citation, Effectiveness, Embolization,Therapeutic, Endovascular Therapy, Endovascular Treatment, Giant Aneurysms, Guglielmi Detachable Coils, Journals, Linear Regression, MEDLINE, Occlusion, Platinum Coils, Regression, Review, Science, Science Citation Index, Spiral Coils, Systematic Review, Treatment, Treatment Outcome, Visual-Loss

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Full Text: [1999\Stroke30, 1340.pdf](1999/Stroke30,%201340.pdf)

Abstract: Background and Purpose-This work was undertaken to review research addressing the cost-effectiveness of stroke-related diagnostic, preventive, or therapeutic interventions. Methods-We performed searches of MEDLINE, Excerpta Medica online, HealthSTAR, and Sciences Citation Index Expanded and examined the reference lists of the studies and reviews obtained. From these, we selected studies that reported an incremental analysis of cost per effect, in which the effect measure was life-years or quality-adjusted life-years. We abstracted data from each study using a standardized reporting form. Twenty-six articles met the eligibility criteria and were included in the review. Results-The methodological quality of the articles reviewed has improved compared with previously reported. Many stroke evaluation and treatment policies may result in benefits to health that are considered worth their cost. Some interventions were considered cost-ineffective (anticoagulation in low-risk nonvalvular atrial fibrillation and surveillance with duplex ultrasound after endarterectomy). Different studies addressing the cast-effectiveness of screening asymptomatic carotid stenosis resulted in strikingly divergent conclusions, from being cost-effective to being detrimental. Other studies omitted important costs that, if included, would likely have had profound impact on their cost-effectiveness estimates. Conclusions-Given the divergent conclusions drawn from studies addressing similar questions, it may be premature to use the results of cost-effectiveness research in developing stroke policy and practice guidelines. Successful implementation of such evaluations in the care of patients with stroke will depend on further standardization of methodology and critical appraisal of reported findings.

Keywords: Analysis, Anticoagulation, Atrial Fibrillation, Care, Cost, Cost Effectiveness, Cost-Effective, Cost-Effectiveness, Costs, Criteria, Data, Developing, Estimates, Evaluation, Guidelines, Health, Impact, Implementation, Interventions, Low Risk, Measure, MEDLINE, Methodology, Patients, Policies, Policy, Practice, Practice Guidelines, Premature, Quality, Quality of, Reporting, Research, Review, Reviews, Screening, Standardization, Stroke, Surveillance, Systematic Review, Therapeutic, Treatment, Ultrasound, Work

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Full Text: [2003\Stroke34, 2537.pdf](2003/Stroke34,%202537.pdf)

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Full Text: [2004\Stroke35, E318.pdf](2004/Stroke35,%20E318.pdf)

Keywords: Outcome, Randomized Controlled Trials, Rehabilitation, Stroke, Stroke Rehabilitation

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Full Text: [2005\Stroke36, 905.pdf](2005/Stroke36,%20905.pdf)

Abstract: Background and Purpose - Endovascular treatment of atherosclerotic carotid artery stenosis may be an alternative to surgical endarterectomy. To evaluate the safety and efficacy of endovascular techniques, we conducted a systematic review of randomized studies that compared endovascular treatment with surgery for carotid stenosis. Methods - We searched the Cochrane Stroke Group trials register, the Cochrane Central Register of Controlled Trials, MEDLINE, EMBASE, and Science Citation Index for randomized trials of carotid angioplasty and/or stenting compared with surgery. We also contacted researchers in the field and balloon catheter and stent manufacturers. Results - Five trials involving 1269 patients were included. Analysis of 30- day safety data found no significant difference in the odds of treatment-related death or any stroke (odds ratio [ OR], endovascular surgery, 1.33; 95% confidence interval [CI], 0.86 to 2.04), death or disabling stroke (OR, 1.22; CI, 0.61 to 2.41), or death, any stroke, or myocardial infarction (OR, 1.04; CI, 0.69 to 1.57). At 1 year after randomization, there was no significant difference between the 2 treatments in the rate of any stroke or death (OR, 1.01; CI, 0.71 to 1.44). Endovascular treatment significantly reduced the risk of cranial nerve injury (OR, 0.13; CI, 0.06 to 0.25). There was substantial heterogeneity between the trials for 4 of the 5 outcomes. Conclusions - No significant difference in the major risks of treatment was found but the wide confidence intervals indicate that it is not possible to exclude a difference in favor of one treatment. Minor complication rates favor endovascular treatment. There is currently insufficient evidence to support a widespread change in clinical practice away from recommending carotid endarterectomy as the treatment of choice for suitable carotid artery stenosis. Patients suitable for carotid endarterectomy should only be offered stenting within the ongoing randomized trials of stenting versus surgery.

Keywords: Angioplasty, Carotid Endarterectomy, Carotid Stenosis, Cerebral Protection, Change, Citation, Complications, Devices, Disease, Endarterectomy, Heterogeneity, Immediate, MEDLINE, Outcomes, Percutaneous Transluminal Angioplasty, Protocol, Researchers, Review, Risk, Science, Science Citation Index, Stents, Stroke, Stroke Prevention, Surgery, Systematic Review, Techniques, Trans-Luminal Angioplasty, Treatment, Trial

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Full Text: [2006\Stroke37, 1933.pdf](2006/Stroke37,%201933.pdf)

Abstract: Background and Purpose-Hypertension promotes carotid intima-media thickening. We reviewed the randomized controlled trials that evaluated the effects of an antihypertensive drug versus placebo or another antihypertensive agent of a different class on carotid intima-media thickness. Methods-We searched the PUBMED and the Web of Science databases for randomized clinical trials. published in English before 2005, and included 22 trials. Results-In 8 trials including 3329 patients with diabetes or coronary heart disease, antihypertensive treatment initiated with an angiotensin-converting enzyme (ACE) inhibitor, a beta-blocker, or a calcium-channel blocker (CCB), compared with placebo or no-treatment, reduced the rate of intima-media thickening by 7 mu m/year (P = 0.01). In 9 trials including 4564 hypertensive patients, CCBs, ACE inhibitors, an angiotensin II receptor blocker or an alpha-blocker, compared with diuretics or beta-blockers, in the presence of similar blood pressure reductions, decreased intima-media thickening by 3 mu m/year (P = 0.03). The overall beneficial effect of the newer over older drugs was largely attributable to the decrease of intima-media thickening by 5 mu m/year (P = 0.007) in 4 trials of CCBs involving 3619 patients. In 5 trials including 287 patients with hypertension or diabetes, CCBs compared with ACE inhibitors did not differentially affect blood pressure, but attenuated intima-media thickening by 23 mu m/year (P = 0.02). The treatment induced changes in carotid intima-media thickness correlated with the changes in lumen diameter (P = 0.02), but not with the differences in achieved C, blood pressure (P > 0.53). Conclusions-CCBs reduce carotid intima-media thickening. This mechanism might contribute to their superior protection against stroke.

Keywords: Amlodipine, Arterial-Wall, Atherosclerosis, Blood, Blood Pressure, Blood-Pressure, Carotid Arteries, Clinical Trials, Converting Enzyme-Inhibition, Coronary Heart Disease, Databases, Diabetes, Disease, Double-Blind, Drug, Drugs, Fosinopril, Hypertension, Induced, Mechanism, Meta-Analysis, Patients, Pravastatin, Pressure, Progression, Pubmed, Randomized Clinical Trials, Randomized Controlled Trials, Science, Stroke, Treatment, Web of Science

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Full Text: [2007\Stroke38, 3070.pdf](2007/Stroke38,%203070.pdf)

Abstract: Background and Purpose - Interleukin- 6 (IL- 6) is associated with atherosclerotic disease and is also a key mediator in the inflammatory response to cerebral ischemia. Although the IL- 6 -174G/ C promoter polymorphism has been associated with carotid artery atherosclerosis and coronary heart disease, its relation to ischemic stroke is unclear. This review summarizes the current literature and discusses methodological considerations for future studies. Methods - Electronic searches were conducted in the PUBMED MEDLINE, Scopus, and ISI Web of Science databases. Two investigators independently reviewed all abstracts to identify studies examining the association between the IL- 6 - 174G/ C polymorphism and ischemic cerebrovascular events. Results - Twelve relevant publications were identified. Three reported on a subset of patients from a later publication, leaving 9 independent studies. Two studies found an association between ischemic stroke and the G allele or GG genotype, whereas 4 found an association with the C allele or CC genotype. One study found the CC genotype to be significantly less frequent in retinal artery occlusion patients. Two studies found no association between the - 174G/ C polymorphism and stroke. Conclusions - Studies investigating stroke and the - 174G/ C polymorphism report conflicting results, which may reflect the complex physiology of IL- 6 and true differences between stroke subtypes and populations. However, interpretation of published results is hindered by methodological limitations, and greater rigor and consistency in future studies will help unravel the relationship between the - 174G/ C polymorphism and stroke.

Keywords: Acute Stroke, Brain Infarction, Cardiovascular-Disease, Carotid-Artery Atherosclerosis, Cerebrovascular Events, Coronary Heart Disease, Databases, Disease, G, C Polymorphism, Gene Promoter, Genetics, Inflammation, Interpretation, Ischemia, ISI, ISI Web of Science, Literature, MEDLINE, Methods, Patients, Plasma-Levels, Polymorphism, Preceding Infection, Proinflammatory Cytokines, Publication, Publications, Pubmed, Review, Risk-Factor, Science, Scopus, Stroke, Systematic, Systematic Review, Web of Science

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Full Text: [2009\Stroke40, E424.pdf](2009/Stroke40,%20E424.pdf)

Abstract: Background and Purpose-Hyperglycemia may worsen outcome after aneurysmal subarachnoid hemorrhage. We performed a systematic review to investigate the relation between admission hyperglycemia and outcome after aneurysmal subarachnoid hemorrhage. Methods-We included cohort studies or clinical trials of patients with aneurysmal subarachnoid hemorrhage admitted within 72 hours that documented admission glucose levels or the rate of hyperglycemia. Outcome had to be assessed prospectively after 3 or more months. The overall mean glucose level was calculated by weighting for the number of patients included in each study. To calculate the effect size, we pooled the ORs and 95% 95% CIs of poor clinical outcome in patients with or without hyperglycemia. Results-We searched MEDLINE, EMBASE, Science Citation Index, and the bibliographies of relevant studies. We included 17 studies totaling 4095 patients. The mean admission glucose level was 9.3 mmol/L (range, 7.4 to 10.9 mmol/L; 14 studies, 3373 patients) and the median proportion of patients with hyperglycemia was 69% (range, 29 to 100; 16 studies, 3995 patients; cutoff levels of hyperglycemia, 5.7 to 12.0 mmol/L). The pooled OR (8 studies, 2164 patients) for poor outcome associated with hyperglycemia was 3.1 (95% CI, 2.3 to 4.3). Cutoff points for defining hyperglycemia varied across studies (6.4 to 11.1 mmol/L), but this had no clear effect on the observed OR for poor outcome. Conclusions-After aneurysmal subarachnoid hemorrhage, admission glucose levels are often high and hyperglycemia is associated with an increased risk of poor clinical outcome. A randomized clinical trial is warranted to study the potential benefit of glycemic control after aneurysmal subarachnoid hemorrhage. (Stroke. 2009; 40: e424-e430.).

Keywords: Citation, Clinical Outcome, Critically-Ill Patients, Glucose, Glucose-Levels, Hyperglycemia, Intensive Insulin Therapy, Ischemic-Stroke, MEDLINE, Multivariate-Analysis, Myocardial-Infarction, Poor-Grade Patients, Poststroke Hyperglycemia, Randomized Clinical Trial, Randomized Controlled-Trial, Review, Risk-Factors, Science, Science Citation Index, Subarachnoid Hemorrhage, Systematic Review

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Full Text: [2012\Stroke43, 830.pdf](2012/Stroke43,%20830.pdf)

Abstract: Background and Purpose-This is the first bibliometric comparison between countries of the development of stroke research over time. Methods-Clinical and epidemiological articles on stroke published 2001 to mid-2011 were identified in Science Citation Index Expanded. Article fractions, citation fractions, h-Index, and international collaboration were calculated using the BibExcel software and adjusted for population size and gross domestic product. Results-The United States dominated with 28.7% of the sum of article fractions and 36.2% of the sum of citation fractions. The United States, Japan, the United Kingdom, and Germany together accounted for 52.1% of articles and 61.0% of citations. When adjusted for population size or gross domestic product, several small European countries, together with Israel and Taiwan, ranked the highest. Per population, there was a negative association (r=0.60) between burden of stroke (disability-adjusted life-years lost) and number of articles per population. In China, South Korea, and Singapore, the annual growth of stroke articles was more than twice the worldwide average. Whereas multinational collaboration was common within Europe and North America, it was relatively uncommon between Asian countries. Conclusions-The Big 4 in scientific literature on stroke, as to both number of articles and citations, are the United States, Japan, the United Kingdom, and Germany. Many small European countries have, in relation to their size, a high scientific production. Several countries with rapidly expanding economies have very fast growth of scientific production on stroke. Our results emphasize the need for stroke research in countries with a high population burden of stroke and they highlight the role of multinational collaboration. (Stroke. 2012;43:830-837.).

Keywords: Articles, Asian, Association, Bibliometric, Bibliometrics, Burden, China, Citation, Citations, Collaboration, Comparison, Decline, Development, Europe, First, Germany, Gross Domestic Product, Growth, h Index, h-Index, Impact Factor, International, International Collaboration, Israel, Japan, Journals, Korea, Literature, Mar, North, North America, Population, Population Size, Research, Role, Science, Science Citation Index, Science Citation Index Expanded, Scientific Literature, Scientific Production, Size, Small, Software, South Korea, Stroke, Taiwan, United Kingdom, United States

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Full Text: [2012\Stroke43, E52.pdf](2012/Stroke43,%20E52.pdf)

Keywords: Bibliometric, Research

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Full Text: [2013\Stroke44, 3032.pdf](2013/Stroke44,%203032.pdf)

Abstract: Background and Purpose Several studies have assessed the possible increased risk of hemorrhagic stroke in migraineurs, drawing differing conclusions. No meta-analysis on the topic has been published to date. Methods Multiple electronic databases (MEDLINE, EMBASE, Science Citation Index, and the Cochrane Library) were systematically searched up to March 2013 for studies dealing with migraine and hemorrhagic stroke. We selected case-control and cohort studies with a clear definition of the diagnostic criteria for migraine and hemorrhagic stroke, using an adjusted model or a matching procedure that could control for potential confounders, and reporting effect estimates with 95% confidence intervals (CIs) or enough data to allow calculation of those numbers. Adjusted odds ratios and hazard ratios were used to estimate effect size. Results of 11 264 records, we identified 8 studies (4 case-control and 4 cohort studies) involving a total of 1600 hemorrhagic strokes, which were included in the meta-analysis. The overall pooled adjusted effect estimate of hemorrhagic stroke in subjects with any migraine versus control subjects was 1.48 (95% CI, 1.16-1.88; P=0.002), with moderate statistical heterogeneity (I-2=54.7%; P value for Q test=0.031). The risk of hemorrhagic stroke in subjects with migraine with aura (1.62; 95% CI, 0.87-3.03; P=0.129) was not significant. Compared with control subjects, the risk of hemorrhagic stroke was greater in females with any migraine (1.55; 95% CI, 1.16-2.07; P=0.003) and in female migraineurs aged less than 45 years (1.57; 95% CI, 1.10-2.24; P=0.012). Conclusions Available studies suggest that subjects with migraine have an increased risk of hemorrhagic stroke. Further studies are needed to address the hemorrhagic stroke risk according to migraine type, age, sex, and hemorrhagic stroke type.

Keywords: Age, Aged, Calculation, Case-Control, Citation, Cohort, Confidence, Confidence Intervals, Control, Criteria, Data, Databases, Diagnostic Criteria, Effect Size, Embase, Estimates, Female, Hazard, Hemorrhagic Stroke, Heterogeneity, Intervals, MEDLINE, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Migraine With Aura, Model, Nov, P, Potential, Procedure, Records, Reporting, Results, Risk, Science, Science Citation Index, Sex, Size, Stroke, Topic, Value

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Full Text: [2014\Stroke45, 492.pdf](2014/Stroke45,%20492.pdf)

Abstract: Background and Purpose the efficacy and safety of different antiplatelet regimes for prevention of stroke in patients at high risk were investigated in a systematic review and meta-analysis. Methods We searched the Cochrane Central Register of Controlled Trials, MEDLINE, and Web of Science. Twenty-two studies comprising 173 371 patients were included. Results In the overall population, dual antiplatelet therapy (DAPT) with aspirin and clopidogrel in comparison to aspirin monotherapy reduced the relative risk of total stroke by 20% (risk ratio [RR], 0.80; 95% confidence interval [CI], 0.73-0.88; P<0.0001; I-2=28%) and of ischemic stroke or transient ischemic attack by 23% (RR, 0.77; 95% CI, 0.69-0.85; P<0.0001; I-2=18%) without increasing the risk of intracranial hemorrhage. In the secondary prevention cohort, DAPT with aspirin and clopidogrel also reduced the relative risk of total stroke by 24% as compared with aspirin alone (RR, 0.76; 95% CI, 0.68-0.86; P<0.0001; I-2=0%). DAPT with prasugrel or ticagrelor and aspirin versus DAPT with clopidogrel and aspirin was not associated with a risk reduction of stroke. Conclusions DAPT with clopidogrel and aspirin compared with aspirin effectively reduces the risk of total and ischemic stroke in the overall cohort consisting of patients with cardiovascular disease without increase in intracranial hemorrhage, as well as decreases the risk of a recurrent total stroke in patients with a previous stroke/transient ischemic attack. Our meta-analysis suggests that DAPT including low-dose aspirin (75-100 mg) and clopidogrel (75 mg) should be further investigated as a strategy to reduce recurrent strokes.

Keywords: Acute Coronary Syndromes, Antiplatelet Agents, Aspirin, Association, American-Stroke-Association, Cardiovascular, Cardiovascular Disease, Cerebrovascular, Cohort, Comparison, Confidence, Disease, Drug-Eluting Stents, Efficacy, Health-Care Professionals, Hemorrhage, Interval, Intracranial Hemorrhage, Intracranial Hemorrhages, Ischemic Stroke, Low-Dose, Low-Dose Aspirin, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Myocardial-Infarction, Of-Neurology Affirms, Patients, Placebo-Controlled Trial, Population, Prevention, Receptor Antagonist, Recurrent, Reduction, Relative Risk, Results, Review, Risk, Safety, Science, St-Segment Elevation, Strategy, Stroke, Systematic Review, Therapy, Transient, Transient Ischemic Attack, Treatment, Web of Science

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Full Text: [2014\Stroke45, 1222.pdf](2014/Stroke45,%201222.pdf)

Abstract: Background and Purpose There are uncertainties surrounding the optimal management of patients with brain swelling after an ischemic stroke. Guidelines are needed on how to manage this major complication, how to provide the best comprehensive neurological and medical care, and how to best inform families facing complex decisions on surgical intervention in deteriorating patients. This scientific statement addresses the early approach to the patient with a swollen ischemic stroke in a cerebral or cerebellar hemisphere. Methods the writing group used systematic literature reviews, references to published clinical and epidemiology studies, morbidity and mortality reports, clinical and public health guidelines, authoritative statements, personal files, and expert opinion to summarize existing evidence and to indicate gaps in current knowledge. The panel reviewed the most relevant articles on adults through computerized searches of the medical literature using MEDLINE, EMBASE, and Web of Science through March 2013. The evidence is organized within the context of the American Heart Association framework and is classified according to the joint American Heart Association/American College of Cardiology Foundation and supplementary American Heart Association Stroke Council methods of classifying the level of certainty and the class and level of evidence. The document underwent extensive American Heart Association internal peer review. Results Clinical criteria are available for hemispheric (involving the entire middle cerebral artery territory or more) and cerebellar (involving the posterior inferior cerebellar artery or superior cerebellar artery) swelling caused by ischemic infarction. Clinical signs that signify deterioration in swollen supratentorial hemispheric ischemic stroke include new or further impairment of consciousness, cerebral ptosis, and changes in pupillary size. In swollen cerebellar infarction, a decrease in level of consciousness occurs as a result of brainstem compression and therefore may include early loss of corneal reflexes and the development of miosis. Standardized definitions should be established to facilitate multicenter and population-based studies of incidence, prevalence, risk factors, and outcomes. Identification of patients at high risk for brain swelling should include clinical and neuroimaging data. If a full resuscitative status is warranted in a patient with a large territorial stroke, admission to a unit with neurological monitoring capabilities is needed. These patients are best admitted to intensive care or stroke units attended by skilled and experienced physicians such as neurointensivists or vascular neurologists. Complex medical care includes airway management and mechanical ventilation, blood pressure control, fluid management, and glucose and temperature control. In swollen supratentorial hemispheric ischemic stroke, routine intracranial pressure monitoring or cerebrospinal fluid diversion is not indicated, but decompressive craniectomy with dural expansion should be considered in patients who continue to deteriorate neurologically. There is uncertainty about the efficacy of decompressive craniectomy in patients 60 years of age. In swollen cerebellar stroke, suboccipital craniectomy with dural expansion should be performed in patients who deteriorate neurologically. Ventriculostomy to relieve obstructive hydrocephalus after a cerebellar infarct should be accompanied by decompressive suboccipital craniectomy to avoid deterioration from upward cerebellar displacement. In swollen hemispheric supratentorial infarcts, outcome can be satisfactory, but one should anticipate that one third of patients will be severely disabled and fully dependent on care even after decompressive craniectomy. Surgery after a cerebellar infarct leads to acceptable functional outcome in most patients. Conclusions Swollen cerebral and cerebellar infarcts are critical conditions that warrant immediate, specialized neurointensive care and often neurosurgical intervention. Decompressive craniectomy is a necessary option in many patients. Selected patients may benefit greatly from such an approach, and although disabled, they may be functionally independent.

Keywords: Acute Ischemic-Stroke, Age, Aha Scientific Statements, Airway Management, Approach, Artery, Artery Territory Infarction, Association, Blood, Blood Pressure, Brain, Brain Edema, Brain-Barrier Permeability, Brainstem, Cardiology, Care, Cerebral, Cerebrospinal Fluid, Changes, Clinical, Complication, Computed-Tomography, Consciousness, Context, Control, Criteria, Data, Decompressive Craniectomy, Development, Disabled, Displacement, Early Decompressive Craniectomy, Efficacy, Embase, Epidemiology, Evidence, Expert Opinion, Families, Fluid Management, Framework, Glucose, Guidelines, Health, Hemispheric Stroke, Hydrocephalus, Incidence, Increased Intracranial-Pressure, Infarction, Intensive Care, Intervention, Ischemic Stroke, Knowledge, Literature, Malignant Course, Management, Mechanical Ventilation, Medical, Medical Care, Medical Literature, Medline, Methods, Middle Cerebral Artery, Monitoring, Morbidity, Mortality, Neuroimaging, Neurological, Outcome, Outcomes, Patient Care Management, Patients, Peer Review, Peer-Review, Physicians, Population Based, Population-Based, Population-Based Studies, Pressure, Pressure Monitoring, Prevalence, Prognosis, Public, Public Health, Quality-Of-Life, References, Results, Review, Reviews, Risk, Risk Factors, Science, Size, Stroke, Superior Cerebellar Artery, Surgery, Surgical-Treatment, Swelling, Temperature, Uncertainties, Uncertainty, Ventilation, Web of Science

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Full Text: [2014\Stroke45, 1342.pdf](2014/Stroke45,%201342.pdf)

Abstract: Background and Purpose Cognitive impairment is linked to vascular risk factors and brain vascular pathologies. Several studies have tested whether subjects with cognitive impairment have higher risk for stroke. The aim of this study was to systematically review available evidence on the association between cognitive impairment and risk of stroke to obtain precise effect estimates of the association and to identify which cognitive domains associate most with incident stroke. Methods PubMed, EMBASE, and Web of Science were searched from January 1, 1980, to October 1, 2013, without language restriction. Only prospective cohort studies were included. From each study, data on the association between cognitive impairment and stroke estimated with hazard ratios or relative risks with 95% confidence interval (CI) were extracted. For each study, risk of stroke per SD lower performance in various cognitive tests was calculated. Results Twelve studies were included, comprising 82 899 participants of whom 3043 had an incident stroke. The pooled relative risk per SD lower global cognitive performance was 1.19 (95% CI, 1.12-1.27). Each SD lower score in executive function or attention was associated with 1.14-fold (95% CI, 1.06-1.24) higher risk of stroke. Lower scores in memory were associated with 1.07-fold (95% CI, 1.02-1.12) higher risk of stroke, and lower scores in language were associated with 1.08-fold (95% CI, 1.02-1.16) higher risk of stroke. Conclusions Cognitive impairment is associated with higher risk of stroke. The associations were not significantly different for executive function, memory, and language.

Keywords: 1st-Time Stroke, Association, Attention, Brain, Cognition, Cohort, Confidence, Coronary-Heart-Disease, Data, Dementia, Embase, Estimates, Evidence, Function, Global, Hazard, Health, Hemodynamics, Interval, Language, Memory, Meta-Analysis, Methods, Mortality, Performance, Prospective, Pubmed, Quality, Relative Risk, Results, Review, Risk, Risk Factors, Risks, Sample, Science, Stroke, Systematic Review, Type-2, Web Of Science

# Title: Structure and Infrastructure Engineering

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Full Text: [2015\Str Inf Eng11, 73.pdf](2015/Str%20Inf%20Eng11,%2073.pdf)

Abstract: In recent decades, research on the management of infrastructure assets has increased steadily. However, there are concerns raised about the contribution of studies to a coherent body of knowledge. There is a call for a more structured understanding of the knowledge that is emerging around the management of infrastructure assets. This paper attempts to answer this call through an empirical study based on the reference lists of over 8200 articles that present their study relevant to the management of infrastructure assets. In so doing, we apply recognised techniques from bibliometric and social network analyses to visualise and identify major and minor topics, where researchers have oriented and contributed. We find that managing infrastructure assets traditionally was object-oriented, such as pavements, bridges, water and utility networks, and that attention is only now emerging on the life-cycle decision-making and organisational aspects, although the latter remains weakly linked with technical aspects. We conclude with shared research orientations in managing’ infrastructure assets.

Keywords: Analyses, Approach, Articles, Attention, Author Cocitation Analysis, Bibliometric, Bibliometric Analysis, Contribution, Data Quality, Decision Making, Decision-Making, Deteriorating Structures, Existing Bridges, From, Genetic-Algorithm, Infrastructure, Infrastructure Asset Management, Intellectual Structure, Knowledge, Life Cycle, Life-Cycle Cost, Lifecycle, Maintenance Optimization, Management, Minor, Network, Network Analysis, Networks, Pavement Resurfacing Problem, Recent, Reference, Reference Lists, Research, Researchers, Road-Maintenance, Social, Social Network, Structure, Techniques, Understanding, Utility, Water

? Huang, M.F., Chan, C.M., Lou, W.J. and Bao, S. (2015), Time-domain dynamic drift optimisation of tall buildings subject to stochastic wind excitation. *Structure and Infrastructure Engineering*, **11** (2), 97-111.

Full Text: [2015\Str Inf Eng11, 97.pdf](2015/Str%20Inf%20Eng11,%2097.pdf)

Abstract: In recent decades, research on the management of infrastructure assets has increased steadily. However, there are concerns raised about the contribution of studies to a coherent body of knowledge. There is a call for a more structured understanding of the knowledge that is emerging around the management of infrastructure assets. This paper attempts to answer this call through an empirical study based on the reference lists of over 8200 articles that present their study relevant to the management of infrastructure assets. In so doing, we apply recognised techniques from bibliometric and social network analyses to visualise and identify major and minor topics, where researchers have oriented and contributed. We find that managing infrastructure assets traditionally was object-oriented, such as pavements, bridges, water and utility networks, and that attention is only now emerging on the life-cycle decision-making and organisational aspects, although the latter remains weakly linked with technical aspects. We conclude with shared research orientations in ‘managing’ infrastructure assets.

Keywords: Algorithms, Analyses, Approach, Articles, Attention, Bibliometric, Bibliometric Analysis, Contribution, Decision Making, Decision-Making, Design Optimization, Distributions, Dynamic Reliability, From, Infrastructure, Infrastructure Asset Management, Intellectual Structure, Knowledge, Life Cycle, Lifecycle, Loads, Management, Minor, Modes, Network, Network Analysis, Networks, Recent, Reference, Reference Lists, Research, Researchers, Social, Social Network, State-Variable Constraints, Stiffness Design, Structure, Tall Buildings, Techniques, Understanding, Utility, Water, Wind-Induced Response

# Title: Studies in Conflict and Terrorism

Full Journal Title: [Studies in Conflict and Terrorism](http://taylorandfrancis.metapress.com/(4kbsrj55fs5hy2zo4k41yyej)/app/home/journal.asp?referrer=parent&backto=linkingpublicationresults,1:102492,1)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Gordon, A. (2004), The effect of database and website inconstancy on the terrorism field’s delineation. *Studies in Conflict and Terrorism*, **27** (2), 79-88.

Full Text: [2004\Stu Con Ter27, 79.pdf](2004/Stu%20Con%20Ter27,%2079.pdf)

Abstract: the often changing range of terrorism journals selected for indexing in various databases adds to the elasticity of this field’s definition. The electronic databases as well as websites change their format and content quite often and this instability hampers the formation of a clear delineation of the disciplinary boundaries of terrorism. Nevertheless, the integration of electronic databases into terrorism research has exposed researchers to a large number of journals that deal with various aspects of terrorism, and the boundaries of this subject are continually expanding to encompass new sub-areas. In addition to the known core journals covering terrorism, many peripheral journals are emerging that are concerned with the dynamics of this field. The exposure of researchers to such a massive amount of information, print and electronic, demonstrates a marked knowledge growth in this area of study. However, the field could become so broad, even before reaching disciplinary maturation, that it could defy any attempt at delineation.

# Title: Studies in Higher Education

Full Journal Title: [Studies in Higher Education](http://www.informaworld.com/smpp/title~content=t713445574)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Colman, A.M., Garner, A.B. and Jolly, S. (1992), Research performance of United-Kingdom university psychology departments. *Studies in Higher Education*, **17** (1), 97-103.

Full Text: [1992\Stu Hig Edu17, 97.pdf](1992/Stu%20Hig%20Edu17,%2097.pdf)

Abstract: This scientometric investigation of research performance focuses on publications in seven leading European psychology journals. for the period 1980-89 inclusive, articles by members of university departments of psychology in the United Kingdom were counted, and the average number of articles per staff member was calculated for each department. The resulting research performance figures correlated positively and significantly with recent performance estimates by other researchers using different methods.

Keywords: Association, British, Counts, Institutional Research Productivity, Journals, Methods, Publication, Publications, Ratings, Research, Research Performance, Researchers, Scientometric, United Kingdom, University

? Walker, J. (2010), Measuring plagiarism: Researching what students do, not what they say they do. *Studies in Higher Education*, **35** (1), 41-59.

Full Text: [2010\Stu Hig Edu35, 41.pdf](2010/Stu%20Hig%20Edu35,%2041.pdf)

Abstract: Student plagiarism in colleges and universities has become a controversial issue in recent years. A key problem has been the lack of reliable empirical data on the frequency, nature and extent of plagiarism in student assignments. The aim of the study described here was to provide this data. Patterns of plagiarism were tracked in two university business studies assignments involving over 500 students and over 1000 scripts. Turnitin software was used to facilitate the identification of plagiarised material in assignments. The findings confirmed some common assertions about the nature of student plagiarism but did not provide support for a number of others.

Keywords: Assessment, Cheating, Perceptions, Plagiarism, Students, Turnitin, University

? Gullifer, J. and Tyson, G.A. (2010), Exploring university students’ perceptions of plagiarism: A focus group study. *Studies in Higher Education*, **35** (4), 463-481.

Full Text: [2010\Stu Hig Edu35, 463.pdf](2010/Stu%20Hig%20Edu35,%20463.pdf)

Abstract: Plagiarism is perceived to be a growing problem and universities are being required to devote increasing time and resources to combating it. Theory and research in psychology show that a thorough understanding of an individual’s view of an issue or problem is an essential requirement for successful change of that person’s attitudes and behaviour. This pilot study explores students’ perceptions of a number of issues relating to plagiarism in an Australian university. In the pilot study, focus groups were held with students across discipline areas, year and mode of study. A thematic analysis revealed six themes of perceptions of plagiarism: confusion, fear, perceived sanctions, perceived seriousness, academic consequences and resentment.

Keywords: Academic Dishonesty, Academic Integrity, Attitudes, Codes, College Students, College-Students, Contextual Influences, Motivation, Plagiarism, Research, Student Ethics, Students, University Student

? de Jager, K. and Brown, C. (2010), The tangled web: Investigating academics’ views of plagiarism at the University of Cape Town. *Studies in Higher Education*, **35** (5), 513-528.

Full Text: [2010\Stu Hig Edu35, 513.pdf](2010/Stu%20Hig%20Edu35,%20513.pdf)

Abstract: This article considers the problematic question of student plagiarism, its causes and manifestations, and how it is addressed in academic environments. A literature survey was conducted to establish how higher education institutions approach these issues, and a twofold investigation was conducted at the University of Cape Town. Data was gathered from the case records of the university disciplinary tribunals dealing with plagiarism, and a survey was conducted among academic staff to establish how they dealt with issues surrounding plagiarism and academic dishonesty. Academics seem unwilling to follow official university policies if they are perceived to be unrealistic.

Keywords: Academic Dishonesty, Academic Literacies, Academic Misconduct, Academic Writing, Academics, Education, Higher Education, Literature, Plagiarism, Policies, Survey, University, Writing Skills

? Knobel, M., Simoes, T.P. and Cruz, C.H.D. (2013), International collaborations between research universities: Experiences and best practices. *Studies in Higher Education*, **38** (3), 405-424.

Full Text: [2013\Stu Hig Edu38, 405.pdf](2013/Stu%20Hig%20Edu38,%20405.pdf)

Abstract: the world science scenario has observed, in recent years, an important transformation. With the advent of fairly complete publication databases and the improvement of the Internet a number of world university rankings were created, with a clear bias towards research universities. Also, a new field of scientometrics has been developed, and recent studies have clearly demonstrated that the impact of a publication increases if it is written by authors of more than one country. A general overview of the research collaboration landscape is presented, considering the advantages and problems of international cooperation and the role of research universities. In particular, the case of Ibero-America is explained, with a detailed focus on Brazil. Some interesting practices that have been introduced to improve the degree of internationalization of Brazilian science are shown and discussed.

Keywords: Authors, Bias, Big Science, Big Science, Brazil, Brazilian Science, Co-Authorship, Collaboration, Collaborations, Complete, Cooperation, Country, Databases, Field, General, Higher Education Internationalization, Impact, Improvement, International, International Collaborations, International Cooperation, Internationalization, Internet, Landscape, Practices, Publication, Rankings, Recent, Research, Research Collaboration, Role, Scenario, Science, Scientometrics, Si, Transformation, Universities, University, World

? Abramo, G. and D’Angelo, C.A. (2014), The spin-off of elite universities in non-competitive, undifferentiated higher education systems: An empirical simulation in Italy. *Studies in Higher Education*, **39** (7), 1270-1289.

Full Text: [2014\Stu Hig Edu39, 1270.pdf](2014/Stu%20Hig%20Edu39,%201270.pdf)

Abstract: Higher education systems featuring intense competition have developed world-class universities, capable of attracting top professors and students and considerable public-private funding. This does not occur in non-competitive systems, where highly talented faculty and students are dispersed across all institutions. In such systems, the authors propose the budding of spin-off universities, staffed by the migration of top scientists from the entire public research system. This article illustrates the proposal through an example: the spin-off of a new university in Rome, Italy staffed with the best professors from the three current public city universities. Such a faculty would offer top national research productivity, a magnet to attract the other critical ingredients of a world-class university: talented students, abundant resources and visionary governance.

Keywords: Article, Authors, Bibliometrics, Budding, Competition, Education, Elite University, Faculty, Funding, Governance, Higher Education, Institutions, Italy, Migration, Productivity, Professors, Public, Research, Research Evaluation, Research Performance, Research Productivity, Resources, Scientists, Simulation, Size, Spin-Off, Students, Systems, Universities, University

? Anninos, L.N. (2014), Research performance evaluation: Some critical thoughts on standard bibliometric indicators. *Studies in Higher Education*, **39** (9), 1542-1561.

Full Text: [2014\Stu Hig Edu39, 1542.pdf](2014/Stu%20Hig%20Edu39,%201542.pdf)

Abstract: The bibliometric methodology is an established technique for research evaluation as it offers an objective determination and comparison of research performance. This paper aims to critically assess some standard bibliometric indicators commonly used (based on publication and citation counts) to evaluate academic units, and examine whether there are factors not taken into account that influence evaluation results. Findings suggest that the dissimilarity of academic units (for example regarding their scientific orientation and size in terms of staff number), if not taken into consideration may lead to incorrect evaluation results. This issue becomes even more important when comparing larger academic units, such as universities or colleges. Among the suggested further research is the replication of this study in an expanded time frame and an international context.

Keywords: Bibliometric, Bibliometric Indicators, Bibliometric Methodology, Citation, Citation Counts, Citations, Comparison, Context, Core Journals, Evaluation, Faculty Ratings, Higher Education, Indicators, Influence, International, Lead, Methodology, Performance, Performance Evaluation, Publication, Publications, Ranking, Rankings, Replication, Research, Research Evaluation, Research Performance, Research Performance Evaluation, Research Productivity, Science, Size, Southern Economics Departments, Standard, Universities, University, US

? Calma, A. and Davies, M. (2015), *Studies in higher education* 1976-2013: A retrospective using citation network analysis. *Studies in Higher Education*, **40** (1), 4-21.

Full Text: [2015\Stu Hig Edu40, 4.pdf](2015/Stu%20Hig%20Edu40,%204.pdf)

Abstract: This paper provides a citation network analysis of the publications in Studies in Higher Education from 1976 to 2013 inclusive. This represents the entire history of the journal to date. It analyses the most published authors, most cited authors and most discussed topics using keywords. 1056 articles were taken from Web of Science(SM) as a source of primary data. These articles were determined to have 32,738 references. A small percentage of these articles, 218 articles, had 1030 keywords. A data visualisation and manipulation software, Gephi, was used to provide a visual representation of the associated citation networks. We compare the results with other higher education citation analyses published elsewhere - a small, but growing area of research. Results indicate that the five most published authors throughout the journal’s history are Richardson, Kember, Becher, Boud and Elton. The five most cited authors are Entwistle, Marton, Ramsden, Biggs and Becher. The five most discussed topics, using keywords, excluding higher education, are ‘doctoral education’, ‘assessment’, ‘phenomenography’, ‘student learning’ and ‘identity’, with a number of subordinate topic clusters amongst these. Results derived from this exercise are helpful in illuminating the evolving concerns of the journal and its readership, and providing a demonstration of a rigorous analytical technique for assessing journal citation data in the future.

Keywords: Analyses, Analysis, Articles, Assessing, Assessment, Authors, Citation, Citation Analysis, Citation Network, Citations, Cluster Analysis, Data, Education, Exercise, From, Gephi, Higher Education, History, History Of The Journal, Journal, Journal Citation, Journals, Learning, Network, Network Analysis, Networks, Patterns, Primary, Publications, References, Representation, Research, Results, Science, Small, Software, Source, Student, Topic, Web

# Title: Studies in Philosophy and Education

Full Journal Title: Studies in Philosophy and Education

ISO Abbreviated Title:

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ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Bouville, M. (2010), Why is cheating wrong? *Studies in Philosophy and Education*, **29** (1), 67-76.

Full Text: [2010\Stu Phi Edu29, 67.pdf](2010/Stu%20Phi%20Edu29,%2067.pdf)

Abstract: Since cheating is obviously wrong, arguments against it (it provides an unfair advantage, it hinders learning) need only be mentioned in passing. But the argument of unfair advantage absurdly takes education to be essentially a race of all against all; moreover, it ignores that many cases of unfair (dis)advantages are widely accepted. On the other hand, the fact that cheating can hamper learning does not mean that punishing cheating will necessarily favour learning, so that this argument does not obviously justify sanctioning cheaters.

Keywords: Academic Dishonesty, Academic Dishonesty, Academic Integrity, Academic Misconduct, Cheating, College-Students, Education, Ethics, Grades, High-School, Homework, Intrinsic Motivation, Learning, Performance, Plagiarism, Plagiarism

? Fernandez, C. and Sundstrom, M. (2011), Citizenship education and liberalism: A state of the debate analysis 1990-2010. *Studies in Philosophy and Education*, **30** (4), 363-384.

Full Text: [2011\Stu Phi Edu30, 363.pdf](2011/Stu%20Phi%20Edu30,%20363.pdf)

Abstract: What kind of citizenship education, if any, should schools in liberal societies promote? and what ends is such education supposed to serve? Over the last decades a respectable body of literature has emerged to address these and related issues. In this state of the debate analysis we examine a sample of journal articles dealing with these very issues spanning a twenty-year period with the aim to analyse debate patterns and developments in the research field. We first carry out a qualitative analysis where we design a two-dimensional theoretical framework in order to systematise the various liberal debate positions, and make us able to study their justifications, internal tensions and engagements with other positions. In the ensuing quantitative leg of the study we carry out a quantitative bibliometric analysis where we weigh the importance of specific scholars. We finally discuss possible merits and flaws in the research field, as evidenced in and by the analysis.

Keywords: Autonomy, Bibliometric, Bibliometric Analysis, Citizenship Education, Civic Education, Diversity, Education, Environmental-Education, Journal, Justice, Legitimacy, Liberalism, Literature, Political Liberalism, Research, Rights, Schools, State of the Debate, Thick and Thin

# Title: Studies in Science of Science

Full Journal Title: [Studies in Science of Science](http://e29.cnki.net/KNS50/Navi/item.aspx?NaviID=1&BaseID=KXYJ&NaviLink=%e7%a7%91%e5%ad%a6%e5%ad%a6%e7%a0%94%e7%a9%b6)

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JCR Abbreviated Title:

ISSN: 1003-2053

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Zhang, G.L. and Chen, H.M. (2006), Research on national high-tech R＆D program assessment. *Studies in Science of Science*, **24** (1), 57-61.

? Hua, W.N. (2006), Scientometric study on scientific research capability in China on the first half of the 20th century. *Studies in Science of Science*, **24** (3), 332-341.

Full Text: [2006\Stu Sci Sci24, 332.pdf](2006/Stu%20Sci%20Sci24,%20332.pdf)

Abstract: This paper first searched for scientific research articles from the databases of ISI citation index in the period from 1900 to 1949. Then a large scale of bibliometric study wasmade from many aspects as amount, authors, organizations, subjects, core source journals and citations, in order to reflect and evaluate the scientific research capability in China on the first half of the 20th century.

Keywords: Research Assessment, Scientometric Study, Bibliometric Study, Citation Index, Research Productivity

# Title: Studii si Cercetari de Documentare

Full Journal Title: Studii si Cercetari de Documentare

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Avramescu, A. (1973), Science citation distribution and obsolescence. *Studii si Cercetari de Documentare*, **15** (4), 345-356.

Full Text: [1960-80\Stu Cer Doc15, 345.pdf](1960-80/Stu%20Cer%20Doc15,%20345.pdf)

# Title: Substance Abuse Treatment Prevention and Policy

Full Journal Title: Substance Abuse Treatment Prevention and Policy

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

Impact Factor

? Milligan, K., Niccols, A., Sword, W., Thabane, L., Henderson, J., Smith, A. and Liu, J. (2010), Maternal substance use and integrated treatment programs for women with substance abuse issues and their children: A meta-analysis. *Substance Abuse Treatment Prevention and Policy*, **5**, Article Number: 21.

Full Text: [2010\Sub Abu Tre Pre Pol5, 21.pdf](2010/Sub%20Abu%20Tre%20Pre%20Pol5,%2021.pdf)

Abstract: Background: the rate of women with substance abuse issues is increasing. Women present with a unique constellation of risk factors and presenting needs, which may include specific needs in their role as mothers. Numerous integrated programs (those with substance use treatment and pregnancy, parenting, or child services) have been developed to specifically meet the needs of pregnant and parenting women with substance abuse issues. This synthesis and meta-analysis reviews research in this important and growing area of treatment. Methods: We searched PsycINFO, MEDLINE, PUBMED, Web of Science, EMBASE, Proquest Dissertations, Sociological Abstracts, and CINAHL and compiled a database of 21 studies (2 randomized trials, 9 quasi-experimental studies, 10 cohort studies) of integrated programs published between 1990 and 2007 with outcome data on maternal substance use. Data were summarized and where possible, meta-analyses were performed, using standardized mean differences (d) effect size estimates. Results: In the two studies comparing integrated programs to no treatment, effect sizes for urine toxicology and percent using substances significantly favored integrated programs and ranged from 0.18 to 1.41. Studies examining changes in maternal substance use from beginning to end of treatment were statistically significant and medium sized. More specifically, in the five studies measuring severity of drug and alcohol use, the average effect sizes were 0.64 and 0.40, respectively. In the four cohort studies of days of use, the average effect size was 0.52. of studies comparing integrated to non-integrated programs, four studies assessed urine toxicology and two assessed self-reported abstinence. Overall effect sizes for each measure were not statistically significant (d = -0.09 and 0.22, respectively). Conclusions: Findings suggest that integrated programs are effective in reducing maternal substance use. However, integrated programs were not significantly more effective than non-integrated programs. Policy implications are discussed with specific attention to the need for funding of high quality randomized control trials and improved reporting practices.

Keywords: Alcohol, Alcohol-Use Disorders, Attention, Child, Children, Cohort Studies, Control, Dependent Women, Dissertations, Drug, Drug-Use, Embase, Funding, Maternal, Meta-Analysis, Methods, Mothers, Outcome, Parenting, Policy, Predictors, Pregnancy, Pregnant-Women, Primary-Care, Pubmed, Randomized Clinical-Trial, Research, Risk, Risk Factors, Science, Therapeutic-Community, Treatment, Treatment Outcomes, Urine, Web of Science, Women

? Sweileh, W.M., Zyoud, S.H., Al-Jabi, S.W. and Sawalha, A.F. (2014), Substance use disorders in Arab countries: Research activity and bibliometric analysis. *Substance Abuse Treatment Prevention and Policy*, **9**, Article Number: 33.

Full Text: [2014\Sub Abu Tre Pre Pol5, 33.pdf](2014/Sub%20Abu%20Tre%20Pre%20Pol5,%2033.pdf)

Abstract: Background: Substance use disorders, which include substance abuse and substance dependence, are present in all regions of the world including Middle Eastern Arab countries. Bibliometric analysis is an increasingly used tool for research assessment. The main objective of this study was to assess research productivity in the field of substance use disorders in Arab countries using bibliometric indicators. Methodology: Original or review research articles authored or co-authored by investigators from Arab countries about substance use disorders during the period 1900-2013 were retrieved using the ISI Web of Science database. Research activity was assessed by analyzing the annual research productivity, contribution of each Arab country, names of journals, citations, and types of abused substances. Results: Four hundred and thirteen documents in substance use disorders were retrieved. Annual research productivity was low but showed a significant increase in the last few years. In terms of quantity, Kingdom of Saudi Arabia (83 documents) ranked first in research about substance use disorders while Lebanon (17.4 documents per million) ranked first in terms of number of documents published per million inhabitants. Retrieved documents were found in different journal titles and categories, mostly in Drug and Alcohol Dependence Journal. Authors from USA appeared in 117 documents published by investigators from Arab countries. Citation analysis of retrieved documents showed that the average citation per document was 10.76 and the h - index was 35. The majority of retrieved documents were about tobacco and smoking (175 documents) field while alcohol consumption and abuse research was the least with 69 documents. Conclusion: The results obtained suggest that research in this field was largely neglected in the past. However, recent research interest was observed. Research output on tobacco and smoking was relatively high compared to other substances of abuse like illicit drugs and medicinal agents. Governmental funding for academics and mental health graduate programs to do research in the field of substance use disorders is highly recommended.

Keywords: Abuse, Academics, Activity, Alcohol, Analysis, Arab Countries, Articles, Assessment, Bibliometric, Bibliometric Analysis, Bibliometric Indicators, Citation, Citation Analysis, Citations, Consumption, Contribution, Country, Database, Diseases, Documents, Drug, Drugs, Field, First, Funding, Google-Scholar, Graduate, h Index, Health, Historical Development, Illicit Drugs, Index, Indicators, Isi, Isi Web Of Science, Journal, Journals, Lebanon, Mental Health, Mental-Health, Methodology, Middle Eastern Arab, Productivity, Recent, Research, Research Activity, Research Assessment, Research Output, Research Productivity, Results, Review, Saudi Arabia, Science, Scopus, Services, Smoking, Substance Abuse, Substance Dependence, Substance Use, Substance Use Disorders, Tobacco, USA, Web, Web Of Science, World

? Strom, H.K., Adolfsen, F., Fossum, S., Kaiser, S. and Martinussen, M. (2014), Effectiveness of school-based preventive interventions on adolescent alcohol use: A meta-analysis of randomized controlled trials. *Substance Abuse Treatment Prevention and Policy*, **9**, Article Number: 48.

Full Text: [2014\Sub Abu Tre Pre Pol5, 48.pdf](2014/Sub%20Abu%20Tre%20Pre%20Pol5,%2048.pdf)

Abstract: Background: Preventive interventions for adolescents are an important priority within school systems. Several interventions have been developed, but the effectiveness of such interventions varies considerably between studies. The purpose of this study was to assess the effectiveness of universal school-based prevention programs on alcohol use among adolescents by using meta-analytic techniques. Method: A systematic literature search in the databases, PubMed (Medline), PsycINFO (Ovid), EMBASE (Ovid) and WEB of Science (ISI) was conducted to search for empirical articles published in the period January 1990 to August 2014. Results: In total, 28 randomized controlled studies with 39,289 participants at baseline were included. Of these 28 articles, 12 studies (N = 16279) reported continuous outcomes (frequency of alcohol use and quantity of alcohol use), and 16 studies (N = 23010) reported categorical data (proportion of students who drank alcohol). The results of the random effects analyses showed that the overall effect size among studies reporting continuous outcomes was small and demonstrated a favorable effect from the preventive interventions (Hedges’ (g) over bar = 0.22, p < .01). The effect size among studies reporting categorical outcomes was not significant (<(O)over bar>R = 0.94, p = .25). The level of heterogeneity between studies was found to be significant in most analyses. Moderator analyses conducted to explore the heterogeneity showed neither significant difference between the different school levels (junior high schools and high schools), nor between the varied program intensities (low, medium and high intensity programs). The meta-regression analyses examining continuous moderators showed no significant effects for age or gender. Conclusions: The findings from this meta-analysis showed that, overall, the effects of school-based preventive alcohol interventions on adolescent alcohol use were small but positive among studies reporting the continuous measures, whereas no effect was found among studies reporting the categorical outcomes. Possible population health outcomes, with recommendations for policy and practice, are discussed further in this paper.

Keywords: Abuse, Adolescent, Adolescents, Age, Alcohol, Alcohol Drinking, Alcohol Prevention, Alcohol Use, Analyses, Articles, Data, Databases, Drinking, Drug Prevention, Effect Size, Effectiveness, Effects, Embase, Follow-Up Evaluation, From, Gender, Harm Minimization, Health, Health Outcomes, Heterogeneity, Inner-City, Intensity, Interventions, Isi, Literature, Literature Search, Measures, Medline, Meta Analysis, Meta-Analysis, Meta-Regression, Metaanalysis, Moderator, N, Outcomes, Policy, Population, Practice, Prevention, Programs, Project, Psycinfo, Pubmed, Purpose, Randomized, Randomized Controlled Trials, Recommendations, Reporting, Results, Risk Behaviors, Science, Size, Small, Students, Substance Use, Systematic, Systematic Literature Search, Systems, Techniques, Web

# Title: Substance Use & Misuse

Full Journal Title: [Substance Use & Misuse](http://taylorandfrancis.metapress.com/(pq3jdryc04mq3ny2pchuhojk)/app/home/journal.asp?referrer=parent&backto=linkingpublicationresults,1:107866,1); [Substance Use & Misuse](http://weblinks3.epnet.com/authHjafDetail.asp?tb=1&_ua=bo+B%5F+db+aphjnh+bt+TD++%222VI%22+A166&_ug=sid+00DFC4AB%2DCF5D%2D4E1C%2D99B7%2D82D725FF35FE%40sessionmgr2+dbs+aph+7352&_us=sm+ES+E6C7&_uso=st%5B0+%2DTD++%222VI%22+tg%5B0+%2D+db%5B0+%2Daph+op%5B0+%2D+h)

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ISSN: 1082-6084

Issues/Year:

Journal Country/Territory:

Language:

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Subject Categories:

Impact Factor

? Nieminen, P. and Isohanni, M. (1997), The use of bibliometric data in evaluating research on therapeutic community for addictions and in psychiatry. *Substance Use & Misuse*, **32** (5), 555-570.

Abstract: the purpose of this study is to describe the publication characteristics associated with therapeutic community research and illustrate differences between addiction studies and other types of therapeutic community papers. A total of 223 published reports on research pertaining to the therapeutic community in a variety of treatment settings from 1987 to 1992 were analyzed. The articles consisted mainly of addiction studies (38%) and hospital psychiatry (36%) studies. Collaborative authorship was scanty. Quantitative studies (systematic data presented and analyzed statistically) were performed more often in addiction papers than in psychiatric therapeutic community papers. Addiction studies were also cited slightly more often. Addictions are often a rather simple and distinct focus for research, as well as a major public health problem. This may lead to the smoother use of traditional quantitative research strategies and standard publication channels than in other psychiatric therapeutic community studies.

Keywords: Therapeutic Community, Substance Misuse, Bibliometrics, Journals, Science

# Title: Suchttherapie

Full Journal Title: Suchttherapie

ISO Abbreviated Title: Suchttherapie

JCR Abbreviated Title: Suchttherapie

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Korkel, J. (2008), Listing of *Suchttherapie* in the Social Science Citation Index Expanded - the Impact Factor as Milestone. *Suchttherapie*, **9** (4), 147.

Keywords: Citation, Impact Factor, Science, Science Citation Index

# Title: Suelo y Planta

Full Journal Title: Suelo y Planta

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 1130-796X

Issues/Year:

Journal Country/Territory:

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Publisher Address:

Subject Categories:

: Impact Factor

? Arrue, J.L. and Lopez, M.V. (1991), Conservation tillage research trends and priorities. *Suelo y Planta*, **1** (4), 555-564.

Abstract: the development and adoption of reduced tillage practices over the last two decades has proven to be an important factor in controlling soil losses in cultivated fields. In order to evaluate the growth pattern of conservation tillage research conducted in the last fifteen years, a bibliometric analysis, based primarily on abstracts published in Soils and Fertilizers, has been performed. The contribution to world output for different geographical regions has been assessed comparing the amount of scientific and technical publications for the 1975-77 and 1987-89 periods. While the output of total tillage related papers has increased only three times in that period, that of conservation tillage papers has increased five times. Though a slight trend to increase the number of papers dealing with soil erosion can be noted, much more attention should be paid to this issue in the Mediterranean region, specially under dryland conditions. A priority research program on new conservation tillage systems for the middle part of the Ebro river valley, NE Spain, is briefly outlined.

# Title: Suicide and Life-Threatening Behavior

Full Journal Title: Suicide and Life-Threatening Behavior

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

Notes: JJournal

? Cardinal, C. (2008), Three decades of *Suicide and Life-Threatening Behavior*: A bibliometric study. *Suicide and Life-Threatening Behavior*, **38** (3), 260-273.

Full Text: [2008\Sui Lif-Thr Beh38, 260.pdf](2008/Sui%20Lif-Thr%20Beh38,%20260.pdf)

Abstract: the purpose of this study is to quantify certain characteristics of the articles published in Suicide and Life-Threatening Behavior in three 5-year periods, namely, 1971-1975, 1984-1988, and 1997-2001. The characteristics in question include geographic origin of articles, number of authors per article, number of references listed per article, and number of times an article is cited in the literature. Changes across the three periods in terms of distribution of subjects/participants by age group and gender are also examined. The discussion focuses on explanations for the trends and characteristics that are described.

Keywords: Age, Behavior, Bibliometric, Bibliometric Study, Characteristics, Distribution, Gender, Journals, Literature, Origin, Purpose, Suicide, Trends

# Title: Supply Chain Management-An International Journal

Full Journal Title: Supply Chain Management-An International Journal

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Harland, C.M. (2013), Supply chain management research impact: An evidence-based perspective. *Supply Chain Management-An International Journal*, **18** (5), 483-496.

Full Text: [2013\Sup Cha Man-Int J18, 483.pdf](2013/Sup%20Cha%20Man-Int%20J18,%20483.pdf)

Abstract: Purpose the purpose of this paper, using an evidence-based management theoretical lens, is to examine research impact to provide guidance to supply chain management academics in evidencing and exploiting the outputs, outcomes and impact of their research. Design/methodology/approach-Evidence-based management theory is examined and applied to types of academic research impact. The distinction between academic and non-academic impact is developed into a supply chain framework of research outputs; transfer, outcomes, impact’ and national/international benefits. Impact of supply chain management research is explored through a case study in the English National Health Service. Future opportunities and challenges for supply chain management researchers arising from increasing demand for and supply of evidence are discussed. Findings-Author academic impact and citations are found to be increasingly important building blocks of evidence-based evaluations of individual academics, journals, research quality assessments of groups and universities, and global rankings of universities. Supply chain management researchers can compare their impact with other areas of academia. Non-academic impact of research has been assessed by funders of research projects and has spread to research quality assessments of universities. Social implications-Bibliometrics provide evidence of author and journal impact that can be used in human resource decisions, research quality assessments and global rankings of universities; this availability enables a debate on appropriate use of academic impact evidence. Supply chain management academics evidencing non-academic research impact on business, society and economy will enable governments and funders of research to evaluate value for money return on their investment. Originality/value-This perspective of evidence-based evaluation of research impact and its implications might encourage debate on academic and non-academic impact and encourage supply chain researchers to consider evidencing impact in their research design and methodology.

Keywords: Academics, Applied Research, Article, Assessments, Author Impact, Availability, Benefits, Building, Business, Case Study, Chain, Citation, Citations, Clinical-Practice, Demand, Design, Economics, Economy, England, Evaluation, Evidence, Evidence Based, Evidence-Based, Evidence-Based Management, Framework, Global, Groups, Guidance, h-Index, House, Human, Impact, Journal, Journal Impact, Journals, Journals, Management, Methodology, Non-Academic Impact, Outcomes, Performance, Purpose, Quality, Rankings, Research, Research Design, Research Impact, Research Outputs, Research Quality, Research Quality Assessment, Research Work, Society, Supplies, Supply Chain, Supply Chain Management, Supply-Chain, Theoretical, Theory, Universities, University Rankings, Value

# Title: Supportive Care in Cancer

Full Journal Title: Supportive Care in Cancer

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Weeks, L., Verhoef, M. and Scott, C. (2007), Presenting the alternative: Cancer and complementary and alternative medicine in the Canadian print media. *Supportive Care in Cancer*, **15** (8), 931-938.

Full Text: [2007\Sup Car Can15, 931.pdf](2007/Sup%20Car%20Can15,%20931.pdf)

Abstract: Goals of work Cancer patients repeatedly identify the mass media as a primary information source to support their decisions to use complementary and alternative medicine (CAM). Accordingly, the objectives of this research are to describe: (1) what has been reported in the Canadian print media regarding CAM treatment for cancer between January 1, 1990 and December 31, 2005; (2) how that information was represented; and (3) trends in reporting frequency and reporting characteristics. Materials and methods Content analysis of all articles published in four Canadian newspapers and five magazines that discussed CAM treatment for cancer. Main results 915 articles were identified: 760 newspaper articles and 155 magazine articles. The CAM therapies most commonly described in media reports were: natural health products, CAM therapies in general, special diets, spirituality, and meditation. CAM therapies were most often described in a positive fashion, and CAM use was most often described as a potential cure for cancer. The majority of articles did not present information on the risks, benefits, and costs of CAM use and few provided a recommendation to speak with a health care provider before use. Conclusions the results correspond with the commercial interests of media outlets, as coverage appears to be focused around entertainment rather than information provision. The media play a role in introducing a range of treatment options to cancer patients that may not be discussed by conventional health care providers; however, the information provided in media articles appears insufficient to assist patients with informed decision-making.

Keywords: Alternative, Analysis, Cancer, Care, Characteristics, Complementary, Complementary and Alternative Medicine, Conventional, Costs, Coverage, Decision Making, Decision-Making, General, Health, Health Care, Information, Media, Medicine, Methods, Natural Health Products, Options, Patients, Potential, Primary, Providers, Reporting, Research, Risks, Role, Source, Support, Treatment, Trends, Work

? Vrijmoet-Wiersma, C.M.J., Egeler, R.M., Koopman, H.M., Norberg, A.L. and Grootenhuis, M.A. (2009), Parental stress before, during, and after pediatric stem cell transplantation: A review article. *Supportive Care in Cancer*, **17** (12), 1435-1443.

Full Text: [2009\Sup Car Can17, 1435.pdf](2009/Sup%20Car%20Can17,%201435.pdf)

Abstract: Pediatric stem cell transplantation (SCT) is a stressful treatment for children with relapsed or high-risk malignancies, immune deficiencies and certain blood diseases. Parents of children undergoing SCT can experience ongoing stress related to the SCT period. The aim of this article was to present a literature review of articles on parental distress and adaptation before, during, and after SCT and to identify risk and protective factors. The review was conducted systematically by using PUBMED, Web of Science, PsychInfo, and Picarta databases. Eighteen articles met our inclusion criteria: publishing date between January 1, 1990 and January 1, 2009; studies concerning parents of children undergoing SCT; studies examining the psychological adjustment and/or stress reactions of parents as primary outcomes and studies available in English. Highest levels of parental stress are reported in the period preceding SCT and during the acute phase. Stress levels decrease steadily after discharge in most parents. However, in a subgroup of parents, stress levels still remain elevated post-SCT. Parents most at risk in the longer term display highest levels of stress during the acute phase of the SCT. Psychosocial assessment before SCT, during the acute phase and in the longer term, is necessary to identify parents in need for support and follow-up care.

Keywords: Acute, Adaptation, Adjustment, Assessment, Blood, Bone-Marrow-Transplantation, Childhood-Cancer, Children, Databases, Depressive Symptoms, Distress, Follow-up, Health, Literature, Literature Review, Mothers, Outcomes, Parental Stress, Parents, Pediatric, Pediatric SCT, Predictors, Primary, Psychological, Psychosocial, Publishing, Pubmed, Quality-of-Life, Review, Risk, Science, Stress, The-Literature, Transplantation, Treatment, Web of Science

? Carey, M., Lambert, S., Smits, R., Paul, C., Sanson-Fisher, R. and Clinton-McHarg, T. (2012), The unfulfilled promise: A systematic review of interventions to reduce the unmet supportive care needs of cancer patients. *Supportive Care in Cancer*, **20** (2), 207-219.

Full Text: [2012\Sup Car Can20, 207.pdf](2012/Sup%20Car%20Can20,%20207.pdf)

Abstract: This review aimed to examine (a) trends in the number of publications on unmet needs over time and (b) the effectiveness of interventions designed to reduce unmet needs among cancer patients. An electronic literature search of MEDLINE to explore trends in the number of publications on patients’ unmet needs and an additional literature search of MEDLINE, CINAHL, PsychINFO, and Web of Science databases to identify methodologically rigorous research trials that evaluated interventions to reduce unmet needs were conducted. Publications per year on unmet needs have increased over time, with most being on descriptive research. Nine relevant trials were identified. Six trials reported no intervention effect. Three trials reported that intervention participants had a lower number of unmet needs or lower unmet needs score, compared to control participants. of these, one study found that the intervention group had fewer supportive care needs and lower mean depression scores; one study found that intervention participants with high problem-solving skills had fewer unmet needs at follow-up; and one study found an effect in favor of the intervention group on psychological need subscale scores. Reasons for varying results across trials and the limited effectiveness of unmet needs interventions are more broadly discussed. These include inadequacies in psychometric rigor, problems with scoring methods, the use of ineffective interventions, and lack of adherence to intervention protocols.

Keywords: Adherence, Breast-Cancer, Cancer, Care, Changing Needs, Control, Databases, Depression, Effectiveness, Follow-Up, Improve, Intervention, Interventions, Literature, MEDLINE, Needs Assessment, Oncology, Patients, Perceived Needs, Psychological, Psychometric Properties, Psychosocial Interventions, Publications, Quality-of-Life, Randomized Controlled-Trial, Research, Review, Rural Women, Science, Survivors, Systematic, Systematic Review, Trends, Unmet Needs, Web of Science, Web-of-Science

? Ugolini, D., Neri, M., Cesario, A., Bonassi, S., Milazzo, D., Bennati, L., Lapenna, L.M. and Pasqualetti, P. (2012), Scientific production in cancer rehabilitation grows higher: A bibliometric analysis. *Supportive Care in Cancer*, **20** (8), 1629-1638.

Full Text: [2012\Sup Car Can20, 1629.pdf](2012/Sup%20Car%20Can20,%201629.pdf)

Abstract: the aim of the study was to evaluate scientific production in the field of cancer rehabilitation comparing publication trends and impact factor (IF) among countries.

The PubMed database was searched. Publications numbers and IF were evaluated both as absolute values and after standardization by population and gross domestic product (GDP). A dedicated software was developed to create a relational database containing all information about considered publications (Research Management System).

Some 1,743 publications were retrieved from 1967 to 2008. Cancer rehabilitation publications have grown 11.6 times, while the whole field of disease rehabilitation has grown 7.8 times. Breast neoplasms, squamous cell carcinoma, treatment outcome, endosseous dental implantation, follow-up studies, and surgical flaps were the most commonly used keywords. From 1994 to 2008, 946 citations were retrieved: 36.8% came from the European Union (EU) (Germany, the UK, and the Netherlands ranking at the top) and 36.9% from the USA. The highest mean IF was reported for the USA (3.384) followed by Canada (3.265) and Australia (2.643). The EU has a mean IF of 0.839 with the Netherlands ranking first. Canada, Australia, and the USA had the best ratio between IF (sum) and resident population or GDP.

Cancer rehabilitation is an expanding area with a growing scientific production. The rapidly ageing population, the higher number of cancer survivors, and the increasing need of resources for the after treatment of cancer patients contribute to explain the interest for this field.

Keywords: Rehabilitation, Neoplasms, Publications, Bibliometrics, European-Union

? Azzani, M., Roslani, A.C. and Su, T.T. (2015), The perceived cancer-related financial hardship among patients and their families: A systematic review. *Supportive Care in Cancer*, **23** (3), 889-898.

Full Text: [2015\Sup Car Can23, 889.pdf](2015/Sup%20Car%20Can23,%20889.pdf)

Abstract: The escalating health-care spending for cancer management has caused cancer patients to struggle further as a result of financial burden. This systematic review was carried out to investigate the prevalence of perceived financial hardship and associated factors among cancer patients and their families. A systematic search for studies concerning the perception of financial burden among cancer patients and their families was conducted. Several electronic resources such as Medline, Elsevier (Science Direct), Web of Science, Embase, PubMed, CINAHL and Scopus (SciVerse) were searched. Additionally, manual search through indices citation was also thoroughly utilized. The main outcome of interest was the prevalence of perceived financial hardship among cancer patients and their families. Studies reported only the cost of cancer treatment and qualitative studies were excluded. Our search was limited to articles that were published from 2003 to 2013. Ten studies were included in this review and with a majority originating from high-income countries. The prevalence of the financial burden perception was reported between 14.8 and 78.8 %. The most frequent and significant risk factor reported associated with the perception of financial difficulty was the households with low income. Discontinuation of treatment and poverty were conversely the important consequences of financial burden in cancer patients and their families. Evidently, cancer is a long-term illness that requires a high financial cost, and a significant number of cancer patients and families struggle with financial difficulty. Identifying such groups with a high risk of facing financial difficulty is a crucial measure to ensure safety nets are readily available for these targeted population.

Keywords: Articles, Associated Factors, Burden, Cancer, Cancer Patient, Cancer Patient’s Caregiver, Cancer Treatment, Care, Catastrophic Health Expenditure, Citation, Cost, Costs, Factors, Families, Financial Hardship, From, Groups, Health Care, Impact, Income, Indices, Long Term, Long-Term, Malaya, Malaysia, Management, Mar, Measure, Medline, Outcome, Patients, Perception, Population, Poverty, Prevalence, Pubmed, Qualitative, Quality-Of-Life, Resources, Review, Risk, Risk Factor, Safety, Science, Scopus, Systematic, Systematic Review, Treatment, Web, Web Of Science

# Title: Surface & Coatings Technology

Full Journal Title: Surface & Coatings Technology

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Dubourg, L. and Archambeault, J. (2008), Technological and scientific landscape of laser cladding process in 2007. *Surface & Coatings Technology*, **202** (24), 5863-5869.

Abstract: In the last 30 years, public and private organizations involvement in laser cladding R&D activities is increasing. These activities are mainly conducted in universities, public research institutes and technical centres of private companies worldwide. This study shows a bibliometric analysis of the patents and scientific publications in the laser cladding field for the period ranging from 1985 to 2007. This seeks to identify the activity and trends in its environment for strategic purposes. All the laser cladding processes and all the substrates (steel, aluminium and superalloys) used for coating, repairing and 3D fabrication were taken into account.. At first, the world patent production was analysed in terms of volume (580 patent families found since 1985), frequency and applications. Then, the same strategy was applied to the scientific publications for a total volume of 588 targeted papers. Using bibliometric techniques, an analysis and mapping of the information was performed to highlight the temporal, geographical and institutional aspects of R&D activities. The patented applications were also classified in Order to identify opportunities. This study shows the evolution of the scientific and technological environments of the laser cladding technology and can help public or private organizations to generate new ideas, gain awareness of emerging trends and validate the relevance of projects. Crown Copyright U 2008 Published by Elsevier B.V. All rights reserved.

Keywords: Alloy, Aluminum, Analysis, Applications, Bibliometric, Bibliometric Analysis, Bibliometric Techniques, Bibliometry, Calcium-Phosphate Coatings, Coating, Composite Coatings, Direct Metal-Deposition, Evolution, Fabrication, Field, Journal Paper, Laser Cladding, Mapping, Microstructure, Papers, Parameters, Patent, Patents, Public Research Institutes, Publications, R&D, Relevance, Research, Research Institutes, Scientific Publications, Stainless-Steel, Technology, Temporal, Trends, Universities, Wear

# Title: Surgeon-Journal of the Royal Colleges of Surgeons of Edinburgh and Ireland

Full Journal Title: [Surgeon-Journal of the Royal Colleges of Surgeons of Edinburgh and Ireland](http://www.sciencedirect.com.ludwig.lub.lu.se/science/journal/1479666X)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN: 1479-666X

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Journal Country

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Reddy, M.S., Srinivas, S., Sabanayagam, N. and Balasubramanian, S.P. (2008), Accuracy of references in general surgical journals - An old problem revisited. *Surgeon-Journal of the Royal Colleges of Surgeons of Edinburgh and Ireland*, **6** (2), 71-75.

Full Text: [2008\Sur-J Roy Col Sur Edi Ire6, 71.pdf](2008/Sur-J%20Roy%20Col%20Sur%20Edi%20Ire6,%2071.pdf)

Abstract: Background: Reference errors in biomedical journals are well documented. Increasing use of electronic databases and bibliographic software May change the nature and frequency of errors. Aim: To study the current incidence of reference errors in four major general surgical journals. Methods: Seventy-five references were randomly selected from original articles published in one issue of each of four general surgical journals. for each reference, ease of retrieval on PubMed (TM) and the presence of citation errors were, noted. Two observers- independently reviewed each reference for quotation errors. Results: of the 300 Selected references, 261 from indexed English language biomedical journals were analysed. Retrieval from PubMed (TM) was impossible or difficult in six instances, giving a major citation error rate of 2.3%. Overall (major and minor) citation error rate was 11.1%. of the 258 references that could be retrieved, 20 (7.8%) had quotation errors, 80% of which were considered major. The overall citation error rate was significantly different across the four journals. There was moderate correlation between quotation error rate and number of references in each original article. Conclusion: Errors in references still appear in current surgical literature. Solutions to address this problem have been discussed.

Keywords: Biomedical, Biomedical Journals, Change, Citation, Citation, Citation Error, Citation Errors, Correlation, Databases, Error, Error Rate, Errors, General, General Surgery, Incidence, Journals, Language, Literature, Minor, Observers, Pubmed, Quotation, Quotation, Quotation Error, Quotation Errors, Reference, Reference Errors, References, Software, Surgery

? Sanjay, P., Watt, D.G., Ogston, S.A., Alijani, A. and Windsor, J.A. (2012), Meta-analysis of Prolene Hernia System mesh versus Lichtenstein mesh in open inguinal hernia repair. *Surgeon-Journal of the Royal Colleges of Surgeons of Edinburgh and Ireland*, **10** (5), 283-289.

Full Text: [2012\Sur-J Roy Col Sur Edi Ire10, 283.pdf](2012/Sur-J%20Roy%20Col%20Sur%20Edi%20Ire10,%20283.pdf)

Abstract: Background: This study was designed to systematically analyse all published randomized clinical trials comparing the Prolene Hernia System (PHS) mesh and Lichtenstein mesh for open inguinal hernia repair. Method: A literature search was performed using the Cochrane Colorectal Cancer Group Controlled Trials Register, the Cochrane Central Register of Controlled Trials in the Cochrane Library, MEDLINE, Embase and Science Citation Index Expanded. Randomized trials comparing the Lichtenstein Mesh repair (LMR) with the Prolene Hernia System were included. Statistical analysis was performed using Review Manager Version 5.1 software. The primary outcome measures were hernia recurrence and chronic pain after operation. Secondary outcome measures included surgical time, pen-operative complications, time to return to work, early and long-term postoperative complications. Results: Six randomized clinical trials were identified as suitable, containing 1313 patients. There was no statistical difference between the two types of repair in operation time, time to return to work, incidence of chronic groin pain, hernia recurrence or long-term complications. The PHS group had a higher rate of pen-operative complications, compared to Lichtenstein mesh repair (risk ratio (RR) 0.71, 95% confidence interval 0.55-0.93, P = 0.01). Conclusion: the use of PHS mesh was associated with an increased risk of pen-operative complications compared to LMR. Both mesh repair techniques have comparable short- and long-term outcomes. (C) 2012 Royal College of Surgeons of Edinburgh (Scottish charity number SC005317) and Royal College of Surgeons in Ireland. Published by Elsevier Ltd. All rights reserved.

Keywords: Analysis, Chronic, Chronic Pain, Citation, Clinical, Clinical Trials, Clinical-Trials, Complications, Confidence, Hernioplasty, Incidence, Inguinal Hernia, Interval, Ireland, Lichtenstein Mesh, Literature, Long Term, Long-Term, Long-Term Outcomes, MEDLINE, Meta-Analysis, Open, Operation, Outcome, Outcome Measures, Outcomes, P, Pain, Patch, Patients, Ph, Postoperative, Postoperative Complications, Primary, Prolene Hernia System, Randomized, Randomized Controlled-Trial, Recurrence, Review, Rights, Risk, Science, Science Citation Index, Science Citation Index Expanded, Software, Statistical Analysis, Techniques, Work

Notes: CCountry

? Kennedy, C., Sullivan, P.O., Bilal, M. and Walsh, A. (2013), Ireland’s contribution to orthopaedic literature: A bibliometric analysis. *Surgeon-Journal of the Royal Colleges of Surgeons of Edinburgh and Ireland*, **11** (5), 267-271.

Full Text: [2013\Sur-J Roy Col Sur Edi Ire11, 267.pdf](2013/Sur-J%20Roy%20Col%20Sur%20Edi%20Ire11,%20267.pdf)

Abstract: Background: Bibliometric analysis of scientific performance within a country or speciality, facilitate the recognition of factors that may further enhance research activity and performance. Our aim was to illicit the current state of Irelands orthopaedic research output in terms of quantity and quality. Methods: We performed a retrospective bibliometric analysis of all Irish orthopaedic publications over the past 5 years, in the top 20 peer-reviewed orthopaedic journals. Utilising the MEDLINE database, each journal was evaluated for articles that were published over the study period. Reviews, editorials, reports and letters were excluded. Each article abstract was analysed for research content, and country of origin. A nation’s mean IF was defined by multiplying each journal’s IF by the number of articles. Publications per million (PmP) was calculated by dividing the total number of publications by the population of each country. Results: We analysed a total of 25,595 article abstracts. Ireland contributed 109 articles in total (0.42% of all articles), however ranking according to population per million was 10th worldwide. Ireland ranked 18th worldwide in relation to mean impact factor, which was 2.91 over the study period. Ireland published in 16 of the top 20 journals, 9 of these were of European origin, and 1 of the top 5 was of American origin. In total, 61 Irish articles were assignable to clinical orthopaedic units. Clinical based studies (randomised controlled trials, observational, and epidemiology/bibliometric articles) and research based studies (In vivo, In vitro, and biomechanical) numbered 76 (69.7%) and 33 (30.2%) articles, respectively. Conclusion: This study provides a novel overview of current Irish orthopaedic related research, and, how our standards translate to the worldwide orthopaedic community. In order to maintain our publication productivity, academic research should continue to be encouraged at post graduate level. (C) 2013 Royal College of Surgeons of Edinburgh (Scottish charity number SC005317) and Royal College of Surgeons in Ireland. Published by Elsevier Ltd. All rights reserved.

Keywords: Activity, Analysis, Article, Bibliometric, Bibliometric Analysis, Citation, Clinical, Co, Community, Country, Country of Origin, Database, Graduate, Impact, Impact Factor, Ireland, Journal, Journals, Literature, MEDLINE, Methods, Observational, Origin, Orthopaedics, Peer-Reviewed, Performance, Population, Productivity, Publication, Publication Productivity, Publications, Quality, R, Randomised, Randomised Controlled Trials, Ranking, Research, Research Output, Results, Rights, Scientific Performance, Scotland, Standards, State, Surgeon, Surgeons, Surgery, Trends

? Pandanaboyana, S., Mittapalli, D., Rao, A., Prasad, R. and Ahmad, N. (2014), Meta-analysis of self-gripping mesh (Progrip) versus sutured mesh in open inguinal hernia repair. *Surgeon-Journal of the Royal Colleges of Surgeons of Edinburgh and Ireland*, **12** (2), 87-93.

Full Text: [2014\Sur-J Roy Col Sur Edi Ire12, 87.pdf](2014/Sur-J%20Roy%20Col%20Sur%20Edi%20Ire12,%2087.pdf)

Abstract: Background: This metaanalysis was designed to systematically analyse all published randomized controlled trials comparing self-gripping mesh (ProGrip) and sutured mesh to analyse early and long term outcomes for open inguinal hernia repair. Methods: A literature search was performed using the Cochrane Colorectal Cancer Group Controlled Trials Register, the Cochrane Central Register of Controlled Trials in the Cochrane Library, MEDLINE, Embase and Science Citation Index Expanded. Randomized trials comparing self-gripping mesh with sutured mesh were included. Statistical analysis was performed using Review Manager Version 5.2 software. The primary outcome measures were hernia recurrence and chronic pain after operation. Secondary outcome measures included surgical time, wound complications and perioperative complications. Results: Five randomized trials were identified as suitable, including 1170 patients. There was no significant difference between the two types of mesh repairs in perioperative complications, wound haematoma, chronic groin pain and hernia recurrence. Wound infection was lower in self gripping mesh group compared to sutured mesh but this was not statistically significant (risk ratio (RR) 0.57, 95% confidence interval 0.30-1.06, P = 0.08). The duration of operation was significantly shorter with self-gripping mesh compared to sutured mesh with a mean difference of 5.48 min [-9.31, 1.64] Z = 2.80 (P.= 0.005). Conclusion: Self-gripping mesh was associated with shorter operative time compared to sutured mesh. Both types of mesh repairs have comparable perioperative and long term outcomes. (C) 2013 Royal College of Surgeons of Edinburgh (Scottish charity number SC005317) and Royal College of Surgeons in Ireland. Published by Elsevier Ltd. All rights reserved.

Keywords: Analysis, Cancer, Chronic, Chronic Pain, Citation, Colorectal, Complications, Confidence, Duration, Fixation, Glue, Infection, Inguinal Hernia, Interval, Ireland, Lightweight Mesh, Literature, Literature Search, Long Term, Long-Term, Measures, Medline, Meta-Analysis, Metaanalysis, Methods, Open, Operation, Operative, Operative Time, Outcome, Outcome Measures, Outcomes, P, Pain, Patients, Perioperative Complications, Primary, Progrip, Randomized, Randomized Clinical-Trial, Randomized Controlled Trials, Recurrence, Results, Review, Rights, Risk, Science, Science Citation Index, Science Citation Index Expanded, Self, Software, Standard Polypropylene Mesh, Statistical Analysis, Term, Wound, Wound Complications

? Zhu, X., Cao, H.Y., Ma, Y., Yuan, A.H., Wu, X.Y., Miao, Y. and Guo, S. (2014), Totally extraperitoneal laparoscopic hernioplasty versus open extraperitoneal approach for inguinal hernia repair: A meta-analysis of outcomes of our current knowledge. *Surgeon-Journal of the Royal Colleges of Surgeons of Edinburgh and Ireland*, **12** (2), 94-105.

Full Text: [2014\Sur-J Roy Col Sur Edi Ire12, 94.pdf](2014/Sur-J%20Roy%20Col%20Sur%20Edi%20Ire12,%2094.pdf)

Abstract: Background: the aim of this article is to explore the clinical effects between open extraperitoneal approaches and totally extraperitoneal laparoscopic hernioplasty (TEP) in the repair of inguinal hernias. Methods: the electronic databases Pubmed, Medline, Embase, Web of science and the Cochrane Library were used to search for articles from January 1992 to March 2013. The present meta-analysis pooled the effects of outcomes of a total of 1157 patients with 1377 hernias enrolled into 10 randomized controlled trials and 2 comparative studies. The data was analyzed using the statistic software Stata12.0 and IBM SPSS Statistics 19. Results: Significant advantages of totally extraperitoneal laparoscopic hernioplasty (TEP) compared to the open extraperitoneal approach include a lower incidence of total postoperative complications (Odds Ratio, 0.544; 95% confidence interval, 0.369-0.803), a reduction in urinary problems (0.206[0.064,0.665]), an earlier return to normal activities or work (SMD = 1.798[-3.322,-0.275]), and a shorter length of hospital stay (-1.995 [-2.358,-1.632]). No difference was found in operative time, the incidence of hernia recurrence, chronic pain, intraoperative complications, seromas or hematomas, wound infection and testicular problems between the two techniques. One significant advantage for the open extraperitoneal inguinal hernia repair was a lower incidence of peritoneal tears (46.504 [15.399,140.437]). Conclusions: Totally extraperitoneal laparoscopic hernioplasty (TEP) and open extraperitoneal mesh repair are equivalent in most of the analyzed outcomes. TEP is associated with shorter hospital stay, quicker return to normal activities or work, lower incidence of total postoperative complications and urinary problems, while the open extraperitoneal method has less incidence of peritoneal tears. (C) 2014 Royal College of Surgeons of Edinburgh (Scottish charity number SC005317) and Royal College of Surgeons in Ireland. Published by Elsevier Ltd. All rights reserved.

Keywords: Approach, Chronic, Chronic Pain, Clinical, Complications, Confidence, Data, Databases, Effects, Hernioplasty, Hospital, Hospital Stay, Incidence, Infection, Inguinal Hernia, Interval, Intraoperative Complications, Ireland, Knowledge, Laparoscopic, Length, Lichtenstein, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Normal, Odds Ratio, Open, Open Extraperitoneal Approach, Operative, Operative Time, Outcomes, Pain, Patients, Postoperative, Postoperative Complications, Randomized, Randomized Controlled Trials, Randomized Controlled-Trials, Recurrence, Reduction, Results, Rights, Science, Software, Statistics, Stoppa Procedure, Techniques, TEP, Transabdominal Preperitoneal TAPP, Urinary, Web of Science, Work, Wound, Wound Infection

? Oosthuizen, J.C. and Fenton, J.E. (2014), Alternatives to the impact factor. *Surgeon-Journal of the Royal Colleges of Surgeons of Edinburgh and Ireland*, **12** (5), 239-243.

Full Text: [2014\Sur-J Roy Col Sur Edi Ire12, 239.pdf](2014/Sur-J%20Roy%20Col%20Sur%20Edi%20Ire12,%20239.pdf)

Abstract: Objective: To explore alternative bibliometric markers to the well-established journal impact factor. The bibliometric evolution of a leading ENT journal over a six year period is discussed with critical analysis of a predetermined set of bibliometric alternatives to the journal impact factor. Design: Retrospective review of the bibliometric performance of Clinical Otolaryngology over a six year period. Results: The results of the study reveal that Clinical Otolaryngology has made steady bibliometric progress when the impact factor (IF) is considered with a gradual increase in impact factor from 1.098 in 2006 to a peak of 2.393 in 2011. Self-citation rates reported by the Journal Citation Report (JCR) demonstrated a significant decline during 2007 with a reported self-citation rate of 0%. The SCImago Journal Rank (SIR) database however recorded a self-citation rate of 67. Independent evaluation demonstrated a 56 self-citations during this period. The percentage of review articles published remained stable during the period in question. A lagged association between the number of review manuscripts and the IF failed to demonstrate any significant correlation (r = -0.19). Comparison between the IF and the Eigen factor (EF) as well as the SJR yielded negative correlation (r = -0.46) and (r = -0.35) respectively. The Article Influence score (AIS) and Source Normalised Impact per Paper (SNIP) were the only bibliometric alternatives to demonstrate a positive correlation when compared to the IF (r = 0.94) and (r = 0.66) respectively. Conclusions: The necessity of bibliometric markers cannot be called into question however the most widely employed of these, the journal impact factor has come under increased scrutiny of late. Despite some of the advantages offered by novel bibliometric markers, these do not necessarily compare favourably to the IF with regards to bibliometric performance. The only two markers to demonstrate a positive correlation when compared to the IF were the AI score and SNIP which would suggest that these are potential alternatives to the IF and have the added advantage that they are open access. (C) 2013 Royal College of Surgeons of Edinburgh (Scottish charity number SC005317) and Royal College of Surgeons in Ireland. Published by Elsevier Ltd. All rights reserved.

Keywords: Access, Alternative, Alternatives, Analysis, Article, Article Influence, Articles, Association, Bibliometric, Bibliometric Indicators, Bibliometrics, Citation, Citation Analysis, Comparison, Correlation, Database, Design, Evaluation, Evolution, From, If, Impact, Impact Factor, Impact-Factor, Influence, Ireland, Jcr, Journal, Journal Citation Report, Journal Impact, Journal Impact Factor, Journals, Negative, Open, Open Access, Otolaryngology, Otorhinolaryngology, Paper, Performance, Potential, Progress, Rank, Rates, Results, Review, Rights, Scimago, Scimago Journal Rank, Self-Citation, Self-Citations, SJR, Snip

# Title: Surgery

Full Journal Title: [Surgery](http://www.sciencedirect.com/science?_ob=JournalURL&_cdi=7155&_auth=y&_acct=C000011279&_version=1&_urlVersion=0&_userid=1134284&md5=6bd562470bf8fcf6bc3b6bd84de1dbcb)

ISO Abbreviated Title: Surgery

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ISSN:

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Publisher Address:

Subject Categories:

: Impact Factor

Lazarides, M.K., Drista, H., Arvanitis, D.P. and Dayantas, J.N. (2002), Aortic aneurysm rupture after extracorporeal shock wave lithotripsy. *Surgery*, **122** (1), 112-113.

Full Text: [2002\Surgery122, 112.pdf](2002/Surgery122,%20112.pdf)

Sarr, M.G. and Warshaw, A.L. (2002), Responsibility of authorship. *Surgery*, **132** (3), 521.

Full Text: [2002\Surgery132, 521.pdf](2002/Surgery132,%20521.pdf)

? Housri, N., Cheung, M.C., Gutierrez, J.C., Zimmers, T.A. and Koniaris, L.G. (2008), SUS/AAS abstracts: What is the scientific impact? *Surgery*, **144** (2), 322-331.

Full Text: [2008\Surgery144, 322.pdf](2008/Surgery144,%20322.pdf)

Abstract: Aim. To evaluate the scientific impact of presentations, at the annual meetings of the Society of University Surgeons (SUS) and the Association for Academic Surgery (AAS). Methods. All Abstracts presented, at the 2002-2004 annual conferences were examined for publication rate (PR), publication citation (PC) and journal impact factor (IF). Results. Overall, 1200 abstracts from the SUS (n = 543, 45 %) and AAS (n = 657,55 %) were reviewed. One way ANOVA analysis of SUS results across session types demonstrated significant differences in PR (89 % plenary, 81 % parallel, 100 % basic science; 47 % resident conference, poster 76 %, p < 0.0001), but no difference in,PC (12.96 plenary, 9.66 parallel, 7.77 basic science, 8.23 resident conference, 8.21 poster, p = 0.25561) or IF (4.17 plenary, 3.50 parallel, 2.66 basic science, 3.12 resident conference 3.13 poster, p = 0.3947). AA S results demonstrated significant differences for PR (81 % plenary, 62 % parallel and 43 % poster, p < 0.0001), CR (8.33 plenary, 4.81 parallel, and 4.78 poster, p = 0.006) and IF (3.75 plenary, 2.64 parallel, and 2.73 poster, p = 0.0124). Comparison of abstracts between meetings demonstrated a higher overall PR, CR and IF for SUS publications (p < 0.0001). Conclusion. These data suggest that SUS and, AAS presentations constitute high-quality research, Trends towards higher PR, PC and IF for plenary sessions indicate that the review process properly stratifies. research. Statistically higher impact measures for SUS presentations are consistent with the more mature research careers of SUS members.

Keywords: Analysis, ANOVA, Careers, Citation, Conferences, CR, Data, Impact, Impact Factor, Journal, Journal Impact, Journal Impact Factor, Publication, Publications, Research, Resident, Review, Review Process, Science

? Mofidi, R., Suttie, S.A., Patil, P.V., Ogston, S. and Parks, R.W. (2009), The value of procalcitonin at predicting the severity of acute pancreatitis and development of infected pancreatic necrosis: Systematic review. *Surgery*, **146** (1), 72-81.

Full Text: [2009\Surgery146, 72.pdf](2009/Surgery146,%2072.pdf)

Abstract: Background. Many studies have evaluated serum levels of procalcitonin (PCT) as a predictor in the development of severe acute pancreatitis (SAP) and infected pancreatic necrosis (H-W). This study assesses the value of PCT as a marker of development of SAP and IPN. Methods. MEDLINE, Web of Science, the Cochrane clinical trials register, and international conference proceedings were searched systematically for prospective studies, which evaluated the usefulness of PCT as a marker of SAP and IPN. The sensitivity, specificity, and diagnostic odds ratios (DORs) were calculated for each study, and the study quality and heterogeneity among the studies were evaluated. Results. Twenty-four of 59 studies identified were included in data extraction. The sensitivity and specificity of PCT for development of SAP were 0.72 and 0.86, respectively (area under the curve [AUC] = 0.87; DOR = 14.9; 95% confidence interval [CI] = 5.6-39.8), albeit with a significant degree of heterogeneity Q = 28.56, P .01). The sensitivity and specificity of PCT for prediction of infected pancreatic necrosis were 0.80 and 0.91 (AUC = 0.91; DOR = 28.3; 95% CI = 13.8-58.3) with no significant heterogeneity Q = 7.83, P = .18). No significant heterogeneity was observed among the studies when only higher quality studies (AUC = 0.91; DOR = 30.7; 95% CI = 10. 7-87.8) or studies that used a cutoff PCT level >0.5 ng/mL (AUC = 0.88, 32.8; 95% CI = 10.1-106.6) were included. Conclusion. Serum measurements of PCT may be valuable in predicting the severity of acute pancreatitis and the risk of developing infected pancreatic necrosis. (Surgery 2009;146:72-81.).

Keywords: Acute, Acute Necrotizing Pancreatitis, Acute Pancreatitis, Antibiotic-Treatment, C-Reactive Protein, Clinical Trials, Cochrane, Controlled Clinical-Trial, Development, Diagnostic Relevance, Dysfunction, Inflammatory Response, Metaanalysis, Methods, Multicenter, Prospective Studies, Review, Risk, Science, Sensitivity, Sensitivity and Specificity, Serum Procalcitonin, Specificity, Systematic, Systematic Review, Web of Science

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Full Text: [2013\Surgery153, 493.pdf](2013/Surgery153,%20493.pdf)

Abstract: Background. The h-Index is used as an objective measure of research impact. Its validity, however, is not known in the context of general surgery and comparisons with other bibliometric indices are lacking. We sought to evaluate the h-Index as a reliable and valid measure of research performance in general surgery across 6 universities in the province of Ontario, Canada. Methods. Bibliometric indices for 219 faculty members in general surgery were calculated using the Scopus and Web of Science online databases. We investigated agreement between the databases. A 2-way analysis of variance was used to compare the h-Index of surgeons grouped by institutional affiliation and academic rank and to identify the relative impact of these factors on different bibliometric indices. Results. The agreement on h-indices between the Scopus and Web of Science was problematic. The h-Index was associated more strongly with academic rank (academic rank accounted for 33.3% of researcher’s h-Index) than of the number of publications (12.5%) or the number of citations per author (10.2%). The number of citations per paper was not associated with academic rank. The institutional affiliation affected bibliometric indices to a similar degree to academic rank. Conclusion. Our data suggest better construct validity for the h-Index than for other bibliometrics, although the agreement of h-Index values between databases can be problematic for some researchers. The use of the h-Index as a criterion-based assessment across different universities is problematic and that it should be used as a normative assessment tool, with comparisons with a specified population of interest. (Surgery 2013;153:493-501.).

Keywords: Affiliation, Analysis, Assessment, Bibliometric, Bibliometric Indices, Bibliometrics, Canada, Citation, Citations, Context, Data, Databases, Faculty, General, General Surgery, Google-Scholar, h Index, h-Index, Impact, Indices, Journals, Measure, Methods, Online, Ontario, Performance, Population, Publications, Rank, Research, Research Impact, Research Performance, Results, Science, Scopus, Surgery, Universities, University, Validity, Web, Web of Science

? Harnoss, J.C., Ulrich, A.B., Harnoss, J.M., Diener, M.K., Buchler, M.W. and Welsch, T. (2014), Use and results of consensus definitions in pancreatic surgery: A systematic review. *Surgery*, **155** (1), 47-57.

Full Text: [2014\Surgery155, 47.pdf](2014/Surgery155,%2047.pdf)

Abstract: Background. Because of the lack of standardized definitions of complications in gastrointestinal operations, consensus definitions have been developed in recent years. The aim of the current study was to systematically review the available consensus definitions and to report their use, acceptance, and results. Methods. A systematic search of the literature Was conducted of the Medline, Cochrane, and ISI Web of Science databases. All articles published until August 2011 and that applied the identified consensus definitions were considered. Inclusion criteria for quantitative analysis were studies with correct Usage of the definition and 100 or more patients who were treated after the year 2000. Results. Seven consensus definitions were identified: postoperative pancreatic fistula, postpancreatectomy hemorrhage, delayed gastric emptying, posthepatectomy liver failure, bile leakage after hepatobiliary and pancreatic surgery, posthepatectomy hemorrhage, and anastomotic leakage after anterior resection of the rectum. of 1,637 articles retrieved from the literature search, 59 articles that correctly applied the definitions met the inclusion criteria. Subanalyses were feasible for definitions after pancreatic surgery. According to the consensus definitions, the median complication rates of retrospective studies were 21.9% (postoperative pancreatic fistula, n = 11,244 patients), 5.9% (postpancreatectomy hemorrhage, n = 3,311 patients); and 22.8% (delayed gastric emptying, n = 4,553 patients) after pancreatic resections. The incidences were not substantially different in prospective trials. Validation was performed for all three definitions, demonstrating that the severity grades significantly correlated with the clinical course of the patients. Conclusion. The available consensus definitions were increasingly cited and facilitate scientific comparability and transparency if appropriately applied. The present data update the incidences of major pancreatic complications.

Keywords: Acceptance, Analysis, Anastomotic Leakage, Anterior Resection, Clinical, Complication, Complications, Consensus, Course, Criteria, Data, Databases, Dual-Institution Trial, Failure, Fistula, Fistula Rate, Gastric, Grading System, Hemorrhage, International Study-Group, ISI, ISI Web of Science, Literature, Literature Search, Liver, Liver Failure, Medline, Methods, Open Distal Pancreatectomy, Pancreatic Fistula, Pancreaticoduodenectomy Decrease Rate, Patients, Postoperative, Prospective, Quantitative Analysis, Rates, Recent, Rectum, Resection, Results, Retrospective Studies, Review, Risk-Factors, Science, Single-Institution, Surgery, Surgical Complications, Systematic Review, Transparency, Validation, Web of Science, Web of Science Databases

# Title: Surgery for Obesity and Related Diseases

Full Journal Title: Surgery for Obesity and Related Diseases

ISO Abbreviated Title:

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ISSN:

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Journal Country/Territory:

Language:

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Publisher Address:

Subject Categories:

: Impact Factor

? Kaw, R., Pasupuleti, V., Overby, D.W., Deshpande, A., Coleman, C.I., Ioannidis, J.P.A. and Hernandez, A.V. (2015), Erratum to “Inferior venacava filters andpostoperativeoutcomesin patients undergoingbariatricsurgery: ameta-analysis” *Surgery for Obesity and Related Diseases* 10 (2014) 725–733. *Surgery for Obesity and Related Diseases*, **11** (1), 268-269.

Full Text: [2015\Sur Obe Rel Dis11, 268.pdf](2015/Sur%20Obe%20Rel%20Dis11,%20268.pdf)

Abstract: Background: Pulmonary embolism (PE) accounts for almost 40% of perioperative deaths after bariatric surgery. Placement of prophylactic inferior vena cava (WC) filter before bariatric surgery to improve outcomes has shown varied results. We performed a meta-analysis to evaluate postoperative outcomes associated with the preoperative placement of WC filters in these patients. Methods: A systematic review was conducted by three investigators independently in PubMed, EMBASE, the Web of Science and Scopus until February 28, 2013. Our search was restricted to studies in adult patients undergoing bariatric surgery with and without WC filters. Primary outcomes were postoperative deep vein thrombosis (DVT), pulmonary embolism (PE), and postoperative mortality. Meta-analysis used random effects models to account for heterogeneity, and SidikJonkman method to account for scarcity of outcomes and studies. Associations are shown as Relative Risks (RR) and 95% Confidence Intervals (CI). Results: Seven observational studies were identified (n=102,767), with weighted average incidences of DVT (0.9%), PE (1.6%), and mortality (1.0%) for a follow-up ranging from 3 weeks to 3 months. Use of WC filters was associated with an approximately 3-fold higher risk of DVT and death that was nominally significant for the former outcome, but not the latter (RR 2.81, 95%CI 1.33-5.97, p=0.007; and RR 3.27, 95% CI 0.78-13.64, p=0.1, respectively); there was no difference in the risk of PE (RR 1.02, 95%CI 0.31-3.77, p=0.9). Moderate to high heterogeneity of effects was noted across studies. Conclusions: Placement of IVC filter before bariatric surgery is associated with higher risk of postoperative DVT and mortality. A similar risk of PE in patients with and without IVC filter placement cannot exclude a benefit, given the potential large imbalance in risk at baseline. Randomized trials are needed before IVC placement can be recommended. (C) 2015 American Society for Metabolic and Bariatric Surgery. All rights reserved.

Keywords: Adult, Bariatric Surgery, Death, Deep Vein Thrombosis, Effects, Embase, Embolism, Follow-Up, From, Heterogeneity, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Models, Mortality, Observational, Observational Studies, Outcome, Outcomes, Patients, Placement, Postoperative, Potential, Preoperative, Prophylactic, Pubmed, Pulmonary Embolism, Randomized, Relative, Results, Review, Rights, Risk, Science, Scopus, Surgery, Systematic, Systematic Review, Thrombosis, Vein Thrombosis, Web, Web Of Science

# Title: Surgical Endoscopy and Other Interventional Techniques

Full Journal Title: [Surgical Endoscopy and Other Interventional Techniques](http://www.springerlink.com/content/100368/?sortorder=asc&p_o=0)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Olsen, S.B., Sheikh, A., Peck, D. and Darzi, A. (2005), Variant Creutzfeldt-Jakob disease, a cause for concern - Review of the evidence for risk of transmission through abdominal lymphoreticular tissue surgery. *Surgical Endoscopy and Other Interventional Techniques*, **19** (6), 747-750.

Full Text: [2005\Sur End Int Tec19, 747.pdf](2005/Sur%20End%20Int%20Tec19,%20747.pdf)

Abstract: Background: Concerti has long existed regarding the possible iatrogenic spread of variant Creutzfeldt-Jakob disease (v-CJD) through surgery. This had been fueled by recent reports of bovine spongiform encephalopathy in U.S. cattle and the first probable case of blood transmission of v-CJD in the UK. Methods: Systematic review of experimental and non-experimental Studies. Studies identified from searches of MEDLINE. Embase. Cochrane Library. Science Citation Index medical databases, searching bibliographies of retrieved papers, and personal communication with international experts in the field. Results: Six articles satisfied our search criteria. Evidence stems from case reports, case series, and cross-sectional Studies. There are no published cases of surgically transmitted v-CJD. Conclusion: We found evidence of v-CJD prion agents in the spleen, appendix. rectum, and adrenal glands of affected patients and evidence of v-CJD priori in the appendix of patients in the preclinical stage of the disease. The risk of transmission of v-CJD prion during abdominal surgery is Currently unquantifiable.

Keywords: Accumulation, Appendix, Articles, Bibliographies, Case Reports, Case Series, Citation, Communication, Criteria, Databases, Evidence, Infectivity, International, Lymphoreticular, Medical, MEDLINE, Prion-Protein, Prions, Review, Risk, Samples, Science, Science Citation Index, Scrapie, Surgery, Systematic Review, Tonsil Biopsy, Transmission, UK, V-CJD

? Memon, M.A., Khan, S., Yunus, R.M., Barr, R. and Memon, B. (2008), Meta-analysis of laparoscopic and open distal gastrectomy for gastric carcinoma. *Surgical Endoscopy and Other Interventional Techniques*, **22** (8), 1781-1789.

Full Text: [2008\Sur End Int Tec22, 1781.pdf](2008/Sur%20End%20Int%20Tec22,%201781.pdf)

Abstract: Objectives the aim was to conduct a meta-analysis of the randomized evidence to determine the relative merits of laparoscopic assisted (LADG) and open (ODG) distal gastrectomy for proven gastric cancer. Data sources and review methods A search of the MEDLINE, Embase, Science Citation Index, Current Contents, and PubMed databases identified all randomized clinical trials (RCTs) that compared LADG and OGD and were published in the English language between January 1990 and the end of June 2007. The meta-analysis was prepared in accordance with the Quality of Reporting of Meta-analyses (QUOROM) statement. The eight outcome variables analysed were operating time, blood loss, retrieval of lymph nodes, oral intake, hospital stay, postoperative complications, tumor recurrence, and mortality. Random effects meta-analyses were performed using odds ratios (OR) and weighted mean differences (WMD). Results Four trials were considered suitable for meta-analysis. A total of 82 patients underwent LADG and 80 had ODG. for only one of the eight outcomes, the summary point estimates favoured LADG over ODG; there was a significant reduction of 104.26 ml in intraoperative blood loss for LADG (WMD, -104.26, 95% confidence interval (CI) -189.01 to -19.51; p = 0.0159). There was however a 83.08 min longer duration of operating time for the LADG group compared with the ODG group (WMD 83.08, 95% CI 40.53 to 125.64; p = 0.0001) and significant reduction in lymph nodes harvesting of 4.34 lymph nodes in the LADG group (WMD -4.3, 95% CI -6.66 to -2.02; p = 0.0002). Other outcome variables such as time to commencement of oral intake (WMD -0.97, 95% CI -2.47 to 0.54; p = 0.2068), duration of hospital stay (WMD -3.32, 95% CI -7.69 to 1.05; p = 0.1365), rate of complications (OR 0.66, 95% CI 0.27 to 1.60; p = 0.3530), mortality rates (OR 0.94, 95% CI 0.21 to 4.19; p = 0.9363), and tumor recurrence (OR 1.08, 95% CI 0.42 to 2.79; p = 0.8806) were not found to be statistically significant for either group. However, for commencement of oral intake, duration of hospital stay, and complication rate, the trend was in favor of LADG. Conclusion LADG was associated with a significantly reduced rate of intraoperative blood loss, at the expense of significantly longer operating time and significantly reduced lymph node retrieval compared to its open counterpart. Mortality and tumor recurrence rates were similar between the two groups. Furthermore, time to commencement of oral intake, postprocedural discharge from hospital, and perioperative complication rate, although not significantly different between the two groups, did suggest a positive trend toward LADG. Based on this meta-analysis, the authors cannot recommend the routine use of LADG over ODG for the treatment of distal gastric cancer. However, significant limitations exist in the interpretation of this data due to the limited number of published randomised control trials, the small sample sizes to date, and the limited duration of follow up. Further large multicentre randomized controlled trials are required to delineate significantly quantifiable differences between the two groups.

Keywords: Bias, Blood-Transfusion, Cancer, Cancer Surgery, Cholecystectomy, Citation, Clinical Trials, Comparative Studies, Comparing Open, Databases, Discharge, English, Gastrectomy, Gastric Cancer, Groups, Hospitalization, Human, Interpretation, Intraoperative Complications, Language, Laparoscopic Method, Lymph-Node Dissection, MEDLINE, Meta-Analysis, Methods, Mortality, Outcomes, Patient Outcome, Positive, Postoperative Complications, Pulmonary-Function, Quality, Randomized Clinical Trials, Randomized Controlled Trials, Randomized Controlled-Trials, Reduction, Resections, Review, Science, Science Citation Index, Treatment

? Petrov, M.S., Uchugina, A.F. and Kukosh, M.V. (2008), Does endoscopic retrograde cholangiopancreatography reduce the risk of local pancreatic complications in acute pancreatitis? A systematic review and metaanalysis. *Surgical Endoscopy and Other Interventional Techniques*, **22** (11), 2338-2343.

Full Text: [2008\Sur End Int Tec22, 2338.pdf](2008/Sur%20End%20Int%20Tec22,%202338.pdf)

Abstract: Background Recent studies have added to the controversy regarding the role of endoscopic retrograde cholangiopancreatography (ERCP) in the management of patients with acute biliary pancreatitis. This debate is due in part to a marked difference between the trials regarding the definition of “complication” as an outcome. This study sought to determine the effect of early ERCP versus conservative treatment on local pancreatic complications (defined by the current classification) experienced by patients with acute biliary pancreatitis. Methods Electronic databases (Cochrane Central Register of Controlled Trials, MEDLINE, Science Citation Index) and conference proceedings were searched for relevant randomized controlled trials up to December 2007. The effect of both treatment strategies on local pancreatic complications was calculated with random-effects models. Results Five trials involving 717 patients were included in this systematic review. Pooled analysis of all the patients with acute pancreatitis did not demonstrate a statistically significant difference between the two treatment strategies (relative risk [RR], 0.94; 95% confidence interval [CI], 0.63-1.40; p = 0.62). Similar results were observed after subgroup analysis based on the severity of disease as follows: mild acute pancreatitis (RR, 0.79; 95% CI, 0.26-2.47; p = 0.69); severe acute pancreatitis (RR, 0.77; 95% CI, 0.30-1.98; p = 0.59). Conclusion the early use of ERCP did not result in a significantly reduced risk of local pancreatic complications for either patients with mild acute pancreatitis or those with severe form of the disease.

Keywords: Acute Biliary Pancreatitis, Acute Pancreatitis, Cholangiography, Citation, Conservative Management, Databases, Endoscopic Retrograde Cholangiopancreatography, ERCP, Gallstone Pancreatitis, Management, MEDLINE, Metaanalysis, Obstruction, Pancreatic Complications, Randomized Clinical-Trial, Review, Science, Science Citation Index, Sphincterotomy, Systematic Review, Ultrasonography, Ultrasound

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Full Text: 2010\Sur End Int Tec24, 536.pdf

Abstract: In the past 20 years the surgical simulator market has seen substantial growth. Simulators are useful for teaching surgical skills effectively and with minimal harm and discomfort to patients. Before a simulator can be integrated into an educational program, it is recommended that its validity be determined. This study aims to provide a critical review of the literature and the main experiences and efforts relating to the validation of simulators during the last two decades. Subjective and objective validity studies between 1980 and 2008 were identified by searches in PUBMED, Cochrane, and Web of Science. Although several papers have described definitions of various subjective types of validity, the literature does not offer any general guidelines concerning methods, settings, and data interpretation. Objective validation studies on endourological simulators were mainly characterized by a large variety of methods and parameters used to assess validity and in the definition and identification of expert and novice levels of performance. Validity research is hampered by a paucity of widely accepted definitions and measurement methods of validity. It would be helpful to those considering the use of simulators in training programs if there were consensus on guidelines for validating surgical simulators and the development of training programs. Before undertaking a study to validate a simulator, researchers would be well advised to conduct a training needs analysis (TNA) to evaluate the existing need for training and to determine program requirements in a training program design (TPD), methods that are also used by designers of military simulation programs. Development and validation of training models should be based on a multidisciplinary approach involving specialists (teachers), residents (learners), educationalists (teaching the teachers), and industrial designers (providers of teaching facilities). In addition to technical skills, attention should be paid to contextual, interpersonal, and task-related factors.

Keywords: Analysis, Attention, Clinical-Performance, Cochrane, Construct-Validity, Data Interpretation, Definitions, Design, Development, Flexible Cystoscopy, Guidelines, Implementation, Interpretation, Laparoscopic Cholecystectomy, Learning Procedural Skills, Literature, Measurement, Medical-Education, Model, Operating-Room Performance, Papers, Patients, Research, Researchers, Resection Trainer, Residents, Review, Science, Simulation, Surgery, Surgical, Teaching, Training, Ureteroscopy, Validation, Validity, Virtual-Reality Simulator, Web of Science

? Mi, J., Kang, Y.X., Chen, X.A., Wang, B.J. and Wang, Z.P. (2010), Whether robot-assisted laparoscopic fundoplication is better for gastroesophageal reflux disease in adults: A systematic review and meta-analysis. *Surgical Endoscopy and Other Interventional Techniques*, **24** (8), 1803-1814.

Full Text: [2010\Sur End Int Tec24, 1803.pdf](2010/Sur%20End%20Int%20Tec24,%201803.pdf)

Abstract: Although laparoscopic fundoplication is an effective, minimally invasive surgical technique for gastroesophageal reflux disease (GERD) that failed to be treated with medicine, with wide implementation its technical limitations have become increasingly clear. Recently, robot-assisted laparoscopic fundoplication (RALF) was considered a new approach that makes up for the deficiency of conventional laparoscopic fundoplication (CLF). This systematic review aimed to assess the feasibility and efficiency of robot-assisted laparoscopic fundoplication for GERD. Two reviewers independently searched and identified seven randomized controlled trials (RCTs) and four clinical controlled trials (CCTs) of RALF versus CLF for GERD in the Cochrane database, MEDLINE, Embase, and Science citation index between 2001 and 2009. The main outcomes were operating time, complication rate, hospital stay, and costs. The meta-analysis was performed by Review Manager 5.0 software. The effect size of the clinical outcomes was evaluated by odds ratio (OR), weighted mean difference (WMD), and standard mean difference (SMD) according to different data type. Heterogeneity and sensitivity analysis were used to account for rationality of pooling data and sources of heterogeneity. of 483 studies found, a total of 11 trials were included in this review; among 533 patients, 198 patients underwent RALF and 335 patients underwent CLF. The results of meta-analysis showed that the postoperative complication rate (OR = 0.35, 95% CI = [0.13, 0.93], p = 0.04) is lower for RALF, but the total operating time (WMD = 24.05, 95% CI = [5.19, 42.92], p = 0.01) is longer for RALF compared with those for CLF. Statistically, there was no significant difference between the two groups with regard to perioperative complication rate (OR = 0.67, 95% CI = [0.30, 1.48], p = 1.00) and length of hospital stay (WMD = 0.00, 95% CI = [-0.25, 0.26], p = 0.04). Systematic review of the literature indicates that RALF is a feasible and safe alternative to surgical treatment of GERD. However, since it lacks obvious advantages with respect to operating time, length of hospital stay and cost, RALF has limitations for its extensive application in clinics.

Keywords: Antireflux Surgery, Citation Index, Clinical-Trial, Difference, Follow-up, Fundoplication, Gastroesophageal Reflux Disease (GERD), Laparoscopy, Learning-Curve, Meta-Analysis, Nissen Fundoplication, Performance, Quality-of-Life, Randomized Controlled-Trial, Robot-Assisted, Systematic Review, Time

? Gong, B.A., Hao, L.X., Bie, L.K., Sun, B. and Wang, M. (2010), Does precut technique improve selective bile duct cannulation or increase post-ERCP pancreatitis rate? A meta-analysis of randomized controlled trials. *Surgical Endoscopy and Other Interventional Techniques*, **24** (11), 2670-2680.

Full Text: [2010\Sur End Int Tec24, 2670.pdf](2010/Sur%20End%20Int%20Tec24,%202670.pdf)

Abstract: There is no clear answer regarding use of precut technique versus conventional method in achieving successful biliary cannulation. To compare the effectiveness of precut technique with that of conventional biliary cannulation by meta-analysis of available randomized controlled trials (RCTs). Databases including MEDLINE, EMBASE, Cochrane Library, and Science Citation Index updated to July 2009 were searched. Main outcome measures were success rates of biliary cannulation, incidence of post-endoscopic retrograde cholangiopancreatography (ERCP) complications, and post-ERCP pancreatitis rate. Meta-analysis of these clinical trials was performed. Six RCTs were included. The primary biliary cannulation rate reported with precut and conventional techniques was 89.3 and 78.1%, respectively. Pooled analysis of all selected studies comparing precut cannulation technique with conventional techniques yielded an odds ratio (OR) of 2.05 [95% confidence interval (CI): 0.64-6.63]. Pooled analysis comparing post-ERCP pancreatitis rates for the precut-cannulation groups with those for the conventional-method groups yielded an rate ratio (RR) of 0.46 (95% CI: 0.23-0.92). This meta-analysis shows that the precut technique does not increase the primary cannulation rate. However, the technique reduces the risk of post-ERCP pancreatitis compared with conventional technique. Further large, well-performed, randomized controlled studies are needed to confirm these findings.

Keywords: Analysis, Cannulation, Citation, Common Bile Duct, Complications, Complications, Databases, Difficult Biliary Cannulation, Endoscopic Retrograde Cholangiopancreatography, ERCP, MEDLINE, Meta-Analysis, Needle-Knife Fistulotomy, Papillotomy, Precut Endoscopic Biliary Sphincterotomy, Prospective Multicenter, Science Citation Index, Sphincterotomy, Therapeutic ERCP

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Full Text: [2011\Sur End Int Tec25, 2071.pdf](2011/Sur%20End%20Int%20Tec25,%202071.pdf)

Abstract: Background Oesophagectomy is one of the most challenging surgeries. Potential for morbidity and mortality is high. Minimally invasive techniques have been introduced in an attempt to reduce postoperative complications and recovery times. Debate continues over whether these techniques are beneficial to morbidity and whether oncological resection is compromised. This review article will analyse the different techniques employed in minimally invasive oesophagectomy (MIO) and critically evaluate commonly reported outcome measures from the available literature. Methods MEDLINE, Embase, Science Citation Index, Current Contents, and PubMed databases were used to search English language articles published on MIO. Thirty-one articles underwent thorough analysis and the data were tabulated where appropriate. To date, only level III evidence exists. Where appropriate, comparisons are made with a meta-analysis on open oesophagectomy. Results Positive aspects of MIO include at least comparable postoperative recovery data and oncological resection measures to open surgery. Intensive care unit requirements are lower, as is duration of inpatient stay. Respiratory morbidity varies. Negative aspects include increased technical skill of the surgeon and increased equipment requirements, increased operative time and limitation with respect to local advancement of cancer. With increasing individual experience, improvements in outcome measures and the amenability of this approach to increasing neoplastic advancement has been shown. Conclusion MIO has outcome measures at least as comparable to open oesophagectomy in the setting of benign and nonlocally advanced cancer. Transthoracic oesophagectomy provides superior exposure to the thoracic oesophagus compared to the transhiatal approach and is currently preferred. No multicentre randomised controlled trials exist or are likely to come into fruition. As with all surgery, careful patient selection is required for optimal results from MIO.

Keywords: Cancer, Cervical Access, Citation, Comparative Studies, Databases, Esophagus, Experience, Hospitalisation, Human, Intraoperative Complications, Intrathoracic Anastomosis, Laparoscopic Transhiatal Esophagectomy, Laparoscopy, Literature, Meta-Analysis, Mobilization, Oesophageal Cancer, Oesophagectomy, Outcomes, Patient Outcome, Postoperative Complications, Prone Position, Prospective Studies, Pubmed, Retrospective Studies, Review, Science Citation Index, Thoracoscopic Esophagectomy

? Jiang, L., Yang, K.H., Guan, Q.L., Cao, N., Chen, Y., Zhao, P., Chen, Y.L. and Yao, L. (2013), Laparoscopy-assisted gastrectomy versus open gastrectomy for resectable gastric cancer: An update meta-analysis based on randomized controlled trials. *Surgical Endoscopy and Other Interventional Techniques*, **27** (7), 2466-2480.

Full Text: [2013\n](2013/Sur%20End%20Int%20Tec27,%202466.pdf)

Abstract: We carry out a meta-analysis to evaluate the effectiveness and safety of laparoscopy-assisted gastrectomy (LAG) versus open gastrectomy for resectable gastric cancer. We searched EMBASE, the Cochrane Library, PubMed, Science Citation Index (SCI), Chinese biomedicine literature database to identify randomized controlled trials (RCTs) from their inception to April 2012. Meta-analyses were performed using RevMan 5.0 software. It was in line with the preferred reporting items for systematic reviews and meta-analyses statement. The quality of evidence was assessed by GRADEpro 3.6. Eight RCTs totaling 784 patients were analyzed. Compared with open gastrectomy group, no significant differences were found in postoperative mortality (OR = 1.49; 95 % CI 0.29-7.79), anastomotic leakage (OR = 1.02; 95 % CI 0.24-4.27) , overall mean number of harvested lymph nodes [weighed mean difference (MD) = -3.17; 95 % CI -6.39 to 0.05]; the overall postoperative complication morbidity (OR = 0.54; 95 % CI 0.36-0.82), estimated blood loss (MD = -107.23; 95 % CI -148.56 to -65.89,) frequency of analgesic administration (MD = -1.69; 95 % CI -2.18 to -1.21, P < 0.00001), incidence of pulmonary complications (OR = 0.43, 95 % CI 0.20-0.93, P = 0.03) were significantly less in LAG group; LAG had shorter time to start first flatus (MD = -0.23; 95 % CI -0.41 to -0.05) and decreased hospital stay (MD = -1.72; 95 % CI -3.40 to 0.04), but, LAG still had longer operation time (MD = 76.70; 95 % CI 51.54-101.87). On the basis of this meta-analysis we conclude that although LAG was still a time-consuming and technically dependent procedure, it has the advantage of better short-term outcome. Long term survival data from other studies are urgently needed to estimate the survival benefit of this technique.

Keywords: Abdominal, Administration, Analgesic, Anastomotic Leakage, Biomedicine, Blood, Blood Loss, Cancer, Chinese, Citation, Clinical-Trials, Comparing Open, Complication, Complications, Data, Database, Effectiveness, Embase, Estimated Blood Loss, Evidence, Evidence-Based Medicine, First, Flatus, Gastric Cancer, Gi, Hospital, Hospital Stay, Incidence, Literature, Lymph-Node Dissection, Meta Analysis, Meta-Analysis, Metaanalysis, Morbidity, Mortality, Open, Open Distal Gastrectomy, Operation, Outcome, P, Patients, Postoperative, Postoperative Complication, Prisma Statement, Procedure, Prognostic-Significance, Publication Bias, Pubmed, Quality, Quality Of, Randomized, Randomized Controlled Trials, Reporting, Reviews, Safety, SCI, Science, Science Citation Index, Software, Subtotal Gastrectomy, Surgical, Survival, Systematic Reviews, Term

? Swank, H., Mulder, I., Hop, W., van de Vijver, M.J., Lange, J. and Bemelman, W. (2013), Routine histopathology for carcinoma in cholecystectomy specimens not evidence based: A systematic review. *Surgical Endoscopy and Other Interventional Techniques*, **27** (12), 4439-4448.

Full Text: [2013\Sur End Int Tec27, 4439.pdf](2013/Sur%20End%20Int%20Tec27,%204439.pdf)

Abstract: Routine histopathological examination of gallbladder specimens is mainly performed to identify unexpected gallbladder carcinoma (GBC). This systematic review assesses the prevalence and characteristics of GBC in cholecystectomy specimens. PubMed, EMBASE, Web of Science, and the Cochrane Library were searched for all articles reporting on the finding of GBC in cholecystectomy specimens. of the 30 articles included, 20 were from Europe and the United States, and 10 were of Asian origin. In the Western studies, 276 cases of GBC were found in 61,542 specimens (median prevalence 0.4 %, 95 % confidence interval [CI] 0.3-0.6). of these, 65 % were expected pre- or intraoperatively. In the Asian studies, 344 cases of GBC were found in 37,365 specimens (median prevalence 1.2 %, 95 % CI 0.8-1.7). of these, 45 % were expected pre- or intraoperatively. In a subgroup analysis, identification of previously unexpected GBC affected treatment in only a minority of patients. In total, 72 % of the patients received no further treatment and 32 patients (22 %) received secondary surgery, of whom 15 patients survived at least 1 year. The histopathological finding of GBC after cholecystectomy appears to be a rare event. The prevalence of unexpected GBC was higher in Asian studies than in Western studies. The pre- and intraoperative sensitivity for this carcinoma is low. Moreover, the diagnosis of GBC at the time of histopathology is usually inconsequential. The results of this systematic review do not support routine histopathology of cholecystectomy specimens in clinical practice.

Keywords: Advanced Biliary Cancer, Analysis, Asian, Carcinoma, Characteristics, Cholecystectomy, Clinical, Clinical Practice, Confidence, Diagnosis, Embase, Europe, Evidence, Evidence Based, Evidence-Based, Examination, Futile Exercise, Gall-Bladder, Gallbladder, Gemcitabine, Histopathology, Identification, Incidental Carcinoma, Interval, Laparoscopic Cholecystectomy, New-York, Origin, Pathological Examination, Patients, Phase-II Trial, Practice, Prevalence, Pubmed, Reporting, Review, Science, Sensitivity, Support, Surgery, Systematic Review, Treatment, United States, Unsuspected Gallbladder Cancer, USA, Web of Science

? Pucher, P.H., Sodergren, M.H., Lord, A.C., Teare, J., Yang, G.Z. and Darzi, A. (2015), Consumer demand for surgical innovation: A systematic review of public perception of NOTES. *Surgical Endoscopy and Other Interventional Techniques*, **29** (4), 774-780.

Full Text: [2015\Sur End Int Tec29, 774.pdf](2015/Sur%20End%20Int%20Tec29,%20774.pdf)

Abstract: The full scope of benefits offered by NOTES over traditional laparoscopy, if any, is not yet fully clear. Perceived patient demand for truly “scarless surgery” is often referenced one of the driving factors in the continued development of this relatively new technique. The true scale of patient preference and demand for NOTES as a surgical technique is unknown. This review aims to summarise currently available literature on the topic of patient perceptions of NOTES to guide future development of the technique. A comprehensive search of PubMed and Web of Science electronic databases was performed on 1st Jan 2014. To be considered for inclusion, articles were required to assess and report the perception of NOTES in a sample of laypersons (patients or general public). The primary endpoint assessed was acceptance or preference rates expressed by patients for NOTES procedures. Reasons given for preference or rejection of NOTES were recorded, as well as preferred access routes and any predicting factors of NOTES acceptance. Initial search returned 1,334 results, resulting in 15 articles included in final data synthesis. These polled a total of 4,420 subjects. Acceptance of NOTES ranged between 41 and 84 %. Compared to a laparoscopic approach, preference rates for NOTES ranged from 0 to 78 %. Reasons for preferring NOTES were largely centred on potentially reduced recovery time, complications (particularly with reference to hernias) and postoperative pain. Improved cosmesis also played a role, but was secondary to the above issues. Overall, study quality was poor. This review suggests significant public interest in NOTES and scarless surgery in general. Further research and consideration of differences in public perceptions across regions, countries and cultures are required.

Keywords: Acceptance, Access, Appendectomy, Approach, Articles, Benefits, Complications, Consumer, Data, Databases, Demand, Development, Driving, Factors, From, General, Innovation, Issues, Laparoscopic, Laparoscopic Cholecystectomy, Laparoscopy, Literature, Metaanalysis, Natural Orifice, Notes, Opinion, Pain, Patient, Patient Perception, Patient Perceptions, Patient Preference, Patients, Perception, Postoperative, Postoperative Pain, Preference, Primary, Procedures, Public, Public Perception, Pubmed, Quality, Questionnaire, Rates, Recovery, Reference, Rejection, Research, Review, Role, Scale, Science, Scope, Surgery, Surgical Technique, Survey, Synthesis, Systematic, Systematic Review, Topic, Translumenal Endoscopic Surgery, Trials, Web, Web Of Science

? Lu, C.R., Zhou, S.X., Peng, Z. and Chen, L. (2015), Quality of D2 lymphadenectomy for advanced gastric cancer: Is laparoscopic-assisted distal gastrectomy as effective as open distal gastrectomy? *Surgical Endoscopy and Other Interventional Techniques*, **29** (6), 1537-1544.

Full Text: [2015\Sur End Int Tec29, 1537.pdf](2015/Sur%20End%20Int%20Tec29,%201537.pdf)

Abstract: To determine by meta-analysis, whether D2 lymphadenectomy at laparoscopic-assisted distal gastrectomy (LADG) is as effective as that during open distal gastrectomy (ODG) for patients with advanced gastric cancer (AGC). All clinical trials that compared laparoscopic with open D2 lymphadenectomy for AGC published in English from January 1995 to June 2013 were identified in PubMed, Embase, Web of Science, and Cochrane library searches. A modified scale was used to assess the quality of the literature. We analyzed the number of harvested lymph nodes (HLNs), body mass index (BMI), tumor size, serosa invasion status, and positive lymph node rate. Meta-analyses were performed using weighted mean differences (WMD) for continuous variables, and risk differences (RD) or odds ratios (OR) for dichotomous variables. No eligible randomized trials were identified, but eight non-randomized trials were analyzed. In the pooled data of 677 patients who underwent LADG and 687 ODG, there were no significant differences the number of HLN (WMD: -0.98, 95 % confidence interval, CI -3.21 to 1.26), BMI (WMD: -1.20, 95 % CI -2.64 to 0.24), tumor size (WMD: -0.30, 95 % CI -0.65 to 0.05), serosa invasion status (RD: 0.04, 95 % CI -0.03 to 0.11), and positive lymph node rate (OR: 0.66, 95 % CI -0.44 to 1.01) between the groups. Our findings suggest that for patients with comparable BMI and tumor status, surgical technique did not significantly influence the number of HLNs, suggesting that D2 lymphadenectomy performed laparoscopically is as effective as an open procedure in AGC.

Keywords: Bmi, Body Mass Index, Cancer, Clinical, Clinical Trials, Comparative Study, Confidence, Data, Experience, Extended Lymphadenectomy, Gastric Cancer, Humans, Index, Interval, Laparoscopic, Laparoscopic-Assisted, Laparoscopy, Literature, Lymph-Node Dissection, Lymphadenectomy, Meta-Analysis, Metaanalysis, Modified, Open, Open Subtotal Gastrectomy, Patients, Procedure, Pubmed, Quality, Quality Of, Randomized, Risk, Scale, Science, Size, Surgical Technique, Trial, Tumor, Web Of Science

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? Cheng, T., Zhang, G.Y. and Zhang, X.L. (2011), Clinical and radiographic outcomes of image-based computer-assisted total knee arthroplasty: An evidence-based evaluation. *Surgical Innovation*, **18** (1), 15-20.

Abstract: Conventional instrumentation systems have limited accuracy in determining the crucial landmarks needed for alignment in total knee arthroplasty (TKA). Given this, the image-based navigation system was introduced to improve the accuracy of implantation of components into the femur and tibia. PUBMED, EMBASE, Web of Science, and Evidence-Based Medicine databases were electronically searched to identify eligible studies published until October 2008. A systematic review and meta-analysis of 6 randomized/quasi-randomized controlled trials that compared image-based navigation and conventional techniques was conducted. The operative time was longer in the navigation group in 3 studies. Moreover, there was a higher rate of achieving mechanical leg axis within the range of 3 degrees deviation in patients undergoing navigated TKA. However, all studies between the 2 groups were similar in range of motion, knee scores, and postoperative complication rates at the last follow-up. Overall, these short-term follow-up trials show that there were similar early clinical outcomes between image-based navigation and conventional techniques.

Keywords: Accuracy, Arthroplasty, Component, Computer-Assisted Surgery, Coronal Alignment, Databases, Embase, Evaluation, Follow-up, Knee, Leads, Meta Analysis, Meta-Analysis, Metaanalysis, Navigation, Navigation, Outcomes, Patients, Postoperative Alignment, Pubmed, Replacement, Review, Science, Systematic, Systematic Review, TKA, Total Knee Arthroplasty (TKA), Web of Science

# Title: Surgical Laparoscopy Endoscopy & Percutaneous Techniques

Full Journal Title: Surgical Laparoscopy Endoscopy & Percutaneous Techniques

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? Cirocchi, R., Trastulli, S., Desiderio, J., Boselli, C., Parisi, A., Noya, G. and Falconi, M. (2013), Minimally invasive necrosectomy versus conventional surgery in the treatment of infected pancreatic necrosis: A systematic review and a meta-analysis of comparative studies. *Surgical Laparoscopy Endoscopy & Percutaneous Techniques*, **23** (1), 8-20.

Full Text: 2013\Sur Lap End Per Tec23, 8.pdf

Abstract: Aim: the purpose of this meta-analysis and systematic review is to compare minimally invasive necrosectomy (MIN) versus open necrosectomy (ON) surgery for infected necrosis of acute pancreatitis. Methods: One randomized controlled trial and 3 clinical controlled trials were selected, with a total of 336 patients (215 patients who underwent MIN and 121 patients underwent ON) included after searching in the following databases: MEDLINE, Embase, Cochrane Central Register of Controlled Trials, BioMed Central, Science Citation Index (from inception to August 2011), Greynet, SIGLE (System for Information on Grey Literature in Europe), National Technological Information Service, British Library Integrated catalogue, and the Current Controlled Trials. Statistical analysis is performed using the odds ratio (OR) and weighted mean difference with 95% confidence interval (CI). Results: After the analysis of the data amenable to polling, significant advantages were found in favor of the MIN in terms of: incidence of multiple organ failure (OR, 0.16; 95% CI, 0.06-0.39) (P < 0.0001), incisional hernias (OR, 0.23; 95% CI, 0.06-0.90) (P = 0.03), new-onset diabetes (OR, 0.32; 95% CI, 0.12-0.88) (P = 0.03), and for the use of pancreatic enzymes (OR, 0.005; 95% CI, 0.04-0.57) (P = 0.005). No differences were found in terms of mortality rate (OR, 0.43; 95% CI, 0.18-1.05) (P = 0.06), multiple systemic complications (OR, 0.34; 95% CI, 0.01-8.60) (P = 0.51), surgical reintervention for further necrosectomy (OR, 0.16; 95% CI, 0.00-3.07) (P = 0.19), intra-abdominal bleeding (OR, 0.79; 95% CI, 0.41-1.50) (P = 0.46), enterocutaneous fistula or perforation of visceral organs (OR, 0.52; 95% CI, 0.27-1.00) (P = 0.05), pancreatic fistula (OR, 0.66; 95% CI, 0.30-1.46) (P = 0.30), and surgical reintervention for postoperative complications (OR, 0.50; 95% CI, 0.23-1.08) (P = 0.08). Conclusions: the lack of comparative studies and high heterogeneity of the data present in the literature did not permit to draw a definitive conclusion on this topic. The results of the present meta-analysis might be helpful to design future high-powered randomized studies that compare MIN with ON for acute necrotizing pancreatitis.

Keywords: Abscess, Acute Pancreatitis, Analysis, Bleeding, Citation, Clinical, Complications, Confidence, Controlled Trial, Data, Databases, Debridement, Design, Diabetes, Drainage, Enzymes, Europe, Failure, Fistula, Follow-Up, Grey Literature, Heterogeneity, Incidence, Infected, Interval, Invasive, Literature, Management, MEDLINE, Meta Analysis, Meta-Analysis, Metaanalysis, Minimally Invasive Necrosectomy, Mortality, Mortality Rate, Necrosectomy, Necrosis, Necrotizing Pancreatitis, Odds Ratio, Open, Open Necrosectomy, P, Pancreatic Fistula, Pancreatitis, Patients, Peripancreatic Necrosis, Postoperative, Postoperative Complications, Purpose, Randomized, Randomized Controlled Trial, Results, Retroperitoneal Approach, Review, Science, Science Citation Index, Sinus Tract Endoscopy, Statistical Analysis, Surgery, Systematic Review, Topic, Treatment, Trial, Videos

? Wu, S.J., Xiong, X.Z., Lin, Y.X. and Cheng, N.S. (2013), Comparison of the efficacy of ondansetron and granisetron to prevent postoperative nausea and vomiting after laparoscopic cholecystectomy: A systematic review and meta-analysis. *Surgical Laparoscopy Endoscopy & Percutaneous Techniques*, **23** (1), 79-87.

Full Text: 2013\Sur Lap End Per Tec23, 79.pdf

Abstract: Background/Aims: Our purpose was to assess the prophylactic antiemetic effects of ondansetron versus granisetron for laparoscopic cholecystectomy. Methods: We searched MEDLINE, Cochrane Central Register of Controlled Trials, PubMed, Embase, Science Citation Index Expanded, Foreign Medical Journal Full-Text Service, China National Knowledge Infrastructure Whole Article Database, Chinese Biomedical Database, and the Google Scholar. We calculated the risk ratio (RR) with 95% confidence interval (CI) for dichotomous data. The chi(2) test and I-2 value were used to assess heterogeneity. Results: the merged early incidence of postoperative nausea and vomiting (PONV) in ondansetron group (42.9%) was higher than granisetron group (34.3%) (RR = 1.25, 95% CI, 0.82-1.92, P = 0.31, I-2 = 48%). The merged total incidence of PONV in ondansetron group (38.7%) was higher than granisetron group (34.2%) (RR = 1.13, 95% CI, 0.82-1.56, P = 0.46, I-2 = 39%), although these differences were not statistically significant. Conclusions: Ondansetron is equivalent to granisetron for preventing early and total incidence of PONV after laparoscopic cholecystectomy.

Keywords: Antiemetic, Antiemetic Efficacy, Article, China, Chinese, Cholecystectomy, Citation, Clinical-Trial, Comparison, Confidence, Controlled Trials, Data, Dolasetron, Double-Blind, Droperidol, Effects, Efficacy, Google, Google Scholar, Granisetron, Heterogeneity, Incidence, Interval, Journal, Laparoscopic, Laparoscopic Cholecystectomy, Medical, MEDLINE, Meta-Analysis, Metoclopramide, Nausea, Nausea and Vomiting, Ondansetron, P, Placebo, Postoperative, Postoperative Nausea and Vomiting, Prevent, Prophylactic, Prophylaxis, Pubmed, Purpose, Randomized-Trial, Results, Review, Risk, Science, Science Citation Index, Science Citation Index Expanded, Value, Vomiting

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Full Text: 2014\Sur Lap End Per Tec24, 26.pdf

Abstract: Publication of scientific articles in peer-reviewed medical journals is considered as a measure of research productivity. The aim of the present study was to quantify the research contributions of different countries in minimally invasive surgery and to critically discuss the results under the prism of recent socioeconomic developments. The electronical archives of 4 major surgical journals (Annals of Surgery, British Journal of Surgery, Journal of the American College of Surgeons, and Surgical Endoscopy) were searched between 2009 and 2012. Publications on minimally invasive general surgery were assessed according to the country. A total of 6595 records were identified; 2160 articles were related to minimally invasive surgery. The volume of publication activity was evenly distributed in North America (34%) and Europe (39%). The United States (31%), The United Kingdom (7.6%), and Japan (6.7%) were the most productive countries. When adjusted for country population, the Netherlands (7.7/10(6)), Denmark (4.4/10(6)), and Switzerland (4.1/10(6)) occupied the highest ranks. Although the United States dominates in terms of absolute number of publications, several smaller countries were more prolific, when the number of inhabitants was taken into account. The recent financial crisis is expected to undermine international collaborative conditions in the field of minimally invasive surgery. The need for a stepped-up international scientific collaboration is hereto highlighted.

Keywords: Activity, Analysis, Bibliometric, Bibliometric Analysis, Bibliometrics, Collaboration, Contribution, Country, Crisis, Denmark, Distributed, Europe, Field, General, General Surgery, International, Invasive, Japan, Journal, Journals, Journals, Laparoscopy, Measure, Medical, Medical Journals, Minimally Invasive Surgery, North, North America, Output, Peer-Reviewed, Population, Productivity, Publication, Publication Activity, Publications, Recent, Records, Research, Research Productivity, Scientific Collaboration, Surgery, Surgical, Switzerland, the Netherlands, United Kingdom, United States, Volume

? Hui, P., Long, Z.Y., Jun, H.X., Wei, W., Yong, H.J. and Peng, L.H. (2014), Endoscopic resection with hyaluronate solution for gastrointestinal lesions: Systematic review and meta-analysis. *Surgical Laparoscopy Endoscopy & Percutaneous Techniques*, **24** (3), 193-198.

Full Text: 2014\Sur Lap End Per Tec24, 193.pdf

Abstract: Background:A wide range of outcomes are seen in the literature on the use of hyaluronate solution (HS) in endoscopic resection. However, there is little consensus on whether or not HS are beneficial for patients. The purpose of this meta-analysis was to evaluate the usefulness and safety of HS as submucosal fluid cushion for endoscopic resection in patients with gastrointestinal lesions. Methods:We searched Pub Med, the Cochrane Library, EMBASE, Science Citation Index Expanded, CMB, VIP, and CNKI for the terms endoscopic resection and hyaluronate solution used in combination with the medical subject headings. Randomized controlled trials were considered. Meta-analysis was performed by RevMan 5.0 software. Results:Four randomized control clinical trials (585 patients) were included into the review analyses. There was no significant difference on en bloc resection and complete resection between the 2 groups. The fixed-effect meta-analyses did not favor the use of HS in preventing perforation, hemorrhage, and abdominal pain. The HS is more effective for maintenance of mucosal elevation than saline solution. Conclusions:Submucosal injection of HS could not increase the usefulness of en bloc resection and complete resection or seemed not to reduce perforation, hemorrhage, and abdominal pain compared with the saline solution. But, we were able to get benefit from maintenance of mucosal elevation.

Keywords: Abdominal, Analyses, Citation, Clinical, Clinical Trials, Complete, Consensus, Control, Embase, Endoscopic, Endoscopic Resection, Gastric Neoplasms, Gastrointestinal, Groups, Hemorrhage, Hyaluronate Solution, Literature, Medical, Medical Subject Headings, Meta Analysis, Meta-Analysis, Metaanalysis, Mucosal, Mucosal Resection, Outcomes, Pain, Patients, Polyps, Pub Med, Purpose, Randomized, Randomized Controlled Trials, Review, Safety, Science, Science Citation Index, Science Citation Index Expanded, Sodium Hyaluronate, Software, Solution, Submucosal Injection Solutions, Systematic Review, Trial

? Chen, H.L., Woo, X.B., Cui, J., Chen, C.Q. and Peng, J.S. (2014), Ligasure versus stapled hemorrhoidectomy in the treatment of hemorrhoids: A meta-analysis of randomized control trials. *Surgical Laparoscopy Endoscopy & Percutaneous Techniques*, **24** (4), 285-289.

Full Text: 2014\Sur Lap End Per Tec24, 285.pdf

Abstract: The aim of this meta-analysis was to compare the outcomes of Ligasure hemorrhoidectomy and stapled hemorrhoidectomy for prolapsed hemorrhoids. Original studies in any language were searched from MEDLINE database, PubMed, Web of science and the Cochrane Library database, and Wangfang database. Randomized control trials that compared Ligasure hemorrhoidectomy with stapled hemorrhoidectomy were identified. Data were extracted independently for each study, and a meta-analysis was performed using fixed and random-effects models. Five trials including 397 patients met the inclusion criteria. Patients treated with Ligasure had a significantly shorter operative time compared with patients who underwent stapler techniques. The recurrence rate was higher in patients who underwent stapled hemorrhoidectomy. No statistically significant differences were observed in postoperative bleeding, urinary retention, difficult defecating, anal fissure, anal stenosis, incontinence, postoperative pain, return to normal activities, and hospital stay. Our meta-analysis shows that Ligasure is an effective instrument for hemorrhoidectomy, which results in shorter operation time and lower recurrence rate.

Keywords: Anal, Bleeding, Clinical-Trial, Control, Criteria, Data, Database, Hemorrhoidectomy, Hemorrhoids, Hospital, Hospital Stay, Incontinence, Instrument, Language, Ligasure, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Models, Normal, Operation, Operative, Operative Time, Outcomes, Pain, Patients, Postoperative, Postoperative Pain, Pph, Pubmed, Recurrence, Retention, Science, Stapled Hemorrhoidectomy, Stenosis, Techniques, Treatment, Urinary, Urinary Retention, Web Of Science

? Xu, L., Chen, H.L., Lin, G.Q. and Ge, Q.X. (2015), Ligasure versus ferguson hemorrhoidectomy in the treatment of hemorrhoids: A meta-analysis of randomized control trials. *Surgical Laparoscopy Endoscopy & Percutaneous Techniques*, **25** (2), 106-110.

Full Text: 2015\Sur Lap End Per Tec25, 106.pdf

Abstract: Aim: To compare outcomes of Ligasure hemorrhoidectomy (LH) versus Ferguson hemorrhoidectomy (FH) by a meta-analysis of available randomized controlled trials. Methods: Original studies in any language were searched from MEDLINE database, PubMed, Web of science and the Cochrane Library database, and Wangfang database. Randomizes control trials that compared LH with FH were identified. Data were extracted independently for each study and a meta-analysis was performed using fixed-effects and random-effects models. Results: Five trials including 318 patients met the inclusion criteria. The urinary retention rate and early postoperative pain scores were higher in patients undergoing FH. Patients treated with Ligasure had a significantly shorter operative time and hospital stay than the patients submitted to Ferguson techniques. The blood loss during operation was less in Ligasure group than Ferguson group. No statistically significant differences were noted in postoperative bleeding, difficult defacating, anal fissure, anal stenosis, and incontinence. Conclusions: Our meta-analysis shows that LH is superior to FH in the short-term outcomes. Future studies addressing long-term outcomes are needed to prove these results.

Keywords: Anal, Bleeding, Blood, Blood Loss, Clinical-Trial, Control, Criteria, Data, Database, Ferguson Hemorrhoidectomy, From, Hemorrhoidectomy, Hemorrhoids, Hospital, Hospital Stay, Incontinence, Language, Library, Ligasure, Long Term, Long-Term, Long-Term Outcomes, Medline, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Models, Operation, Operative, Operative Time, Outcomes, Pain, Patients, Postoperative, Postoperative Pain, Pubmed, Randomized, Randomized Controlled Trials, Results, Retention, Science, Stapled Hemorrhoidopexy, Stenosis, Techniques, Treatment, Urinary, Urinary Retention, Vs.Conventional Diathermy, Web, Web Of Science

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? Shehzad, K., Mohiuddin, K., Nizami, S., Sharma, H., Khan, I.M., Memon, B. and Memon, M.A. (2007), Current status of minimal access surgery for gastric cancer. *Surgical Oncology-Oxford*, **16** (2), 85-98.

Full Text: [2007\Sur Onc-Oxf16, 85.pdf](2007/Sur%20Onc-Oxf16,%2085.pdf)

Abstract: Background: the aim was to conduct a systematic review of the literature on the subject of laparoscopic gastrectomy (LG) and determine the relative merits of laparoscopic (LG) and open gastrectomy (OG) for gastric carcinoma. Material and methods: A search of the MEDLINE, Embase, Science Citation Index, Current Contents and PubMed databases identified individual retrospective and prospective series on LG (proximal, distal and total). Furthermore, all clinical trials that compared LG and OG published in the English language between January 1990 and the end of December 2006 were also identified. A large number of outcome variables were analysed for individual series and comparative trials between LG and OG and results discussed and tabulated. Results: the majority of the literature is published from Japan showing both oncological adequacy and safety of LG. The majority of early series and comparative studies have utilized laparoscopic resection for early and distal gastric cancer. However, with increasing advanced laparoscopic experience, advancement in digital technology and improvement in instrumentation, more advanced gastric cancers and more extensive procedures such as laparoscopic-assisted total gastrectomy and laparoscopy-assisted D2 dissection are becoming more common. To date lymph node harvesting, resection margins and complication rates seem to be equivalent to open procedures. Furthermore, the earlier fears of port-site metastases have not been borne out. Conclusions: the available data suggests that LG seems to be associated with quicker return of gastrointestinal function, faster ambulation, earlier discharge from hospital, and comparable complications and recurrence rate to OG. However, the operating time for LG remains significantly longer compared to its open counterpart, although with experience it is achieving parity with OG. However, the majority of the comparative trials (if not all) probably do not have the power to detect differences in the outcome. As far as the RCT’s (LG vs. OG) are concerned, the numbers of patients in such trials are small and the majority of patients were operated upon for early distal gastric cancer and, therefore, any meaningful conclusions regarding the advantages or disadvantages of LG for both the ECGs and extensive and advanced gastric tumours are difficult to justify. (c) 2007 Elsevier Ltd. AR rights reserved.

Keywords: 5 Years Experience, Assisted Distal Gastrectomy, Billroth-I Gastrectomy, Cancer, Citation, Clinical Trials, Comparative Studies, Comparing Open, D2, Databases, Discharge, Elsevier, English, Gastrectomy, Gastric Cancer, Hospitalization, Human, Intraoperative Complications, Invasive Treatment, Language, Laparoscopic Method, Laparoscopic Surgery, Literature, Lymph-Node Dissection, Management, MEDLINE, Metastasis, Methods, Patient’s Outcome, Postoperative Complications, Pylorus-Preserving Gastrectomy, Review, Science, Science Citation Index, Surgery, Systematic Review, Technology

? Kelley, T.A., Thomson, D.R. and Furniss, D. (2012), When should axillary drains be removed post axillary dissection? A systematic review of randomised control trials. *Surgical Oncology-Oxford*, **21** (4), 247-251.

Full Text: [2012\Sur Onc-Oxf21, 247.pdf](2012/Sur%20Onc-Oxf21,%20247.pdf)

Abstract: Objective: To determine the evidence-based optimal strategy for management of drains following axillary dissection. Background: Despite randomised control trials addressing the issue over the past 20-30 years, there is no widely accepted consensus as to when drains should be removed post axillary dissection. Methods: We searched the electronic databases MEDLINE, Embase, Cinahl, Cochrane Library of Systematic Reviews and Web of Science Citation Index. References within identified studies were also searched. Studies were independently identified and data extracted according to a pre-determined proforma based on the Cochrane Collaboration data extraction template by two independent researchers. Validity was determined according to a published standard. Discrepancies were corrected by consensus. Results: There was no difference in infection rates between early and late drain removal, hospital stay was reduced when drains were removed earlier, and higher total volume drainage prior to drain removal predicted subsequent seroma formation. The optimal timing of drain removal post axillary dissection could not be determined from the literature. Conclusion: Optimal timing of drain removal following axillary dissection remains unknown after this systematic review due to heterogeneity between included studies leading to an inability to provide evidence-based consensus guidance. (C) 2012 Elsevier Ltd. All rights reserved.

Keywords: Axilla, Breast-Cancer, Citation, Clearance, Cochrane Collaboration, Collaboration, Consensus, Control, Data, Databases, Dissection, Drainage, Drains, Evidence Based, Evidence-Based, Extraction, Guidance, Heterogeneity, Hospital, Hospital Stay, Infection, Literature, Long, Management, Mastectomy, MEDLINE, Randomised, Rates, Removal, Review, Rights, Science, Science Citation Index, Standard, Strategy, Systematic Review, Template, Term, Timing, Volume, Web of Science

? Cirocchi, R., Trastulli, S., Farinella, E., Guarino, S., Desiderio, J., Boselli, C., Parisi, A., Noya, G. and Slim, K. (2013), Intracorporeal versus extracorporeal anastomosis during laparoscopic right hemicolectomy: Systematic review and meta-analysis. *Surgical Oncology-Oxford*, **22** (1), 1-13.

Full Text: [2013\Sur Onc-Oxf22, 1.pdf](2013/Sur%20Onc-Oxf22,%201.pdf)

Abstract: Background: Since 2005, after an initial scanty spreading, the vast majority of surgeons advice against the intracorporeal ileocolic anastomosis following right hemicolectomies. In the subsequent years, greater interest was re-discovered for the intracorporeal ileocolic anastomosis formed after video-assisted right hemicolectomies Objective: the aim of this systematic review is to compare the intra-abdominal versus extra-abdominal anastomosis after right laparoscopic colectomy. Data sources: A systematic search was conducted in MEDLINE, Embase, Cochrane Central Register of Controlled Trials, CINAHL, BioMed Central and the Science Citation Index. Study selection: A total of 191 publications were identified; seven non-randomized studies published between 2004 and 2012 with a total of 945 patients, who underwent laparoscopic right colectomy for malignant and benign disease, were included in this systematic review. Intervention: Intra-abdominal versus extra-abdominal confectioning of ileo-coloc anastomosis after right laparoscopic colectomy. Main outcome measures: Anastomotic leak, overall post-operative morbidity and overall 30-days postoperative mortality. Results: Anastomotic leak rate resulted similar in IA (1.13%) and EA (1.84%) group (P = 0.81, OR of 0.90, 95% CI 0.24-3.10) (Chi(2) = 3.90, P = 0.42, I-2 = 0%). The mortality rate was lower in the IA group (0.34% versus 1.32%), although no statistically difference was demonstrated between the two groups (P = 0.48, OR of 0.52 95% CI 0.09-3.10). It was not possible to conduct a meta-analysis of post-operative morbidity as the data reported in the included studies were too heterogeneous. Limitations: the weakness in our results was due to the lack of evidence in current published literature. Conclusions: the present systematic review of literature and meta-analysis failed to solve the controversies between intracorporeal and extracorporeal anastomosis after laparoscopic right hemicolectomy. Future randomized, controlled trials are needed to further evaluate different surgical anastomosis after laparoscopic right hemicolectomy. (C) 2012 Elsevier Ltd. All rights reserved.

Keywords: Advanced Colon-Cancer, Assisted Colectomy, Carcinoma, Citation, Colectomy, Colorectal Surgery, Complications, Data, Disease, Dissection, Evidence, Experience, Groups, Ileocolic Anastomosis, Laparoscopic, Leak Rate, Literature, Mar, MEDLINE, Meta Analysis, Meta-Analysis, Metaanalysis, Morbidity, Mortality, Mortality Rate, Open Resection, Outcome, Outcome Measures, P, Patients, Post-Operative Morbidity, Postoperative, Postoperative Morbidity, Publications, Randomized, Randomized Controlled-Trial, Results, Review, Right, Right Colectomy, Right Laparoscopic Colectomy, Rights, Science, Science Citation Index, Selection, Sources, Systematic Review

? Cirocchi, R., Farinella, E., Trastulli, S., Desiderio, J., Listorti, C., Boselli, C., Parisi, A., Noya, G. and Sagar, J. (2013), Safety and efficacy of endoscopic colonic stenting as a bridge to surgery in the management of intestinal obstruction due to left colon and rectal cancer: A systematic review and meta-analysis. *Surgical Oncology-Oxford*, **22** (1), 14-21.

Full Text: [2013\Sur Onc-Oxf22, 14.pdf](2013/Sur%20Onc-Oxf22,%2014.pdf)

Abstract: Introduction: Colorectal carcinoma can present with acute intestinal obstruction in 7%-30% of cases, especially if tumor is located at or distal to the splenic flexure. In these cases, emergency surgical decompression becomes mandatory as the traditional treatment option. It involves defunctioning stoma with or without primary resection of obstructing tumor. An alternative to surgery is endoluminal decompression. The aim of this review is to assess the effectiveness of colonic stents, used as a bridge to surgery, in the management of malignant left colonic and rectal obstruction. Methods: We considered only randomized trials which compared stent vs surgery for intestinal obstruction from left sided colorectal cancer (as a bridge to surgery) irrespective of their size. No language or publication status restrictions were imposed. A systematic search was conducted in MEDLINE, Cochrane Central Register of Controlled Trials and the Science Citation Index (from inception to December 2011) Results: We identified 3109 citations through our electronic search and 3 through other sources. Initial screening of the titles and abstracts resulted in the exclusion of 3104 citations. A further 5 citations were excluded after detailed screening of full articles. Three published studies were included in this systematic review. A total of 197 patients were included in our analysis, 97 of them had colorectal stent vs 100 who had emergency surgery. Clinical success has been defined in different manners. In included trials the clinical success rate was significantly higher in the emergency surgery group (99%) compared with the stent group (52.5%) (p < 0.00001). There was no difference in the overall complication rate in the stent group (48.5%) vs emergency surgery group (51%) (p = 0.86). There was no difference in 30-days postoperative mortality (p = 0.97). The overall survival was analyzed in none trial. When used as a bridge to surgery, colorectal stents provide some advantages: the primary anastomosis rate was significantly higher in the stent group (64.9%) vs emergency surgery group (55%) (p = 0.003); the overall stoma rate was significantly lower in the stent group (45.3%) compared with the emergency surgery group (62%) (p = 0.02). There were no significant differences between the two groups as to permanent stoma rate (46.7% in stent group vs 51.8% in surgical group, p = 0.56), anastomotic leakage rate (9% in stent group vs 3.7% in surgical group, p = 0.35) and intra-abdominal abscess rate (5.1% in stent group vs 4.9% in surgical group, p = 0.97). Conclusion: Although colonic stenting appears to be an effective treatment of malignant large bowel obstruction, the clinical success resulted significantly higher in the emergency surgery group without any advantages in terms of overall complication rate and 30-days postoperative mortality. On the other hand, the colonic stenting as a bridge to surgery provides surgical advantages, as higher primary anastomosis rate and a lower overall stoma rate, without increasing the risk of anastomotic leak or intra-abdominal abscess. However, these results should be interpreted with caution because few studies reported data on these outcomes. Due to the small and variable sample size of the included trials, further RCTs are needed including a larger number of patients and evaluating long term results ( overall survival and quality of life) and cost-effectiveness analysis. (C) 2012 Elsevier Ltd. All rights reserved.

Keywords: Alternative, Analysis, Anastomotic Leakage, Bowel, Bowel Obstruction, Bridge, Cancer, Carcinoma, Citation, Citations, Clinical, Colon and Rectal Cancer, Colorectal Cancer, Complication, Cost Effectiveness, Cost Effectiveness Analysis, Cost-Effectiveness, Cost-Effectiveness Analysis, Data, Decision-Analysis, Effectiveness, Efficacy, Emergency, Emergency-Surgery, Endoscopic Colonic Stent, Expanding Metallic Stents, Groups, Intestinal Obstruction, Language, Large-Bowel Obstruction, Life, Long Term, Long-Term, Malignant Colorectal Obstruction, Management, Mandatory, Mar, MEDLINE, Meta Analysis, Meta-Analysis, Metaanalysis, Methods, Mortality, Outcomes, Palliation, Patients, Permanent, Placement, Postoperative, Primary, Publication, Quality, Quality Of, Quality of Life, Randomized, Rectal Cancer, Restrictions, Results, Review, Rights, Risk, Safety, Sample Size, Science, Science Citation Index, Screening, Size, Small, Sources, Stents, Success Rate, Surgery, Survival, Systematic Review, Term, Treatment, Treatment Option, Trial, Tumor

? Slesser, A.A.P., Bhangu, A., Bower, M., Goldin, R. and Tekkis, P.P. (2013), A systematic review of anal squamous cell carcinoma in inflammatory bowel disease. *Surgical Oncology-Oxford*, **22** (4), 230-237.

Full Text: [2013\Sur Onc-Oxf22, 230.pdf](2013/Sur%20Onc-Oxf22,%20230.pdf)

Abstract: Aim: the aim of this systematic review was to determine the incidence, aetiology and clinical characteristics of anal squamous cell carcinomas (SCC) presenting in patients with inflammatory bowel disease. Method: A systematic review of the literature was undertaken using MEDLINE, Embase, Cochrane and Web of Science. Results: A total of 33 cases of anal SCC were described, 7 in ulcerative colitis (UC) and 26 in Crohn’s disease (CD). The annual incidence of anal SCCs was 0.9/100,000 and 2.0/100,000 in patients with UC and CD respectively. The gender ratio in CD was 3M:17F with a median age of 42 years, the main presenting symptom was anal pain and 85% of CD cases had peri-anal disease. No studies described anal intraepithelial neoplasia. The human papilloma virus was found to be positive in 2 out of 5 (40%) cases. The majority of patients (73%) with CD received radical surgery as their first line treatment. The cumulative overall and disease free survival in CD was 37 per cent at five years. Conclusion: the findings of this review when contrasted with the data from cancer registries suggests that there is a higher incidence of anal SCC, an earlier age of presentation and poorer outcomes in patients with Crohn’s disease compared to the general population implying a more aggressive neoplastic process. This review supports the hypothesis that peri-anal disease plays a contributing role in anal SCCs and as such targeted surveillance in patients with longstanding peri-anal disease should be considered. (C) 2013 Elsevier Ltd. All rights reserved.

Keywords: Aetiology, Age, Anal, Anal Cancer, Anal Squamous Cell Carcinoma, Anorectal Fistulas, Anus, Azathioprine, Bowel, Cancer, Cd, Characteristics, Clinical, Crohn’s Disease, Cumulative, Data, Disease, First, Gender, General, Human, Human Papilloma Virus, Human-Papillomavirus, Incidence, Inflammatory Bowel Disease, Literature, MEDLINE, Nationwide Cohort, Outcomes, Pain, Patients, Perianal Crohns-Disease, Population, Presentation, Proteins, Recommendations, Registries, Results, Review, Rights, Risk, Role, Science, Squamous Cell Carcinoma, Surgery, Surveillance, Survival, Systematic Review, Treatment, Ulcerative Colitis, Web of Science

? Zhou, Z.R., Liu, S.X., Zhang, T.S., Chen, L.X., Xia, J., Hu, Z.D. and Li, B. (2014), Short-course preoperative radiotherapy with immediate surgery versus long-course chemoradiation with delayed surgery in the treatment of rectal cancer: A systematic review and meta-analysis. *Surgical Oncology-Oxford*, **23** (4), 211-221.

Full Text: [2014\Sur Onc-Oxf23, 211.pdf](2014/Sur%20Onc-Oxf23,%20211.pdf)

Abstract: Background: Long-course chemoradiotherapy (LCRT) with delayed surgery or short-course radiotherapy (SCRT) with immediate surgery is probably the most frequent regimen in the treatment of rectal cancer. Debate is still going on whether SCRT or LCRT is more effective. So we performed this meta-analysis to evaluate the safety and efficacy of SCRT with immediate surgery versus LCRT with delayed surgery for the management of rectal cancer. Methods: Literature were searched from PubMed, Embase, Web of Science, Cochrane Library up to May, 2014. Quality of the randomized controlled trials (RCTs) was evaluated according to the Cochrane’s risk of bias tool of RCT. RevMan 5.3 was used for statistical analysis. Pooled risk ratio (RR) and 95% confidence interval (CI) were calculated. Subgroup analysis and sensitivity analysis were employed to explore heterogeneity. Results: 16 trials were included in the qualitative systematic review. 12 trials were included in meta-analyses. 4 of them were RCTs; other 8 were non-RCTs. Meta-analysis demonstrated that there were no significant differences in overall survival (OS), disease free survival (DFS), local recurrence rate (LRR), distant metastasis rate (DMR), sphincter preservation rate, R0 resection rate and late toxicity. Compared with SCRT, LCRT obviously increased pCR rate [RR = 0.15, 95% CI (0.08, 0.28), P = 0.003], while LCRT obviously increased the grade 3-4 acute toxicity [RR = 0.13, 95% CI (0.06, 0.28), P < 0.00001]. Conclusions: SCRT with immediate surgery is as effective as LCRT with delayed surgery for treatment of rectal cancer in terms of OS, DFS, LRR, DMR, Sphincter preservation rate, R0 resection rate and late toxicity. Though LCRT increased pCR rate, LCRT also increased acute toxicity compared with SCRT. SCRT is a better choice in centers with a long waiting list or lack of medical resources. (C) 2014 Elsevier Ltd. All rights reserved.

Keywords: Acute Toxicity, Adenocarcinoma, Analysis, Bias, Cancer, Carcinoma, Chemoradiation, Chemoradiotherapy, Choice, Confidence, Disease, Efficacy, From, Heterogeneity, Iii Trial, Interval, Late Toxicity, Literature, Local, Management, Medical, Meta Analysis, Meta-Analyses, Meta-Analysis, Metaanalysis, Metastasis, Methods, Multicenter, Neoadjuvant Radiotherapy, Overall Survival, P, Pcr, Postoperative Chemoradiotherapy, Preoperative, Preoperative Radiotherapy, Preservation, Pubmed, Qualitative, Quality, Radiochemotherapy, Radiotherapy, Randomized, Randomized Controlled Trials, Randomized-Trial, Rct, Rectal, Rectal Cancer, Recurrence, Resources, Results, Review, Rights, Risk, Safety, Science, Sensitivity, Sensitivity Analysis, Sphincter, Statistical Analysis, Surgery, Survival, Systematic, Systematic Review, Toxicity, Treatment, Tumor Response, Web, Web of Science

# Title: Survey Review

Full Journal Title: Survey Review

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

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Publisher Address:

Subject Categories:

: Impact Factor

? Chandler, J.H. (2000), What is ISI and why is it important? *Survey Review*, **35** (277), 505-508.

Abstract: In March 2000 the senior editor of ISI (Institute of Scientific Information) informed the Survey Review that it had been decided to index the journal as part of the ISI product range, commencing with the January 2000 issue. This generated the response amongst the Editorial Board “I think that this is positive, but does anybody know what this means?” the aim of this short review is to demonstrate that this development is indeed positive and to clarify why. I was asked to write this article because I had supported Keith Atkinson in the successful campaign to get the Photogrammetric Record re-instated in early 1999 and I had raised the issue at the Teachers of Surveying conference held in 1998. The article will outline the philosophy behind ISI and review the recent Web of Science product, before attempting to answer why inclusion in the ISI membership is important, particularly for academic readers.

Keywords: Development, ISI, Journal, Review, Science, Scientific Information, Web of Science

# Title: Sustainability

Full Journal Title: Sustainability

ISO Abbreviated Title:

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ISSN:

Issues/Year:

Journal Country/Territory:

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Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Pautasso, M. (2012), Publication growth in biological sub-fields: Patterns, predictability and sustainability. *Sustainability*, **4** (12), 3234-3247.

Full Text: [2012\Sustainability4, 3234.pdf](../HO-reference/2012/Sustainability4,%203234.pdf)

Abstract: Biologists are producing ever-increasing quantities of papers. The question arises of whether current rates of increase in scientific outputs are sustainable in the long term. I studied this issue using publication data from the Web of Science (1991-2010) for 18 biological sub-fields. In the majority of cases, an exponential regression explains more variation than a linear one in the number of papers published each year as a function of publication year. Exponential growth in publication numbers is clearly not sustainable. About 75% of the variation in publication growth among biological sub-fields over the two studied decades can be predicted by publication data from the first six years. Currently trendy fields such as structural biology, neuroscience and biomaterials cannot be expected to carry on growing at the current pace, because in a few decades they would produce more papers than the whole of biology combined. Synthetic and systems biology are problematic from the point of view of knowledge dissemination, because in these fields more than 80% of existing papers have been published over the last five years. The evidence presented here casts a shadow on how sustainable the recent increase in scientific publications can be in the long term.

Keywords: Ag, Article, Biological, Biological Sciences, Biology, Biomaterials, Data, Dynamics, Ecology, Environmental, Evidence, File-Drawer Problem, First, Footprint, France, Function, Future, Growth, Information Overload, Knowledge, Long Term, Long-Term, Meta-Knowledge, Neuroscience, Opportunity, Output, Papers, Peak In Scientific Output, Peer Review, Publication, Publication Explosion, Publications, Publish Or Perish, Rates, Recent, Regression, Science, Scientific Publications, Scientometrics, Sustainability, Sustainable, Sustainable Development, Switzerland, System, Systems, Systems Biology, Term, Web of Science

# Title: Sustainability Science

Full Journal Title: [Sustainability Science](http://www.springerlink.com/content/120154/?p=7615e2766ffa4b458a77408d73f522da&pi=0)

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

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Subject Categories:

: Impact Factor

? Yarime, M., Takeda, Y. and Kajikawa, Y. (2010), Towards institutional analysis of *Sustainability Science*: A quantitative examination of the patterns of research collaboration. *Sustainability Science*, **5** (1), 115-125.

Full Text: [2010\Sus Sci5, 115.pdf](2010/Sus%20Sci5,%20115.pdf)

Abstract: This paper examines quantitatively the patterns of collaboration over geographical boundaries in the emerging field of sustainability science by empirically analyzing the bibliometric data of scientific articles. The results indicate that an increasing number of countries are engaged in research on sustainability, with the proportion of articles published through international collaboration rising as well. The number of countries engaged in international collaboration on sustainability research has been increasing, and the diversity of countries engaged in research collaboration beyond national borders is also increasing. The geographical patterns of collaboration on sustainability show that research collaboration tends to be conducted between countries which are geographically located closely, suggesting that communication and information exchange might be limited within the regional clusters. The focused fields of research activities on sustainability are significantly different between countries, as each country has its focused fields of research related to sustainability. The specialization of research activities is also observed in international collaboration. While these patterns of international collaboration within regional clusters focusing on specific fields could be effective in promoting the creation, transmission, and sharing of knowledge on sustainability utilizing the already existing regional networks, they could pose a serious obstacle to collecting, exchanging, and integrating diverse types of knowledge, especially when it is necessary to deal with problems involving large-scale complex interactions with long-term implications, such as climate change. It would be of critical importance to establish inter-regional linkages by devising appropriate institutional arrangements for global research collaboration on sustainability science.

Keywords: Bibliometrics, Institutional Analysis, Management, Networks, Research Collaboration, Sustainability Science

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Full Text: [2012\Sus Sci7, 67.pdf](2012/Sus%20Sci7,%2067.pdf)

Abstract: Sustainability research is expected to incorporate concepts, methods, and data from a diverse array of academic disciplines. We investigate the extent to which sustainability research lives up to this ideal of an interdisciplinary field. Using bibliometric data, we orient our study around the “tripartite model” of sustainability, which suggests that sustainability research should draw from the three “pillars” of the environmental, economic, and social sciences. We ask three questions: (i) is sustainability research truly more interdisciplinary than research generally, (ii) to what extent does research grounded in one pillar draw on research from the other two, and (iii) if certain disciplines or pillars are more interdisciplinary than others, then what explains this variation? Our results indicate that sustainability science, while more interdisciplinary than other scientific fields, falls short of the expectations inherent in the tripartite model. The pillar with the fewest articles published on sustainability-economics-is also the most integrative, while the pillar with the most articles-environmental sciences-draws the least from outside disciplines. But interdisciplinarity comes at a cost: sustainability research in economics and the social sciences is centered around a relatively small number of interdisciplinary journals, which may be becoming less valued over time. These findings suggest that, if sustainability research is to live up to its interdisciplinary ideals, researchers must be provided with greater incentives to draw from fields other than their own.

Keywords: Academia, Bibliometric, Citation Analysis, Citation Analysis, Discipline, Ecological Economics, Economics, Environmental, Falls, Global Environmental-Change, Human Dimensions, Incentives, Indicators, Interdisciplinarity, Journal Maps, Journals, Model, Modern Science, Research, Researchers, Scholarly Networks, Science, Sciences, Social, Social Sciences, Sustainability Science, Sustainable, Vulnerability

? Buter, R.K. and Van Raan, A.F.J. (2013), Identification and analysis of the highly cited knowledge base of sustainability science. *Sustainability Science*, **8** (2), 253-267.

Full Text: [2013\Sus Sci8, 253.pdf](../HO-reference/2013/Sus%20Sci8,%20253.pdf)

Abstract: We investigated the interdisciplinary ‘pillars’ of scientific knowledge on which the emerging field of sustainability science is founded, using a bibliometric approach and data from the Web of Science database. To find this scientific basis, we first located publications that represent a relevant part of sustainability science and then extracted the set of best cited publications, which we called the highly cited knowledge base (HCKB). To find the research orientation in this set, we inspected the occurrence of fields and contrasted this with the occurrence of fields in other publication sets relevant to sustainability science. We also created a network of co-cited HCKB publications using the seed set citations, extracted communities or clusters in this network and visualised the result. Additionally, we inspected the most cited publications in these HCKB clusters. We found that themes related to the three pillars of sustainable development (environment, economy and sociology) are all present in the HCKB, although social science (not including economics) is less visible. Finally, we found increasing diversity of fields and clusters in the citations of the seed set, indicating that the field of sustainability science is not yet moving into a more transdisciplinary state.

Keywords: Analysis, Approach, Bibliometric, Bibliometric Analysis, Citation, Citations, Clustering, Core, Data, Database, Development, Diversity, Economics, Economy, Environment, Field, First, Highly Cited, Highly-Cited, Impact, Indicators, Interdisciplinary, Knowledge, Knowledge Base, Network, Network Visualisation, Publication, Publications, Research, Science, Social, Sociology, State, Sustainability, Sustainability Science, Sustainable, Sustainable Development, Titles, Transdisciplinarity, Trends, Web of Science

# Title: Suvremena Psihologija

Full Journal Title: Suvremena Psihologija

ISO Abbreviated Title:

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Issues/Year:

Journal Country/Territory:

Language:

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Subject Categories:

: Impact Factor

? Letina, S., Zauder, K. and Jokic, M. (2012), The productivity of croatian psychologists: A scientometric analysis of network cooperation on works incexed in the WoS database from 1991 to 2010. *Suvremena Psihologija*, **15** (1), 97-117.

Full Text: [2012\Suv Psi15, 97.pdf](2012/Suv%20Psi15,%2097.pdf)

Abstract: the purpose of the research is to describe the productivity and cooperation of registered scientists in the field of Psychology in Croatia (N = 241) based on journal publications indexed in the Web of Science (WoS) in the time period 1991-2010. A total of 882 publications were found for 169 authors and authorship and co-authorship were analysed. Productivity data is presented on a descriptive level. The results show a high proportion of multi-author works and a lack of gender differences in productivity which is in agreement with the current literature. for the analysis of cooperation, we used social network analysis methodology including analysis of the network through four separate time periods. Indicators describing both the network (density, largest component) and the position of nodes (authors) in the network (centrality measures: degree centrality, betweenness, closeness, articulation points and singles) were calculated and found do be in a medium to highly correlation with author productivity. We conclude that network analysis provides useful productivity predictors and additional insight into cooperation among members. for a more complete cooperation analysis, future research should also encompass other forms of cooperation as well as use additional relevant variables such as job satisfaction and organisational climate. The results may be useful for the planning, organisation and evaluation of scientific efforts.

Keywords: Analysis, Author Productivity, Authors, Authorship, Climate, Co-Authorship, Coauthorship, Coauthorship Network, Cooperation, Correlation, Croatia, Data, Evaluation, Field, Forms, Gender, Gender Differences, Indicators, Job Satisfaction, Journal, Literature, Longitudinal Network Analysis, Methodology, Multiple Authorship, N, Network, Network Analysis, Planning, Predictors, Productivity, Psychology In Croatia, Publication, Publications, Purpose, Research, Satisfaction, Science, Science Evaluation, Scientific Collaboration, Scientific Collaboration, Scientific Productivity, Scientometric, Scientometrics, Social, Social Network Analysis, Social-Sciences, Trend

# Title: Swedish Dental Journal

Full Journal Title: Swedish Dental Journal

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Alexander, L., Hall, E., Eriksson, L. and Rohlin, M. (2014), The combination of non-selective NSAID 400 mg and paracetamol 1000 mg is more effective than each drug alone for treatment of acute pain. A systematic review. *Swedish Dental Journal*, **38** (1), 1-14.

Full Text: 2014\Swe Den J38, 1.pdf

Abstract: the aim was to evaluate the evidence on outcomes of the combination of non-selective NSAID, paracetamol compared to either drug alone, to relieve acute pain following oral surgery in adult patients. A systematic review of available literature was performed.The first step comprised-searches in three electronic databases. Original studies written in English were searched. As a second step, the reference lists of included publications were searched for additional publications. Abstracts were retrieved if the title contained information on postoperative pain, NSAID, and paracetamol in combination with oral surgery.Two reviewers selected publications on the basis of predetermined inclusion criteria. Data were extracted using one protocol and the quality of each study was assessed using another protocol. The initial search in PubMed resulted in 138 abstracts and in the Cochrane library a further four. The search in the Web of Science resulted in no additional abstract. Five RCTs fulfilled the inclusion criteria. Pain relief from the combination of non-selective NSAID with paracetamol was significantly better than with paracetamol alone as well as with NSAID alone. Nausea, vomiting, headache, and dizziness were among the most common adverse events in all treatment groups. Most of the adverse events were of mild to moderate severity.Two studies reported no significant differences in adverse events between the treatment groups. According to one study the adverse events were significantly lower for the combination ibuprofen 400 mg, paracetamol 1000 mg compared to ibuprofen 400 mg alone.The need for rescue drugs in the different groups varied between the studies. Since the studies reported a significantly better postoperative pain relief with the combination of non-selective NSAIDs, paracetamol compared to each drug alone, this combination might be considered the treatment of choice, as long as side effects of NSAIDs are observed.

Keywords: Acetaminophen, Adult, Analgesic Efficacy, Base-Line Pain, Choice, Combination Therapy, Criteria, Data, Databases, Double-Blind, Drug, Drugs, Effects, English, Events, Evidence, First, Groups, Ibuprofen, Information, Literature, Nonsteroidal Antiinflammatory Drugs, Nsaid, Oral, Oral-Surgery, Outcomes, Pain, Pain Relief, Paracetamol, Parallel-Group, Patients, Postoperative, Postoperative Dental Pain, Postoperative Pain, Protocol, Publications, Pubmed, Quality, Quality Of, Randomized Controlled-Trial, Reference, Reference Lists, Review, Science, Side Effects, Surgery, Systematic Review, Treatment, Vomiting, Web of Science

# Title: Swiss Medical Weekly

Full Journal Title: Swiss Medical Weekly

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Subject Categories:

: Impact Factor

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Full Text: [2004\Swi Med Wkl134, 3.pdf](2004/Swi%20Med%20Wkl134,%203.pdf)

? Bossi, E. (2010), Scientific integrity, misconduct in science. *Swiss Medical Weekly*, **140** (13-14), 183-186.

Full Text: [2010\Swi Med Wkl140, 183.pdf](2010/Swi%20Med%20Wkl140,%20183.pdf)

Abstract: Many scientists consider scientific integrity to be a self-evident basic moral attitude. They are of the honest opinion that scientific misconduct is very rare and they also cannot imagine that it could in fact occur in their own institutions. However, this opinion must be considered in the light of international experience in this respect. There are still many examples of scientific misconduct. Striking examples are taken up by the media, such as the South Korean case of pretended successful cloning of human blastocytes, from which embryonal stem cells were said to have been cultured and which in fact proved to be the result of a hoax [1], or the “proof”, from Norway, that antiinflammatory drugs reduce the incidence of cancer of the mouth, which was in fact based on totally fictitious data [2]. Switzerland is also involved. A very special example is the case of a theological ethicist who was accused of plagiarism at the University of Geneva In the US Office of Research Integrity regularly publishes new medical cases in its newsletters [4]. The following text is based on, among other things, the guidelines published by the Swiss Academies of Sciences to provide research institutions, their students and their personnel with an overview of the subject. These guidelines, under the title “Scientific Integrity. Principles and Procedures”, were drawn up by a working group of the four scientific academies and published in 2008 [5].

Keywords: Cancer, Misconduct, Overview, Plagiarism, Research, Scientific Integrity, Scientific Misconduct, Students, University, US

# Title: Swiss Political Science Review

Full Journal Title: [Swiss Political Science Review](http://web.ebscohost.com/ehost/detail?hid=111&sid=6ccb4eac-8673-4052-b453-fcda0ff7a8f4%40sessionmgr113&vid=1&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=eoh&jid=24O8)

ISO Abbreviated Title:

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Issues/Year:

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Subject Categories:

: Impact Factor

? Bernauer, T. and Gilardi, F. (2010), Publication output of Swiss political science departments. *Swiss Political Science Review*, **16** (2), 279-303.

Full Text: [2010\Swi Pol Sci Rev16, 279.pdf](2010/Swi%20Pol%20Sci%20Rev16,%20279.pdf)

Abstract: This article compares the scientific publication output and international academic visibility of Swiss political science departments, using three indicators (number of publications, number of citations, and the h-Index) and publicly available data from two sources: the Web of Knowledge and Google Scholar. We also examine whether the publication output of political science professors and postdoctoral researchers in Switzerland varies as a Junction of academic age. We observe rather strong variations both across and within departments. The analysis also shows that the most prolific professors tend to be those who completed their Ph.D. about 10-20 years ago and that some postdocs are on a very promising publications trajectory. We derive some benchmarks for publication output that might be useful for hiring decisions or promotions.

Keywords: Analysis, Bibliometric Analysis, Citations, Data, Google Scholar, h Index, h-Index, Indicators, Journals, Knowledge, Number of Publications, Output, Publication, Publication Output, Publications, Researchers, Science, Swiss Political Science, Switzerland, Web of Knowledge

# Title: Symposium-A Quarterly Journal in Modern Literatures

Full Journal Title: Symposium-A Quarterly Journal in Modern Literatures

ISO Abbreviated Title:

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? Daniels, T.T. (2008), Michel Butor’s mobile: Modernism, postmodernism, and American art. *Symposium-A Quarterly Journal in Modern Literatures*, **62** (2), 99-112.

Full Text: [2008\Sym-Qua J Mod Lit62, 99.pdf](2008/Sym-Qua%20J%20Mod%20Lit62,%2099.pdf)

Abstract: the author examines Michel Butor’s Mobile (1962) in relation to the Visual arts, beginning with a discussion of connections to modernist Visual models found in the works of Alexander Calder, Jackson Pollock, and Marcel Duchamp. In comparing the text with Boomerang and with the poetic essay Comment ecrire pour Jasper Johns, written nearly thirty years later, the author demonstrates how Butor encourages a rereading of his early work through the recycling of certain motifs. Furthermore, the author studies the similarities that Butor identifies between his writing and Johns’s art, notably through the co-opting of Popular imagery and the practice of self-citation. The author argues that Butor’s texts are best understood as “postmodern” works grounded in an intellectual heritage based on modernism and Duchampian aesthetics.

Keywords: Author, Boomerang, Jasper Johns, Marcel Duchamp, Michel Butor, Mobile, Modernism, Postmodern, Self-Citation

# Title: Synergies of Soft Computing and Statistics for Intelligent Data Analysis

Full Journal Title: Synergies of Soft Computing and Statistics for Intelligent Data Analysis

ISO Abbreviated Title:

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ISSN:

Issues/Year:

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Subject Categories:

: Impact Factor

? Gagolewski, M. (2013), Statistical hypothesis test for the difference between hirsch indices of two pareto-distributed random samples. *Synergies of Soft Computing and Statistics for Intelligent Data Analysis*, **190**, 359-367.

Full Text: [2013\Syn Sof Com Sta Int Dat Ana190, 359.pdf](2013/Syn%20Sof%20Com%20Sta%20Int%20Dat%20Ana190,%20359.pdf)

Abstract: In this paper we discuss the construction of a new parametric statistical hypothesis test for the equality of probability distributions. The test bases on the difference between Hirsch’s h-indices of two equal-length i.i.d. random samples. For the sake of illustration, we analyze its power in case of Pareto-distributed input data. It turns out that the test is very conservative and has wide acceptance regions, which puts in question the appropriateness of the h-Index Usage in scientific quality control and decision making.

Keywords: Acceptance, Aggregation Operators, Conservative, Construction, Control, Data, Decision, Decision Making, Decision-Making, Equality, h Index, h-Index, Hirsch, Hirsch Index, Hypotheses Testing, Power, Quality, Quality Control, Scientometrics, Statistics, Synergy, Test

# Title: Synthesis Philosophica

Full Journal Title: Synthesis Philosophica

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Publisher:

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? Kuhn, H.C. (2006), Counting what may count regionally - the presence of prints of works by Frane Petric in German libraries. *Synthesis Philosophica*, **21** (1), 139-159.

Full Text: [2006\Syn Phi21, 139.pdf](2006/Syn%20Phi21,%20139.pdf)

Abstract: Using bibliographical data from the major electronic German libraries’ catalogues for the editions of the works by Frane Petric, and the copies of these works, it is possible to arrive at results which probably cannot be obtained using other means and instruments. There are strong indicators that the pre-20th century German reception of Petric differs considerably from his reception elsewhere (especially in the U.K.). In this phase of reception the impact of the Discussiones peripateticae and the Militia romana is particularly conspicuous. The results for the impact of the 1953 sqq editions of Petric’s works are under many aspects different from the results obtained for the earlier editions of his works. This is a preliminary case study for Germany, using data from the U.K. and from the AHCI database for comparisons.

Keywords: Bibliographical Data, Counting, Frane Petric, Impact

# Title: Systemic Practice and Action Research

Full Journal Title: Systemic Practice and Action Research

ISO Abbreviated Title:

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ISSN:

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Journal Country/Territory:

Language:

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Subject Categories:

: Impact Factor

? Bell, S. and Flood, R.L. (2011), Fair and open approach to academic publishing. *Systemic Practice and Action Research*, **24** (6), 499-503.

Full Text: [2011\Sys Pra Act Res24, 499.pdf](2011/Sys%20Pra%20Act%20Res24,%20499.pdf)

Abstract: the Journal Systemic Practice and Action Research (SPAR) aims to encourage into print authors and practitioners of systemic thinking and practice from all kinds of background. In this note we describe both the publishing world into which SPAR has emerged and the systemic and inclusive thinking behind the journal’s publishing policy. We set out our manifesto for a fair and open approach to academic publishing. “A rich and diverse set of potential bibliometric and scientometric predictors of research performance quality and importance are emerging today-from the classic metrics (publication counts, journal impact factors and individual article/author citation counts) to promising new online metrics such as download counts, hub/authority scores and growth/decay chronometrics. In and of themselves, however, metrics are circular: They need to be jointly tested and validated against what it is that they purport to measure and predict, with each metric weighted according to its contribution to their joint predictive power. The natural criterion against which to validate metrics is expert evaluation by peers; a unique opportunity to do this is offered by the 2008 UK Research Assessment Exercise, in which a full spectrum of metrics can be jointly tested, field by field, against peer rankings.” (Harnard 2008).

Keywords: Academic Publishing, Assessment, Authors, Bibliometric, Citation, Citation Counts, Contribution, Evaluation, Exercise, Impact, Impact Factors, Joint, Journal, Journal Impact, Journal Impact Factors, Metrics, Natural, Policy, Power, Practice, Predictors, Publication, Publishing, Quality, Research, Research Performance, UK

# Title: Systems Analysis Modelling Simulation

Full Journal Title: [Systems Analysis Modelling Simulation](http://taylorandfrancis.metapress.com/(k51a1i55xwfxf555epfpsm45)/app/home/journal.asp?referrer=parent&backto=linkingpublicationresults,1:104286,1)

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: Impact Factor

? Bartel, H.G. (1991), A modified Kretschmer Complexity Index for selecting end partitions in cluster-analysis. *Systems Analysis Modelling Simulation*, **8** (2), 139-145.

Abstract: An index introduced by H. KRETSCHMER [5, 6] in scientometrics for describing relations of scientific communications was modified and used to select end partitions in cluster analysis which are associated with a minimum of complexity in the system of classes. Such partitions are favoured for the interpretation of initial information given by a data matrix. Using theory of sets an algorithm was developed to compare these (and other) selected end partitions and to construct generalized classes without restriction of their number. So it is possible to obtain a high degree of information from a data matrix. The approach was applied to chemical property-structure-relations (physical properties, electronic structure, topology, state of aggregation, number of atoms).

Keywords: Cluster, Cluster Analysis, Scientometrics, Solvents, Spectra, System

# Title: Systems, Organizations and Management: Proceedings of the 3rd Workshop of International Society in Scientific Inventions

Full Journal Title: Systems, Organizations and Management: Proceedings of the 3rd Workshop of International Society in Scientific Inventions

ISO Abbreviated Title:

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: Impact Factor

? Pei, R.M., Song, Z. and Gao, P. (2009), Analysis of knowledge management based on science knowledge mapping. *Systems, Organizations and Management: Proceedings of the 3rd Workshop of International Society in Scientific Inventions*, 180-186.

Abstract: Knowledge management is becoming the popular organization practice. Although much work has done to summarize the knowledge management development, less has done using the quantitative way. Utilizing scientometrics approaches, this paper studies the central issues of knowledge management from 2004 to present, analyzes the front and hotspot of the knowledge management objectively, and provides the direction for the future study in this domain.

Keywords: Co-Word Analysis, Knowledge Management, Network, Science, Science Knowledge Mapping, Scientometrics, System, Systems, Visualization

# Title: System Familie

Full Journal Title: System Familie

ISO Abbreviated Title:

JCR Abbreviated Title:

ISSN:

Issues/Year:

Journal Country/Territory:

Language:

Publisher:

Publisher Address:

Subject Categories:

: Impact Factor

? Reiter, L. (1993), Scientific status as dynamic system - Bibliometric study on 3 systems journals. *System Familie*, **6** (4), 246-249.

Keywords: Bibliometric

# Title: Systems Research and Behavioral Science

Full Journal Title: Systems Research and Behavioral Science

ISO Abbreviated Title:

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ISSN:

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Journal Country/Territory:

Language:

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Subject Categories:

: Impact Factor

? Eom, S.B. (2000), The contributions of systems science to the development of the decision support system subspecialties: An empirical investigation. *Systems Research and Behavioral Science*, **17** (2), 117-134.

Abstract: This is a comprehensive study that, by means of an empirical assessment of the decision support systems (DSS) literature over the Fast 23 years (1971-1993), systematically identifies the DSS reference disciplines and traces how concepts and findings by systems researchers have been picked up by DSS researchers to be applied, extended and refined in the development of DSS research subspecialties. Cluster analysis was applied to an author cocitation frequency matrix derived from a comprehensive database of the DSS literature to uncover 12 clusters consisting of six major areas of DSS research (foundations, group DSS, model management, user interfaces, implementation and multicriteria DSS) and six contributing disciplines (multiple-criteria, decision-making, cognitive science organization science, artificial intelligence, group decision-making and systems science). This study concludes that systems scientists have made important contributions to the development of foundational concepts, implementation, user interface, model management and group decision support systems. Copyright (C) 2000 John Wiley & Sons, Ltd.

Keywords: Analysis, Artificial Intelligence, Assessment, Author Cocitation Analysis, Bibliometrics, Cluster Analysis, Cocitation, Cognitive-Style, Complexity, Computer Support, Consequences, Database, Decision Making, Decision Support Systems, Development, DSS, Information Systems, Information-Systems, Integration, Intellectual Structure, Intellectual Structure, Intelligence, Literature, Management, Management Information Systems, Model Management-Systems, Reference, Reference Disciplines, Representation, Research, Researchers, Science, System, Systems Approach, Systems Science